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**UtahStateUniversity**

# **2009-2010 General Catalog**

**Web Home Page: <http://www.usu.edu/>**

## **Message from President Stan L. Albrecht**



Whether you are registering or still checking us out, Utah State is a wonderful choice for students. This is a university where academics come first. Here you will receive a complete learning experience—friendly, award-winning teaching and an opportunity to do cutting-edge research at an institution ranked by the Carnegie Foundation in the top four percent of research universities.

Our programs literally stretch from under the soil to soaring in space. We are both a land-grant university, begun more than a century ago as an agricultural college, and a space-grant university, whose students and faculty have sent more payloads through the atmosphere than any other university in the world. In between are courses in seven academic colleges leading to more than 200 undergraduate and graduate options.

Inside this catalog is an array of classes, mostly taught by full-time faculty, not by teaching assistants as at many other large universities. I encourage you to browse through the catalog and find classes that will help prepare you to make a living, as well as courses that will help you enjoy life. Both are important.

Your experience here should not end in the classroom and lab. There are more than 200 student clubs and organizations, for just about every interest. We have a large intramural sports program, and you can cheer on Aggie varsity teams, which play in the top division of the NCAA.

Some 80 percent of our students live on campus or in student houses and apartment complexes in this friendly, picturesque city. Our University family is a community within a community. It does not take long to feel at home here.

Again, welcome, and have a great school year.

A handwritten signature in cursive script that reads "Stan L. Albrecht".

**Stan L. Albrecht  
President  
Utah State University**

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## Utah State University Campus Map

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Alphabetical Listing of Buildings and Selected Offices	
Buildings by Abbreviation	
Campus Map .....	Inside Back Cover

# Mission and Role Statement

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## Utah State University

The academic advantages of a large university, together with the friendliness of a small college, are offered at Utah State University. With a student body of more than 23,000, USU recognizes that the needs of the individual are of major importance, and many programs have been established to give the student the optimum of individual attention.

With 42 departments in seven academic colleges, more than 200 undergraduate options, a School of Graduate Studies, University Extension, and several research programs, Utah State University offers an excellent opportunity for students to study a wide range of subjects.

USU was founded in 1888 as part of the public educational system of Utah and operates under the constitution and laws of the state. It belongs to the family of institutions known as land-grant universities, which had their origin in 1862. The institution was originally called the Agricultural College of Utah, later becoming Utah State Agricultural College. The state legislature designated the name change to Utah State University in 1957.

An 18-member State Board of Regents governs the Utah System of Higher Education. This board has the responsibility for state-wide master planning for higher education, assignment of roles to the several institutions in the state system, and control of operating and capital budgets for the institutions. USU has a 10-member Board of Trustees whose responsibilities are derived from Utah statutes, as well as those delegated to the Trustees by the State Board of Regents.

USU is governed by the State Board of Regents and accredited by Northwest Commission on Colleges and Universities, Teacher Education Accreditation Council, American Psychological Association, American Association of Family and Consumer Sciences, American Music Therapy Association, AACSB International—The Association to Advance Collegiate Schools of Business, Utah State Board of Education—Teacher Education Program, Council on Rehabilitation Education, Accrediting Board of Engineering and Technology, American Society of Landscape Architects, Commission on Accreditation—Council on Social Work Education, American Chemical Society, Society of American Foresters, National League of Nursing Accrediting Commission, Council on Academic Accreditation of the American Speech-Language-Hearing Association (ASHA), American Dietetic Association, Foundation for Interior Design Education Research, National Association of Schools of Music, Utah State Board of Vocational Education, and the Society for Range Management. USU is a land-grant and space-grant university, as well as a Carnegie Foundation “Doctoral University—High Research” institution. Credit earned at USU is fully transferable to other universities and colleges in the United States of America.

## University Mission Statement

Utah State University is one of the nation's premier student-centered land-grant and space-grant universities. We foster the principle that academics come first; we cultivate diversity of thought and culture; and we serve the public through learning, discovery, and engagement.

## University Vision Statement

Utah State University, as a state-wide multi-campus system, will be internationally recognized for its exceptional learning opportunities and world-class research. We strive to achieve the highest level of excellence in learning, discovery, and engagement in an environment of trust and respect. We endeavor to expand educational access to a diverse community. We seek to enhance the quality of life for individuals and communities, by promoting arts and cultural programming, by working toward environmental sustainability, and by developing the technologies of tomorrow to drive economic development in Utah, as well as in the global marketplace.

## University Core Values

Utah State University is committed to providing environments of opportunity that value:

**Learning and Discovery.** Utah State University is a thriving intellectual community achieving excellence in the pursuit of knowledge, both through learning and inquiry. We believe that innovations in teaching and research provide students with opportunities for developing critical thinking skills and promote outstanding scholastic and creative achievement that will help ensure future success.

**Individual Development.** We accept each learner as unique and full of promise for intellectual and personal growth. We foster individual success and self-determination, and believe that educating the whole person builds character, promotes active involvement in the world, and produces better citizens.

**Leadership.** At all levels of the University, we value leadership built on trust, integrity, and civility.

**Diversity.** Appreciation of diversity of thought and expression is the foundation of a vibrant intellectual environment. We respect all persons, their differences, and the community they form.

**Outreach and Access.** As the State's land-grant University, we are committed to reaching across all communities and offering opportunities to all citizens. We value the connections that benefit and improve the quality of life for individuals, families, and communities, and that invigorate the University.

## Institutional Integrity Statement

Utah State University adheres to the highest ethical standards in its representation to its constituencies and the public; in its teaching, scholarship, and service; in its treatment of its students, faculty, and staff; and in its relationships with regulatory and accrediting agencies.

# 2009-2010 Calendar

USU maintains a semester system—three semesters or periods of classwork: fall, spring, and summer. Fall and spring semester are each of 15 weeks duration. Summer semester spans a total of 12 weeks and includes one four-week early session and one eight-week session, which contains two four-week sessions.

A list of University events can be found at:  
<http://www.usu.edu/calendar/>

## Summer Session 2009

### Main Campus

May 11-June 5 ..... First 4-week Session  
May 25..... Holiday (Memorial Day)  
June 8-July 31 ..... 8-week Session  
June 8-July 2 ..... Second 4-week Session  
July 3 ..... Holiday (Independence Day)  
July 6-31 ..... Third 4-week Session  
July 24 ..... Holiday (Pioneer Day)  
July 31 ..... Final Examinations

### Distance Education

May 11-July 31 ..... General Summer Session  
June 8-July 31 ..... 8-week Broadcast Session  
May 4-June 19..... First 7-week Session  
June 22-August 7 ..... Second 7-week Session  
July 3 ..... Holiday (Independence Day)  
July 24 ..... Holiday (Pioneer Day)

## Fall Semester 2009

August 24 ..... Classes Begin  
September 7 ..... Holiday (Labor Day)  
October 15 ..... Friday Class Schedule  
October 16 ..... Fall Break  
November 25-27 ..... Holiday (Thanksgiving)  
November 30-December 4 ..... No-test Days  
December 4 ..... Last Day of Classes  
December 7-11 ..... Final Examinations  
December 11-12 ..... Graduation

## Spring Semester 2010

January 11 ..... Classes Begin  
January 18 ..... Holiday (Martin Luther King, Jr. Day)  
February 15 ..... Holiday (Presidents' Day)  
February 16 ..... Monday Class Schedule  
March 15-19 ..... Spring Break  
April 26-30 ..... No-test Days  
April 30 ..... Last Day of Classes  
May 3-7 ..... Final Examinations  
May 7-8 ..... Graduation

# Registration Calendar

## Summer Session 2009 Main Campus

April 6.....Registration Begins  
April 6.....Tuition and Fee Payment Begins  
April 24.....Tuition and Fee Payment—  
Postmark Deadline (Mail)  
May 1.....Tuition and Fee Payment Due (Online)  
May 2-3.....No Registration Permitted  
May 2-3.....**Registration Purge**  
(Students with unpaid balances may be dropped from all classes.)  
May 4.....Open Registration Continues  
(payment due daily)

### First 4-week Session (Main Campus)

May 11.....**First Day of Classes**  
May 12.....Last Day to Add without Instructor's Signature  
May 13.....Last Day to Receive 100% Refund  
May 14.....Last Day to Receive 50% Refund  
May 14.....Last Day to Receive Tuition Refund  
May 14.....Last Day to Add Classes (includes Audits)  
May 14.....Last Day to Drop without Notation on Transcript  
May 15-26.....Drops Show as *W* on Transcript  
May 15-June 4.....\$100 Late-add Fee Assessed for Each Class Added  
May 25.....**Memorial Day Holiday (No Classes)**  
May 26.....Last Day to Change to *P/D+/D/F* Option  
May 27-29.....Drops Require Late Drop Form (*WF* on Transcript)  
May 29.....Last Day to Submit Petition for Late Drop Form  
May 30-June 5.....No Dropping of Classes Permitted  
June 5.....**Final Examinations**  
June 11.....Deadline for Instructors to Submit Final Grades  
August 6, 2010.....Last Day to Make Up Incomplete Grades

### 8-week Session (Main Campus)

June 8.....**First Day of Classes**  
June 10.....Last Day to Add without Instructor's Signature  
June 12.....Last Day to Receive 100% Refund  
June 17.....Last Day to Receive 50% Refund  
June 17.....Last Day to Receive Tuition Refund  
June 17.....Last Day to Add Classes (includes Audits)  
June 17.....Last Day to Drop without Notation on Transcript  
June 18-July 9.....Drops Show as *W* on Transcript  
June 18-July 30.....\$100 Late-add Fee Assessed for Each Class Added  
July 3.....**Independence Day Holiday (No Classes)**  
July 9.....Last Day to Change to *P/D+/D/F* Option  
July 10-16.....Drops Require Late Drop Form (*WF* on Transcript)  
July 16.....Last Day to Submit Petition for Late Drop Form  
July 18-31.....No Dropping of Classes Permitted  
July 24.....**Pioneer Day Holiday (No Classes)**  
July 31.....**Final Examinations**  
August 6.....Deadline for Instructors to Submit Final Grades  
August 6, 2010.....Last Day to Make Up Incomplete Grades

### Second 4-week Session (Main Campus)

June 8.....**First Day of Classes**  
June 9.....Last Day to Add without Instructor's Signature  
June 10.....Last Day to Receive 100% Refund  
June 11.....Last Day to Receive 50% Refund  
June 11.....Last Day to Receive Tuition Refund  
June 11.....Last Day to Add Classes (includes Audits)  
June 11.....Last Day to Drop without Notation on Transcript  
June 12-22.....Drops Show as *W* on Transcript  
June 12-July 1.....\$100 Late-add Fee Assessed for Each Class Added  
June 22.....Last Day to Change to *P/D+/D/F* Option  
June 23-25.....Drops Require Late Drop Form (*WF* on Transcript)  
June 25.....Last Day to Submit Petition for Late Drop Form  
June 26-July 2.....No Dropping of Classes Permitted  
July 2.....**Final Examinations**  
July 9.....Deadline for Instructors to Submit Final Grades  
August 6, 2010.....Last Day to Make Up Incomplete Grades

### Third 4-week Session (Main Campus)

July 6.....**First Day of Classes**  
July 7.....Last Day to Add without Instructor's Signature  
July 8.....Last Day to Receive 100% Refund  
July 9.....Last Day to Receive 50% Refund  
July 9.....Last Day to Receive Tuition Refund  
July 9.....Last Day to Add Classes (includes Audits)  
July 9.....Last Day to Drop without Notation on Transcript  
July 10-20.....Drops Show as *W* on Transcript  
July 10-30.....\$100 Late-add Fee Assessed for Each Class Added  
July 20.....Last Day to Change to *P/D+/D/F* Option  
July 21-23.....Drops Require Late Drop Form (*WF* on Transcript)  
July 23.....Last Day to Submit Petition for Late Drop Form  
July 24.....**Pioneer Day Holiday (No Classes)**  
July 24-31.....No Dropping of Classes Permitted  
July 31.....**Final Examinations**  
August 6.....Deadline for Instructors to Submit Final Grades  
August 6, 2010.....Last Day to Make Up Incomplete Grades

# Registration Calendar

## Summer Session 2009 Distance Education

April 6.....	Registration Begins
April 6.....	Tuition and Fee Payment Begins
April 24.....	Tuition and Fee Payment— Postmark Deadline (Mail)
May 1.....	Tuition and Fee Payment Due (Online)
May 2-3.....	No Registration Permitted
May 2-3.....	<b>Registration Purge</b> (Students with unpaid balances may be dropped from all classes.)
May 4.....	Open Registration Continues (payment due daily)

### General Summer Session (Distance Education)

May 11.....	<b>First Day of Classes</b>
May 14.....	Last Day to Add without Instructor's Signature
May 20.....	Last Day to Receive 100% Refund
May 25.....	<b>Memorial Day Holiday (No Classes)</b>
May 26.....	Last Day to Receive 50% Refund
May 26.....	Last Day to Receive Tuition Refund
May 26.....	Last Day to Add Classes (includes Audits)
May 26.....	Last Day to Drop without Notation on Transcript
May 27-June 25.....	Drops Show as <i>W</i> on Transcript
May 27-July 30.....	\$100 Late-add Fee Assessed for Each Class Added
June 25.....	Last Day to Change to <i>P/D+/D/F</i> Option
June 26-July 9.....	Drops Require Late Drop Form ( <i>WF</i> on Transcript)
July 3.....	<b>Independence Day Holiday (No Classes)</b>
July 9.....	Last Day to Submit Petition for Late Drop Form
July 10-31.....	No Dropping of Classes Permitted
July 24.....	<b>Pioneer Day Holiday (No Classes)</b>
July 31.....	<b>Final Examinations</b>
August 6.....	Deadline for Instructors to Submit Final Grades
August 6, 2010.....	Last Day to Make Up Incomplete Grades

### 8-week Broadcast Session (Distance Education)

June 8.....	<b>First Day of Classes</b>
June 10.....	Last Day to Add without Instructor's Signature
June 12.....	Last Day to Receive 100% Refund
June 17.....	Last Day to Receive 50% Refund
June 17.....	Last Day to Receive Tuition Refund
June 17.....	Last Day to Add Classes (includes Audits)
June 17.....	Last Day to Drop without Notation on Transcript
June 18-July 9.....	Drops Show as <i>W</i> on Transcript
June 18-July 30.....	\$100 Late-Add Fee Assessed for Each Class Added
July 3.....	<b>Independence Day Holiday (No Classes)</b>
July 9.....	Last Day to Change to <i>P/D+/D/F</i> Option
July 10-16.....	Drops Require Late Drop Form ( <i>WF</i> on Transcript)
July 16.....	Last Day to Submit Petition for Late Drop Form
July 17-31.....	No Dropping of Classes Permitted
July 24.....	<b>Pioneer Day Holiday (No Classes)</b>
July 31.....	<b>Final Examinations</b>
August 6.....	Deadline for Instructors to Submit Final Grades
August 6, 2010.....	Last Day to Make Up Incomplete Grades

### First 7-week Broadcast Session (Distance Education)

May 4.....	<b>First Day of Classes</b>
May 6.....	Last Day to Add without Instructor's Signature
May 8.....	Last Day to Receive 100% Refund
May 12.....	Last Day to Receive 50% Refund
May 12.....	Last Day to Receive Tuition Refund
May 12.....	Last Day to Add Classes (includes Audits)
May 12.....	Last Day to Drop without Notation on Transcript
May 13-June 1.....	Drops Show as <i>W</i> on Transcript
May 13-June 18.....	\$100 Late-add Fee Assessed for Each Class Added
May 25.....	<b>Memorial Day Holiday (No Classes)</b>
June 1.....	Last Day to Change to <i>P/D+/D/F</i> Option
June 2-8.....	Drops Require Late Drop Form ( <i>WF</i> on Transcript)
June 8.....	Last Day to Submit Petition for Late Drop Form
June 9-19.....	No Dropping of Classes Permitted
June 19.....	<b>Final Examinations</b>
June 25.....	Deadline for Instructors to Submit Final Grades
August 6, 2010.....	Last Day to Make Up Incomplete Grades

### Second 7-week Broadcast Session (Distance Education)

June 22.....	<b>First Day of Classes</b>
June 24.....	Last Day to Add without Instructor's Signature
June 26.....	Last Day to Receive 100% Refund
June 30.....	Last Day to Receive 50% Refund
June 30.....	Last Day to Receive Tuition Refund
June 30.....	Last Day to Add Classes (includes Audits)
June 30.....	Last Day to Drop without Notation on Transcript
July 1-20.....	Drops Show as <i>W</i> on Transcript
July 1-Aug. 6.....	\$100 Late-add Fee Assessed for Each Class Added
July 3.....	<b>Independence Day Holiday (No Classes)</b>
July 20.....	Last Day to Change to <i>P/D+/D/F</i> Option
July 21-28.....	Drops Require Late Drop Form ( <i>WF</i> on Transcript)
July 24.....	<b>Pioneer Day Holiday (No Classes)</b>
July 28.....	Last Day to Submit Petition for Late Drop Form
July 29-August 7.....	No Dropping of Classes Permitted
August 7.....	<b>Final Examinations</b>
August 13.....	Deadline for Instructors to Submit Final Grades
August 6, 2010.....	Last Day to Make Up Incomplete Grades



# Registration Calendar

## Fall Semester 2009

April 13-17 ..... **Priority Registration**  
 April 13—Matriculated Graduate and Second Bachelor's Students  
 April 14—Seniors (90+ earned credits)  
 April 15—Juniors (60+ earned credits)  
 April 16—Sophomores (30+ earned credits)  
 April 17—Continuing Freshmen (1+ earned credits)  
**Note:** New freshmen may not register until they have completed SOAR (Student Orientation, Advising, and Registration).

April 13 ..... Tuition and Fee Payment Begins  
 April 18 ..... Open Registration Begins  
 August 7 ..... Tuition and Fee Payment—Postmark Deadline (Mail)  
 August 10 ..... Student Activity Card Activated  
 August 14 ..... Tuition and Fee Payment Due (In Person by 5:00 p.m.)  
**August 14 ..... Tuition and Fee Payment Due (Online by 11:59 p.m.)**  
 August 15-16 ..... No Registration Permitted  
 August 15-16 ..... **Registration Purge**  
 (Students with unpaid balances may be dropped from classes.)

August 17-18 ..... **Modified Priority Registration**  
 August 17—Graduate Students, Second Bachelor's Students, Seniors, and Juniors  
 August 18—Sophomores and Continuing Freshmen

**August 19 ..... Tuition and Fee Payment Due (Online by 11:59 p.m.)**  
 August 20 ..... **Registration Purge**  
 (Students with unpaid balances may be dropped from classes.)  
 August 20 ..... Open Registration Continues at 8:00 a.m.

August 24 ..... **First Day of Classes**  
 August 28 ..... Last Day to Add without Instructor's Signature  
**August 28 ..... Tuition and Fee Payment Due (Online by 11:59 p.m.)**  
 August 29 ..... **Registration Purge**  
 (Students with unpaid balances may be dropped from classes.)  
 August 29 ..... Open Registration Continues at 1:00 p.m.

September 4 ..... Last Day to Receive 100% Refund  
**Sept. 4 ..... Tuition and Fee Payment Due (Online by 11:59 p.m.)**  
 September 5 ..... **Registration Purge**  
 (Students with unpaid balances may be dropped from classes.)

September 5 ..... Open Registration Continues at 1:00 p.m.  
 September 7 ..... **Labor Day Holiday (No Classes)**  
 September 14 ..... Last Day to Receive 50% Refund  
 September 14 ..... Last Day to Receive Tuition Refund  
 September 14 ..... Last Day to Add Classes (includes Audits)  
 September 14 ..... Last Day to Drop without Notation on Transcript  
**Sept. 14 ..... Tuition and Fee Payment Due (Online by 11:59 p.m.)**  
 (Students with unpaid balances may be charged a \$100 late tuition payment fee.)

Sept. 15-Oct. 23 ..... Drops Show as *W* on Transcript  
 Sept. 15-Dec. 4 ..... \$100 Late-add Fee Assessed for Each Class Added  
 October 15 ..... Attend Friday Schedule  
 October 16 ..... **Fall Break (No Classes)**  
 October 23 ..... Last Day to Change to *P/D+D/F* Option  
 Oct. 24-Nov. 9 ..... Drops Require Late Drop Form (*WF* on Transcript)  
 November 9 ..... Last Day to Submit Petition for Late Drop Form  
 Nov. 10-Dec. 11 ..... No Dropping of Classes Permitted  
 November 25-27 ..... **Thanksgiving Holiday (No Classes)**  
 Nov. 30-Dec. 4 ..... No Test Week  
 December 7-11 ..... **Final Examinations**  
 December 11-12 ..... Commencement  
 December 17 ..... Deadline for Instructors to Submit Final Grades  
 December 17, 2010 ..... Last Day to Make Up Incomplete Grades  
 January 1, 2010 ..... Student Activity Card Deactivated

## Spring Semester 2010

November 2-6, 2009 ..... **Priority Registration**  
 Nov. 2—Matriculated Graduate and Second Bachelor's Students  
 Nov. 3—Seniors (90+ earned credits)  
 Nov. 4—Juniors (60+ earned credits)  
 Nov. 5—Sophomores (30+ earned credits)  
 Nov. 6—Continuing Freshmen (1+ earned credits)  
**Note:** New freshmen may not register until they have completed SOAR (Student Orientation, Advising, and Registration).

November 2 ..... Tuition and Fee Payment Begins  
 November 7 ..... Open Registration Begins  
 December 11 ..... Tuition and Fee Payment—Postmark Deadline (Mail)  
 Dec. 18 ..... Tuition and Fee Payment Due (In Person by 5:00 p.m.)  
**Dec. 18 ..... Tuition and Fee Payment Due (Online by 11:59 p.m.)**  
 December 19-20 ..... No Registration Permitted  
 December 19-20 ..... **Registration Purge**  
 (Students with unpaid balances may be dropped from classes.)

December 21-22 ..... **Modified Priority Registration**  
 Dec. 21—Graduate Students, Second Bachelor's Students, Seniors, and Juniors  
 Dec. 22—Sophomores and Continuing Freshmen

December 23 ..... Open Registration Continues  
 December 28 ..... Student Activity Card Activated

**January 6 ..... Tuition and Fee Payment Due (Online by 11:59 p.m.)**  
 January 7 ..... **Registration Purge**  
 (Students with unpaid balances may be dropped from classes.)

January 7 ..... Open Registration Continues at 8:00 a.m.  
 January 11 ..... **First Day of Classes**  
 January 15 ..... Last Day to Add without Instructor's Signature  
**January 15 ..... Tuition and Fee Payment Due (Online by 11:59 p.m.)**  
 January 16 ..... **Registration Purge**  
 (Students with unpaid balances may be dropped from classes.)

January 16 ..... Open Registration Continues at 1:00 p.m.  
 January 18 ..... **Martin Luther King, Jr. Holiday (No Classes)**  
**January 22 ..... Tuition and Fee Payment Due (Online by 11:59 p.m.)**  
 January 23 ..... **Registration Purge**  
 (Students with unpaid balances may be dropped from classes.)

January 23 ..... Open Registration Continues at 1:00 p.m.  
 January 25 ..... Last Day to Receive 100% Refund  
 February 1 ..... Last Day to Receive 50% Refund  
 February 1 ..... Last Day to Receive Tuition Refund  
 February 1 ..... Last Day to Add Classes (includes Audits)  
 February 1 ..... Last Day to Drop without Notation on Transcript  
**February 1 ..... Tuition and Fee Payment Due (Online by 11:59 p.m.)**  
 (Students with unpaid balances may be charged a \$100 late tuition payment fee.)

Feb. 2-Mar. 12 ..... Drops Show as *W* on Transcript  
 Feb. 2-Apr. 30 ..... \$100 Late-add Fee Assessed for Each Class Added  
 February 15 ..... **Presidents' Day Holiday (No Classes)**  
 February 16 ..... Attend Monday Schedule  
 March 12 ..... Last Day to Change to *P/D+D/F* Option  
 Mar. 13-Apr 5 ..... Drops Require Late Drop Form (*WF* on Transcript)  
 March 15-19 ..... **Spring Break (No Classes)**  
 April 5 ..... Last Day to Submit Petition for Late Drop Form  
 April 6-May 7 ..... No Dropping of Classes Permitted  
 April 26-30 ..... No Test Week  
 May 3-7 ..... **Final Examinations**  
 May 7-8 ..... Commencement  
 May 13 ..... Deadline for Instructors to Submit Final Grades  
 May 6, 2011 ..... Last Day to Make Up Incomplete Grades  
 May 21, 2011 ..... Student Activity Card Deactivated

# Final Examination Schedule

## Fall Semester 2009

Class Days and Time	Date and Time of Final Exam
<b>Monday, December 7</b>	
Common Finals not otherwise scheduled.....	7:30-9:20 a.m.
9:30 a.m. MWF or M or W or F only .....	9:30-11:20 a.m.
12:30 p.m. MWF or M or W or F only .....	11:30 a.m.-1:20 p.m.
2:30 p.m. MWF or M or W or F only .....	1:30-3:20 p.m.
4:30 p.m. MWF or M or W or F only .....	3:30- 5:20 p.m.
M courses taught at or after 6:00 p.m.....	Regular Meeting Time
<b>Tuesday, December 8</b>	
7:30 a.m. TR or T or R only .....	7:30-9:20 a.m.
MATH 1010, 1060 Common Finals .....	9:30-11:20 a.m.
10:30 a.m. TR or T or R only .....	11:30 a.m.-1:20 p.m.
1:30 p.m. TR or T or R only .....	1:30-3:20 p.m.
4:30 p.m. TR or T or R only .....	3:30-5:20 p.m.
T courses taught at or after 6:00 p.m. ....	Regular Meeting Time
<b>Wednesday, December 9</b>	
8:30 a.m. MWF or M or W or F only .....	7:30-9:20 a.m.
10:30 a.m. MWF or M or W or F only .....	9:30-11:20 a.m.
1:30 p.m. MWF or M or W or F only .....	11:30 a.m.-1:20 p.m.
3:30 p.m. MWF or M or W or F only .....	1:30-3:20 p.m.
5:30 p.m. MWF or M or W or F only .....	3:30-5:20 p.m.
W courses taught at or after 6:00 p.m. ....	Regular Meeting Time
<b>Thursday, December 10</b>	
9:00 a.m. TR or T or R only .....	7:30-9:20 a.m.
Common Finals not otherwise scheduled.....	9:30-11:20 a.m.
12:00 noon TR or T or R only .....	11:30 a.m.-1:20 p.m.
3:00 p.m. TR or T or R only .....	1:30-3:20 p.m.
5:00 or 5:30 p.m. TR or T or R only .....	3:30-5:20 p.m.
R courses taught at or after 6:00 p.m. ....	Regular Meeting Time
<b>Friday, December 11</b>	
7:30 a.m. MWF or M or W or F only .....	7:30-9:20 a.m.
11:30 a.m. MWF or M or W or F only .....	9:30-11:20 a.m.
F courses taught at or after 6:00 p.m. ....	Regular Meeting Time

## Spring Semester 2010

Class Days and Time	Date and Time of Final Exam
<b>Monday, May 3</b>	
Common Finals not otherwise scheduled.....	7:30-9:20 a.m.
11:30 a.m. MWF or M or W or F only .....	9:30-11:20 a.m.
1:30 p.m. MWF or M or W or F only .....	11:30 a.m.-1:20 p.m.
3:30 p.m. MWF or M or W or F only .....	1:30-3:20 p.m.
5:30 p.m. MWF or M or W or F only .....	3:30-5:20 p.m.
M courses taught at or after 6:00 p.m.....	Regular Meeting Time
<b>Tuesday, May 4</b>	
MATH 1010, 1060 Common Finals .....	7:30-9:20 a.m.
9:00 a.m. TR or T or R only .....	9:30-11:20 a.m.
12:00 noon TR or T or R only .....	11:30 a.m.-1:20 p.m.
3:00 p.m. TR or T or R only .....	1:30-3:20 p.m.
5:00 or 5:30 p.m. TR or T or R only .....	3:30-5:20 p.m.
T courses taught at or after 6:00 p.m. ....	Regular Meeting Time
<b>Wednesday, May 5</b>	
7:30 a.m. MWF or M or W or F only .....	7:30-9:20 a.m.
9:30 a.m. MWF or M or W or F only .....	9:30-11:20 a.m.
12:30 p.m. MWF or M or W or F only .....	11:30 a.m.-1:20 p.m.
2:30 p.m. MWF or M or W or F only .....	1:30-3:20 p.m.
4:30 p.m. MWF or M or W or F only .....	3:30-5:20 p.m.
W courses taught at or after 6:00 p.m. ....	Regular Meeting Time
<b>Thursday, May 6</b>	
7:30 a.m. TR or T or R only .....	7:30-9:20 a.m.
10:30 a.m. TR or T or R only .....	9:30-11:20 a.m.
Common Finals not otherwise scheduled.....	11:30 a.m.-1:20 p.m.
1:30 p.m. TR or T or R only .....	1:30-3:20 p.m.
4:30 p.m. TR or T or R only .....	3:30-5:20 p.m.
R courses taught at or after 6:00 p.m. ....	Regular Meeting Time
<b>Friday, May 7</b>	
8:30 a.m. MWF or M or W or F only .....	7:30-9:20 a.m.
10:30 a.m. MWF or M or W or F only .....	9:30-11:20 a.m.
F courses taught at or after 6:00 p.m. ....	Regular Meeting Time

Laboratory exams are to be given during the hour assigned on the test period schedule.

Finals for 4-credit and 5-credit classes will be given according to the MWF schedule.

### Excessive Finals on One Day

Students who have *three or more finals* scheduled *during one day* and who desire to have **one** of those tests moved to another day during the final exam period must: (1) obtain a copy of their official registration that is dated *no more than 7 days* prior to the beginning of the first test day, and (2) seek permission from one of the instructors to change the hour of their final examination. Adverse decisions from all instructors may be appealed through the deans of the colleges involved.

### Common Tests Not Otherwise Scheduled

These must be arranged by department heads and staff members who teach multiple sections of the same class. The college deans (who plan to use the open periods for multiple-section class tests) will assign a member or members of the applicable department to clear the time for their tests with the Scheduling Office (TSC 246, 797-1015). Rooms must be cleared by midterm for multiple-section tests.

### No-Test Days Policy

A five-day period designated as "no-test" days precedes final examinations. During this time, no major examinations will be given.

# Administration

## Utah State Board of Regents

*Terms expire in the years listed.*

Jed H. Pitcher (Chair)	Salt Lake City	2009
Bonnie Jean Beesley (Vice Chair)	Salt Lake City	2009
Jerry C. Atkin	St. George	2011
Rosanita Cespedes	Salt Lake City	2011
France A. Davis	Salt Lake City	2011
Katharine B. Garff	Bountiful	2009
Greg W. Haws	Hooper	no set term
Meghan Holbrook	Salt Lake City	2009
David J. Jordan	Bountiful	2009
Nolan E. Karras	Roy	2011
Robert S. Marquardt	Salt Lake City	2013
Anthony W. Morgan	Salt Lake City	2013
Basim Motiwala	Salt Lake City	2009
Carol Murphy		no set term
Marlon O. Snow	Orem	2013
Teresa L. Theurer	Logan	2013
Joel D. Wright	Cedar Hills	2011
John H. Zenger	Midway	2011
William A. Sederburg, Commissioner of Higher Education		
	Salt Lake City	

## USU Board of Trustees

Richard L. Shipley (Chair)	Farmington	2011
Suzanne Pierce-Moore (Vice Chair)	Park City	2011
David P. Cook	Farmington	2011
Robert L. Foley	Vernal	2009
Douglas S. Foxley	Salt Lake City	2009
Ronald W. Jibson	North Salt Lake City	2009
David Johnson III	Riverton	2009
Paul D. Parkinson	Logan	2009
Tyler Tolson	Logan	2010
Scott R. Watterson	Logan	2011
Sydney M. Peterson (Secretary)	Logan	

## University Administrative Officers

President .....	Stan L. Albrecht
Chief of Staff.....	Sydney M. Peterson
Executive Vice President and Provost.....	Raymond T. Coward
Assistant Provost.....	Michelle B. Larson
Vice Provost .....	Laurens H. "Larry" Smith, Jr.
Vice Provost for Regional Campuses and Distance Education.....	Ronda R. Menlove
Vice Provost and Dean of the School of Graduate Studies.....	Byron R. Burnham
Vice Provost for Faculty Development and Diversity .....	Ann M. Berghout Austin
Interim Vice Provost for International Education .....	Edward M. Reeve
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Assistant Attorney General.....	Robert D. Barclay
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Associate Vice President for Business and Finance .....	David T. Cowley
Associate Vice President for Auxiliary Services .....	Dwight E. Davis

Associate Vice President for Facilities ..... Darrell E. Hart  
Controller..... Rick G. Allen

Vice President for Information Technology Services  
and Chief Information Officer ..... M. Kay Jeppesen

Vice President for Research..... Brent C. Miller  
Associate Vice President..... Jeffery R. Broadbent  
Associate Vice President..... Joyce A. Kinkead  
Associate Vice President for  
International Program Development..... DeeVon Bailey

Vice President for Strategic Ventures and  
Economic Development ..... Ned M. Weinschenker

Vice President for Student Services ..... Gary A. Chambers  
Interim Associate Vice President..... Mary E. Doty  
Executive Director for Student Life..... Eric R. Olsen

Vice President for University Advancement..... F. Ross Peterson  
Associate Vice President..... David Driggs  
Associate Vice President..... Joan Scheffke

Vice President for Extension and Agriculture ..... Noelle E. Cockett  
Associate Vice President for Extension..... Charles W. Gay

Executive Director of Public Relations  
and Marketing..... John W. DeVilbiss

Director of Athletics..... S. Scott Barnes

## Deans of Academic Units

### Agriculture

Dean..... Noelle E. Cockett  
Associate Dean, Academic Programs ..... To be appointed

### Business, Jon M. Huntsman School of

Dean..... Douglas D. Anderson  
Senior Associate Dean, Academic and  
International Affairs ..... Christopher Fawson  
Senior Associate Dean, Faculty Development  
and Administrative Affairs..... Clifford R. Skousen

### Education and Human Services, Emma Eccles Jones College of

Dean..... Carol J. Strong  
Associate Dean, Education Extension ..... Michael K. Freeman  
Associate Dean, Teacher Education, Graduation,  
and Educator Licensing ..... Francine Fukui Johnson  
Associate Dean, Research..... James T. Dorward  
Associate Dean, School of Teacher Education  
and Leadership ..... Martha T. Dever

### Engineering

Dean..... H. Scott Hinton  
Associate Dean ..... Wynn R. Walker  
Associate Dean ..... Christine E. Hailey  
Associate Dean ..... Jagath J. Kaluarachchi

### Graduate Studies

Dean..... Byron R. Burnham  
Associate Dean ..... Shelley L. Knudsen Lindauer  
Assistant Dean ..... Steven V. Beck

## Humanities, Arts, and Social Sciences

Dean .....	Yolanda Flores Niemann
Associate Dean .....	R. Edward Glatfelter
Associate Dean .....	Christine Hult
Interim Associate Dean of the Arts .....	Jeannie B. Thomas

## Libraries

Dean .....	Richard W. Clement
Associate Dean for Public Services .....	John A. Elsweller, Jr.
Associate Dean for Technical Services .....	Betty Rozum
Associate Dean for Special Collections and Archives .....	Bradford R. Cole

## Natural Resources

Dean .....	Nat B. Frazer
Associate Dean .....	Nancy O. Mesner

## Science

Dean .....	Mary S. Hubbard
Associate Dean .....	Richard J. Mueller
Associate Dean .....	Lisa M. Berreau

## Heads of Academic Departments and Programs

Accountancy, School of .....	Larry M. Walther
Aerospace Studies .....	Lt. Col. Robert E. Herndon, Jr.
Agricultural Systems Technology and Education .....	Bruce E. Miller
Animal, Dairy and Veterinary Sciences .....	Kenneth L. White
Applied Economics .....	Paul M. Jakus
Art .....	Carolyn Cárdenas
Biological and Irrigation Engineering .....	Ronald C. Sims
Biology .....	Daryll B. DeWald
Chemistry and Biochemistry .....	Steve Scheiner
Civil and Environmental Engineering .....	William J. Rahmeyer
Communicative Disorders and Deaf Education .....	Beth E. Foley
Computer Science .....	Donald H. Cooley
Economics and Finance .....	Tyler J. Bowles
Electrical and Computer Engineering .....	Todd K. Moon
Engineering and Technology Education .....	Kurt Becker
English .....	Jeffrey Smitten
Environment and Society .....	Joseph A. Tainter
Family, Consumer, and Human Development .....	Thomas R. Lee
Geology .....	John W. Shervais
Health, Physical Education and Recreation .....	Dennis Dolny
History .....	Norman L. Jones
Honors Program .....	Christie L. Fox
Instructional Technology and Learning Sciences .....	Mimi Recker
Intensive English Language Institute .....	Ann E. Roemer
Interior Design Program .....	JoAnn Wilson
Journalism and Communication .....	Bradford "J" Hall
Landscape Architecture and Environmental Planning .....	Sean Michael
Languages, Philosophy, and Speech Communication .....	Bradford "J" Hall
Management .....	Alan P. Warnick
Management Information Systems .....	John D. Johnson
Mathematics and Statistics .....	D. Richard Cutler
Mechanical and Aerospace Engineering .....	Byard D. Wood
Military Science .....	Major Paul J. Faletto
Music .....	Craig D. Jessop
Nursing Program (with Weber State University) .....	Jonny Kelly

Nutrition and Food Sciences .....	Charles E. Carpenter
Physics .....	Jan J. Sojka
Plants, Soils, and Climate .....	Teryl R. Roper
Political Science .....	Roberta Q. Herzberg
Psychology .....	Gretchen G. Peacock
Sociology, Social Work and Anthropology .....	Richard S. Krannich
Special Education and Rehabilitation .....	Benjamin Lignugaris/Kraft
Teacher Education and Leadership, School of .....	Martha T. Dever
Theatre Arts .....	Craig D. Jessop
Watershed Sciences .....	Chris Luecke
Wildland Resources .....	Johan du Toit

## Student Services Units

Academic Resource Center .....	Carol A. Rosenthal
Admissions .....	Jennifer A. Putnam
Advising, Office of University .....	Stephanie W. Hamblin
Campus Recreation .....	Kevin J. Kobe
Career Services .....	Donna E. Crow
Children's House .....	Linda Ebersole-Gilgen
Counseling Center .....	Mary E. Doty
Disability Resource Center .....	Diane C. Baum
Financial Aid .....	Steven J. Sharp
Multicultural Student Services .....	Moises Diaz
Registrar's Office .....	John D. Mortensen
Retention and First-year Experience .....	Noelle A. Call
Scheduling, Taggart Student Center .....	Suzann R. Miller
Statesman (student newspaper) .....	Jay C. Wamsley
Student Conduct .....	Dallin J. Phillips
Student Health and Wellness Center .....	James W. Davis
Student Involvement and Leadership Center .....	Tiffany M. Evans
Student Support Services .....	Nazih T. Al-Rashid
Taggart Student Center .....	Eric R. Olsen
Testing Services (Career Services) .....	Eric W. Jensen
Women's Center/Reentry Student Center .....	Patricia W. Stevens

## Other Areas of Service

Affirmative Action/Equal Opportunity Office .....	David L. Ottley
Alumni Relations .....	Wallace S. Odd II
Bookstore .....	David Parkinson
Budget and Planning Office .....	Whitney J. Pugh
Cashiers Office .....	Brent D. Sorenson
Computer Labs (Information Technology Student Technology Services) .....	Gary D. Egbert
Controllers Office .....	Rick G. Allen
Dining Services .....	Alan J. Andersen
Faculty Assistance Center for Teaching (FACT) .....	Kevin L. Reeve
Housing Services .....	Steven C. Jenson
Human Resources .....	BrandE Faupell
Information Technology Service Desk (Help Desk) .....	Stephen Funk
Innovation Campus .....	Ned M. Weinschenker
International Students and Scholars .....	Jeannie Pacheco
Parking and Transportation Services .....	Lisa C. Leishman
Police (University) .....	Steven J. Mecham
Publication Design and Production .....	Dale P. Smith
Purchasing Services .....	J. Bud Covington
Space Dynamics Laboratory .....	Douglas Lemon
Study Abroad Program .....	Kay W. Forsyth
Ticket Office .....	Stephanie Plueard
University Inn .....	Leila M. Neilson
University Press and Scholarly Publications .....	Michael Spooner
Writing Center .....	Star Coulbrooke

# Undergraduate Advising

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## Office of University Advising

Taggart Student Center 304, (435) 797-3373,  
stephanie.hamblin@usu.edu

At Utah State University, the **Office of University Advising (UA)** oversees the advising program, under the direction of the Vice President for Student Services. The UA Office provides advising for the **Undeclared Program** (for students having earned less than 60 semester credits, who meet the University admission standards, but who have not declared a major or who do not qualify for enrollment into one of the academic colleges). Advisors in the UA Office also advise students in **Provisional Admission Warning** (who are admitted provisionally, because they do not qualify for enrollment into one of the academic colleges or the Undeclared Program). **Stephanie Hamblin** is the director of the UA Office.

## College Academic Advising

Students who qualify for and have been admitted into an undergraduate degree-granting major are assigned an advisor within their department and/or college.

Each of the seven academic colleges has its own unique advising structure. Some colleges rely heavily on faculty advisors, while others use full-time professional advisors. Some colleges use a combination of each. Advising information for each of the colleges is shown below.

### College of Agriculture

Agricultural Science 216, (435) 797-2215, lisa.allen@usu.edu

In the **College of Agriculture**, the Department of Agricultural Systems Technology and Education relies on faculty advisors, whereas the other departments in the College of Agriculture utilize professional advisors. **Lisa Allen**, Staff Assistant and Advisor, is the undergraduate advising contact for the College of Agriculture.

### Jon M. Huntsman School of Business

Business 309, (435) 797-2272, ruth.harrison@usu.edu

Within the **Jon M. Huntsman School of Business**, some students are admitted directly into the Huntsman School, while admission for other students who do not meet the school admission criteria is competitive based on available space in the school. Completion of a specific core of classes, along with ACT or SAT score and GPA requirements, qualify students for admission to the school. Admitted students will have the same advisor from admission into a major through graduation. **Ruth Harrison** serves as the Director of the Programs and Advising Center (PAC).

### Emma Eccles Jones

#### College of Education and Human Services

Education 103, (435) 797-1443, terri.gass@usu.edu

The **Emma Eccles Jones College of Education and Human Services** relies mostly on professional advisors. Most departments have one or more professional advisors. However, the Department of Communicative Disorders and Deaf Education; and the Secondary Education Program in the School of Teacher Education and Leadership (TEAL) have faculty members who advise. **Terri Gass**, Staff Assistant, is the undergraduate advising contact for the Emma Eccles Jones College of Education and Human Services.

## College of Engineering

Engineering 314A, (435) 797-2705, kathy@engineering.usu.edu

In the **College of Engineering**, students are first admitted into pre-majors. The college has three professional advisors who work with all majors. Students are assigned to a faculty mentor after obtaining advanced standing. The College of Engineering has several faculty members in each department who mentor students who have received advanced standing. **Kathy Bayn** serves as the undergraduate advising contact in the College of Engineering Advising and Student Service Center.

## College of Humanities, Arts, and Social Sciences

Taggart Student Center 302, (435) 797-3883, mary.leavitt@usu.edu

The **College of Humanities, Arts, and Social Sciences (HASS)** has several professional advisors in the College of HASS Advising Center (CHAC). This center advises College of HASS majors regarding General Education requirements, and has responsibility for the Liberal Arts major. Most departments have faculty advisors assigned to advise students on major requirements. **Mary Leavitt** serves as the Director of CHAC.

## College of Natural Resources

Natural Resources 120, (435) 797-2448, maureen.wagner@usu.edu

The **College of Natural Resources** relies heavily on one professional advisor under the direction of the Dean's Office. There are also faculty advisors assigned for each of the various majors. **Maureen Wagner** oversees advisement for the College of Natural Resources.

## College of Science

Eccles Science Learning Center 245, (435) 797-2481,  
janalee.johnson@usu.edu or rmueller@biology.usu.edu

The **College of Science** utilizes both professional and faculty advisors. The departments of Biology, Chemistry and Biochemistry, and Mathematics and Statistics have both, while the departments of Computer Science and Physics have only professional advisors. The Geology Department has a faculty advisor. **JanaLee Johnson** is the College of Science advisor and works with students on University Studies requirements, graduation, college scholarships, and academic standing issues. **Richard Mueller**, associate dean, or Ms. Johnson serves as the advising contact for the college.

## Online Undergraduate Advisor Directory

Contact information for individual professional and faculty advisors is available online at: <http://www.usu.edu/advising/advisors/>

# Quick Phone Directory (Area Code 435)

This directory includes *only* main numbers for colleges, departments, programs, and frequently-called offices. Phone numbers and additional information for specific persons and for other USU units can be found in the Online Phonebook at: <http://www.usu.edu/phonebook/>

## Academic Colleges

Agriculture .....	797-2215
Business, Jon M. Huntsman School of .....	797-2272
Education and Human Services, Emma Eccles Jones College of .....	797-1437
Engineering .....	797-2775
Humanities, Arts, and Social Sciences .....	797-1195
Natural Resources .....	797-2445
Science .....	797-2478

## Academic Departments and Programs

Accountancy, School of .....	797-2330
Aerospace Studies .....	797-8723
Agricultural Systems Technology and Education .....	797-2230
Animal, Dairy and Veterinary Sciences .....	797-2145
Applied Economics .....	797-2310
Art .....	797-3460
Biological and Irrigation Engineering .....	797-2785
Biology .....	797-2485
Chemistry and Biochemistry .....	797-1619
Civil and Environmental Engineering .....	797-2932
Communicative Disorders and Deaf Education .....	797-1375
Computer Science .....	797-2451
Economics and Finance .....	797-2310
Electrical and Computer Engineering .....	797-2840
Elementary Education (see Teacher Education and Leadership)	
Engineering and Technology Education .....	797-1795
English .....	797-2733
Environment and Society .....	797-1790
Family, Consumer, and Human Development .....	797-1501
Geology .....	797-1273
Graduate Studies, School of .....	797-1189
Health, Physical Education and Recreation .....	797-1497
History .....	797-1290
Instructional Technology and Learning Sciences .....	797-2694
Intensive English Language Institute Program .....	797-2081
Interior Design Program .....	797-1557
Journalism and Communication .....	797-3292
Landscape Architecture and Environmental Planning .....	797-0500
Languages, Philosophy, and Speech Communication .....	797-1209
Management .....	797-1789
Management Information Systems .....	797-2342
Mathematics and Statistics .....	797-2809
Mechanical and Aerospace Engineering .....	797-2867
Military Science .....	797-7058
Music .....	797-3000
Nursing Cooperative Program .....	797-1515
Nutrition and Food Sciences .....	797-2126
Physics .....	797-2857
Plants, Soils, and Climate .....	797-2233
Political Science .....	797-1306
Psychology .....	797-1460
Secondary Education (see Teacher Education and Leadership)	
Sociology, Social Work and Anthropology .....	797-1230
Special Education and Rehabilitation .....	797-3243
Teacher Education and Leadership, School of .....	797-0385
Theatre Arts .....	797-3046

Watershed Sciences .....	797-2459
Wildland Resources .....	797-3219

## Other Offices

Academic Resource Center .....	797-1128
Admissions .....	797-1079
Advising, Office of University .....	797-3373
Affirmative Action/Equal Opportunity .....	797-1266
Alumni Relations .....	797-2055
Analysis, Assessment, and Accreditation .....	797-0001
Anthropology Museum .....	797-7545
Art Museum .....	797-0163
Associated Students of USU .....	797-2912
Athletics .....	797-1850
Bookstore .....	797-1666
Campus Recreation .....	797-1503
Card Office .....	797-3852
Career Services .....	797-7777
Cashiers Office .....	797-1069
Center for Persons with Disabilities .....	797-1981
Conference Services .....	797-0423
Controllers Office .....	797-1063
Counseling Center .....	797-1012
Development Office .....	797-1320
Dining Services .....	797-1707
Disability Resource Center .....	797-2444
Extension .....	797-2200
Financial Aid Office .....	797-0173
Help Desk (Information Technology Service Desk) .....	797-4357
Honors Program .....	797-2715
Housing Services .....	797-3113
Independent and Distance Education .....	797-2137
Innovation Campus .....	797-9610
International Education .....	797-3642
International Students and Scholars .....	797-1124
Jobline (Human Resources) .....	797-1819
Library (Patron Services) .....	797-2633
New Student Orientation .....	797-0283
Parking and Transportation Services .....	797-3414
Police (University) .....	797-1939
President's Office .....	797-1162
Provost's Office .....	797-1166
Public Relations and Marketing .....	797-1351
Publication Design and Production .....	797-2625
Reentry Student Center .....	797-1728
Regional Campuses and Distance Education .....	797-7198
Registrar's Office .....	797-1116
Research Office .....	797-1180
Retention and First-Year Experience Office .....	797-1132
Statesman (Newspaper) .....	797-6397
Student Employment .....	797-0184
Student Health and Wellness Center .....	797-1660
Student Support Services .....	797-3372
Study Abroad Office .....	797-0601
Summer Credit Workshops .....	797-0425
Testing Services .....	797-1004
Ticket Office .....	797-0305
University Inn .....	797-0017
Veterans Affairs .....	797-1102
Women's Center .....	797-1728
Writing Center .....	797-2712

# Undergraduate and Graduate Programs

Academic Programs and Degrees Offered	Department	College
Accounting - BS, BA, MAcc	School of Accountancy	Business
Aerospace Studies (Air Force ROTC Commission)	Aerospace Studies	HASS
Agribusiness - BS	Applied Economics	Agriculture
Agricultural Communication and Journalism - BS	ASTE/Journalism and Communication	Agriculture/HASS
Agricultural Economics - BS	Applied Economics	Agriculture
Agricultural Education - BS	Agricultural Systems Technology and Education	Agriculture
Agricultural Machinery Technology - 1-yr. Tech. Cert., AAS	Agricultural Systems Technology and Education	Agriculture
Agricultural Systems Technology - BS, MS	Agricultural Systems Technology and Education	Agriculture
Air Force ROTC (Aerospace Studies) - Commission	Aerospace Studies	HASS
American Studies - BS, BA, MS, MA	Interdisciplinary	HASS
Animal, Dairy and Veterinary Sciences - BS	Animal, Dairy and Veterinary Sciences	Agriculture
Animal Science - MS, PhD	Animal, Dairy and Veterinary Sciences	Agriculture
Anthropology - BS, BA, MS	Sociology, Social Work and Anthropology	HASS
Applied Economics - MS	Applied Economics	Agriculture
Applied Environmental Geoscience - BS, MS	Geology	Science
Applied Ornamental Horticulture - 1-yr. Certificate, AAS	Plants, Soils, and Climate	Agriculture
Army ROTC (Military Science) - Commission	Military Science	HASS
Art - BA, BS, BFA, MA, MFA	Art	HASS
Asian Studies - BA	Interdisciplinary	HASS
Audiology - AuD	Communicative Disorders and Deaf Education	Education & Human Services
Aviation Technology—Maintenance Management - BS	Engineering and Technology Education	Engineering
Aviation Technology—Professional Pilot - BS	Engineering and Technology Education	Engineering
Biochemistry - BS, MS, PhD	Chemistry and Biochemistry	Science
Biological Engineering - BS, MS, PhD	Biological and Irrigation Engineering	Engineering
Biological Science (Composite Teaching) - BS, BA	Biology	Science
Biology - BS, BA, MS, PhD	Biology	Science
Biometeorology - MS, PhD	Plants, Soils, and Climate	Agriculture
Bioregional Planning - MS	Landscape Arch. & Env. Planning/Env. & Society	HASS/Natural Resources
Bioveterinary Science - MS, PhD	Animal, Dairy and Veterinary Sciences	Agriculture
Business - BS, BA (Dual Major and 2nd BS only)	Interdisciplinary	Business
Business Administration - BS, BA	Management	Business
Business Administration - MBA	Interdisciplinary	Business
Chemistry - BS, BA, MS, PhD	Chemistry and Biochemistry	Science
Chemistry Teaching - BS	Chemistry and Biochemistry	Science
Civil and Environmental Engineering - CE, MS, PhD	Civil and Environmental Engineering	Engineering
Civil Engineering - BS	Civil and Environmental Engineering	Engineering
Communication - MS, MA	Journalism and Communication	HASS
Communicative Disorders and Deaf Education - BS, BA, MS, MA, MEd, EdS	Communicative Disorders and Deaf Education	Education & Human Services
Computer Engineering - BS, MS	Electrical and Computer Engineering	Engineering
Computer Science - BS, BA, MS, MCS, PhD	Computer Science	Science
Conservation and Restoration Ecology - BS	Wildland Resources	Natural Resources

# Undergraduate and Graduate Programs

Academic Programs and Degrees Offered	Department	College
Crop Science - BS, BA	Plants, Soils, and Climate	Agriculture
Dairy Herdsman, Vocational Technology - 1-yr. Certificate	Animal, Dairy and Veterinary Sciences	Agriculture
Dairy Science - MS	Animal, Dairy and Veterinary Sciences	Agriculture
Deaf Education/Early Childhood Education (Composite) - BS, BA	Communicative Disorders & Deaf Education/ School of Teacher Education & Leadership (TEAL)	Education & Human Services
Deaf Education/Elementary Education (Composite) - BS, BA	Communicative Disorders & Deaf Education/ School of Teacher Education & Leadership (TEAL)	Education & Human Services
Dietetics Administration - MDA	Nutrition and Food Sciences	Agriculture
Disability Disciplines - PhD	Special Education and Rehabilitation	Education & Human Services
Early Childhood Education - BS, BA	School of Teacher Education & Leadership (TEAL)	Education & Human Services
Early Childhood Education - BS, BA	Family, Consumer, and Human Development	Education & Human Services
Early Childhood Education/Deaf Education (Composite) - BS, BA	School of Teacher Education & Leadership (TEAL)/ Communicative Disorders & Deaf Education	Education & Human Services
Early Childhood Education/Elementary Education (Dual Major) - BS, BA	School of Teacher Education & Leadership (TEAL)	Education & Human Services
Early Childhood Education/Special Education (Composite) - BS, BA	School of Teacher Education & Leadership (TEAL)/ Special Education and Rehabilitation	Education & Human Services
Earth Science (Composite Teaching) - BS, BA	Geology	Science
Ecology - MS, PhD	Biology	Science
Ecology - MS, PhD	Plants, Soils, and Climate	Agriculture
Ecology - MS, PhD	Watershed Sciences	Natural Resources
Ecology - MS, PhD	Wildland Resources	Natural Resources
Economics - PhD	Applied Economics	Agriculture
Economics - BS, BA, MS, MA	Economics and Finance	Business
Education - EdD, PhD with specializations in:		
Curriculum and Instruction	School of Teacher Education & Leadership (TEAL)	Education & Human Services
Special Education (EdD only)	Special Education and Rehabilitation	Education & Human Services
Electrical Engineering - BS, ME, MS, PhD	Electrical and Computer Engineering	Engineering
Elementary Education - BS, BA, MS, MA, MEd, EdS	School of Teacher Education & Leadership (TEAL)	Education & Human Services
Elementary Education/Deaf Education (Composite) - BS, BA	School of Teacher Education & Leadership (TEAL)/ Communicative Disorders & Deaf Education	Education & Human Services
Elementary Education/Early Childhood Education/ (Dual Major) - BS, BA	School of Teacher Education & Leadership (TEAL)	Education & Human Services
Elementary Education/Special Education (Composite) - BS, BA	School of Teacher Education & Leadership (TEAL)/ Special Education and Rehabilitation	Education & Human Services
Engineering - ME	Interdisciplinary	Engineering
Engineering and Technology Education - BS, MS	Engineering and Technology Education	Engineering
Engineering Education - PhD	Engineering and Technology Education	Engineering
English - BS, BA, MS, MA	English	HASS
Entrepreneurship - BS, BA	Management	Business
Environmental Engineering - BS	Civil and Environmental Engineering	Engineering
Environmental Soil/Water Science - BS, BA	Plants, Soils, and Climate	Agriculture
Environmental Studies - BS	Environment and Society	Natural Resources



# Undergraduate and Graduate Programs

Academic Programs and Degrees Offered	Department	College
Family and Consumer Sciences - BS, BA	Family, Consumer, and Human Development	Education & Human Services
Family and Consumer Sciences Education - BS	Agricultural Systems Technology and Education	Agriculture
Family and Human Development - MFHD	Family, Consumer, and Human Development	Education & Human Services
Family, Consumer, and Human Development - BS, BA, MS, PhD	Family, Consumer, and Human Development	Education & Human Services
Family Life Studies - BS (offered online <i>only</i> )	Family, Consumer, and Human Development	Education & Human Services
Finance - BS, BA	Economics and Finance	Business
Fisheries and Aquatic Sciences - BS	Watershed Sciences	Natural Resources
Fisheries Biology - MS, PhD	Watershed Sciences	Natural Resources
Food Microbiology and Safety - MFMS	Nutrition and Food Sciences	Agriculture
Forestry - BS, MS, PhD	Wildland Resources	Natural Resources
French - BA	Languages, Philosophy, & Speech Communication	HASS
Geography - BS, BA, MS, MA	Environment and Society	Natural Resources
Geology - BS, BA, MS, PhD	Geology	Science
German - BA	Languages, Philosophy, & Speech Communication	HASS
Health Education Specialist - BS	Health, Physical Education and Recreation	Education & Human Services
Health Education Teaching* - BS	Health, Physical Education and Recreation	Education & Human Services
Health, Physical Education and Recreation - MS, MEd	Health, Physical Education and Recreation	Education & Human Services
History - BS, BA, MS, MA	History	HASS
Horticulture - BS, BA	Plants, Soils, and Climate	Agriculture
Horticulture, Professional Studies in - MPSH	Plants, Soils, and Climate	Agriculture
Horticulture (Ornamental) - 1-yr. Certificate, AAS	Plants, Soils, and Climate	Agriculture
Human Dimensions of Ecosystem Science & Management - MS, PhD	Environment and Society	Natural Resources
Human Environments - MS	Interior Design Program	HASS
Human Resource Management - BS, BA	Management	Business
Human Resources - MS	Management	Business
Industrial Mathematics - MS	Mathematics and Statistics	Science
Instructional Technology - MS, MEd, EdS, PhD	Instructional Technology and Learning Sciences	Education & Human Services
Interdisciplinary Studies - BS, BA	Interdisciplinary	Agriculture/Education & Human Services/HASS/ Natural Resources/Science
Interior Design - BID	Interior Design Program	HASS
Interior Design, Sales and Marketing - BS, BA	Interior Design Program	HASS
International Agribusiness - BA	Applied Economics	Agriculture
International Business - BS, BA	Management	Business
International Studies - BA	Political Science	HASS
Irrigation Engineering - MS, PhD	Biological and Irrigation Engineering	Engineering
Journalism - BS, BA	Journalism and Communication	HASS
Kindergarten through Grade 6 (K-6) Licensure Program	School of Teacher Education & Leadership (TEAL)	Education & Human Services

# Undergraduate and Graduate Programs

<b>Academic Programs and Degrees Offered</b>	<b>Department</b>	<b>College</b>
Landscape Architecture - BLA, MLA	Landscape Architecture & Environmental Planning	HASS
Law and Constitutional Studies - BS, BA	Political Science	HASS
Liberal Arts - BA	Interdisciplinary	HASS
Management Information Systems - BS, BA, MS	Management Information Systems	Business
Marketing - BS, BA	Management	Business
Mathematical Sciences - PhD	Mathematics and Statistics	Science
Mathematics - BS, BA, MS, MMath	Mathematics and Statistics	Science
Mathematics Education - BS, BA	Mathematics and Statistics	Science
Mathematics/Statistics (Composite) - BS	Mathematics and Statistics	Science
Mathematics-Statistics Education (Composite) - BS	Mathematics and Statistics	Science
Mechanical Engineering - BS, MS, ME, PhD	Mechanical and Aerospace Engineering	Engineering
Military Science (Army ROTC Commission)	Military Science	HASS
Music - BM, MM	Music	HASS
Music Therapy - BS, BA	Music	HASS
National Environmental Policy Act (NEPA) (Graduate Certificate Program)	Environment and Society	Natural Resources
Natural Resources - MNR	Interdisciplinary	Natural Resources
Natural Resources and Environmental Education (Graduate Certificate Program)	Environment and Society	Natural Resources
Nursing - 2-yr. AS, Weber State	Biology	Science
Nutrition and Food Sciences - BS, MS, PhD	Nutrition and Food Sciences	Agriculture
Operations Management - BS, BA	Management	Business
Ornamental Horticulture - 1-yr. Certificate, AAS	Plants, Soils, and Climate	Agriculture
Parks and Recreation - BS	Health, Physical Education and Recreation	Education & Human Services
Philosophy - BA, BS	Languages, Philosophy, & Speech Communication	HASS
Physical Education - BS	Health, Physical Education and Recreation	Education & Human Services
Physical Education Teaching* - BS	Health, Physical Education and Recreation	Education & Human Services
Physical Science (Chem) Composite Teaching - BS	Chemistry and Biochemistry	Science
Physical Science (Physics) Composite Teaching - BS	Physics	Science
Physics - BS, BA, MS, PhD	Physics	Science
Physics Teaching - BS	Physics	Science
Plant Science - MS, PhD	Plants, Soils, and Climate	Agriculture
Political Science - BS, BA, MS, MA	Political Science	HASS
Pre dental Biology - BS or BA in Biology	Biology	Science
Prehealth Biology - BS or BA in Biology	Biology	Science
Premedical Biology - BS or BA in Biology	Biology	Science
Psychology - BS, BA, MS, EdS, PhD	Psychology	Education & Human Services
Psychology Teaching* - BS, BA	Psychology	Education & Human Services
Public Health - BS	Biology	Science

# Undergraduate and Graduate Programs

<b>Academic Programs and Degrees Offered</b>	<b>Department</b>	<b>College</b>
Range Science - MS, PhD	Wildland Resources	Natural Resources
Rangeland Resources - BS	Wildland Resources	Natural Resources
Recreation Resource Management - BS, MS, PhD	Environment and Society	Natural Resources
Rehabilitation Counseling - MRC	Special Education and Rehabilitation	Education & Human Services
Religious Studies - BS, BA	Interdisciplinary	HASS
Residential Landscape Design and Construction	Plants, Soils, and Climate	Agriculture
ROTC (see Air Force or Army)		
Second Language Teaching - MSLT	Languages, Philosophy, & Speech Communication	HASS
Secondary Education - 2nd BS, 2nd BA, MS, MA, MEd, EdS	School of Teacher Education & Leadership (TEAL)	Education & Human Services
Social Sciences - MSS with majors in:	Interdisciplinary	HASS
History	History	HASS
Political Science (Public Administration pilot program through Regional Campuses and Distance Education)	Political Science	HASS
Sociology (International Rural and Community Development)	Sociology, Social Work and Anthropology	HASS
Social Studies Composite Teaching - BS, BA	School of Teacher Education & Leadership (TEAL)	Education & Human Services
Social Work - BS, BA, MSW	Sociology, Social Work and Anthropology	HASS
Sociology - BS, BA, MS, MA, PhD	Sociology, Social Work and Anthropology	HASS
Soil Science - MS, PhD	Plants, Soils, and Climate	Agriculture
Spanish - BA	Languages, Philosophy, & Speech Communication	HASS
Special Education - BS, BA, MS, MEd, EdS	Special Education and Rehabilitation	Education & Human Services
Special Education/Early Childhood Education (Composite) - BS, BA	Special Education and Rehabilitation/ School of Teacher Education & Leadership (TEAL)	Education & Human Services
Special Education/Elementary Education (Composite) - BS, BA	Special Education and Rehabilitation/ School of Teacher Education & Leadership (TEAL)	Education & Human Services
Speech - BA, BS	Languages, Philosophy, & Speech Communication	HASS
Statistics - BS, BA, MS	Mathematics and Statistics	Science
Theatre Arts - BA, BFA, MA, MFA	Theatre Arts	HASS
Theory and Practice of Professional Communication - PhD	English	HASS
Toxicology - MS, PhD	Interdisciplinary	Agriculture/Science
Watershed and Earth Systems - BS	Watershed Sciences	Natural Resources
Watershed Science - MS, PhD	Watershed Sciences	Natural Resources
Wildlife Biology - MS, PhD	Wildland Resources	Natural Resources
Wildlife Science - BS	Wildland Resources	Natural Resources
Women and Gender Studies (Certificate and Minor)	Interdisciplinary	HASS

\* Teaching Majors approved by the Utah State Board of Education

## Semester Calendar

USU maintains a semester system—three semesters or periods of classwork: fall, spring, and summer. Fall and spring semester are each of 15 weeks duration. Summer semester spans a total of 12 weeks and includes one four-week early session and one eight-week session, which contains two four-week sessions. For further details, see the *2009-2010 Calendar* on page 5, the *Registration Calendar* on pages 6-8, and the *Final Examination Schedule* on page 9.

## Credit Enrollment

The semester credit hour is the unit upon which credit is computed. Normally, the credit hour standard is based upon 150 minutes of lecture per week, for the duration of one semester, for a three-credit class. To obtain credit, a student must be properly registered and pay fees for the course. For further information, see *Credits Awarded for Courses* on pages 59-60.

## Course Numbering

Each course listed in the *Course Descriptions* section of the catalog has a number, given before the name of the course. For example:

**ENGL 1120**                      **Elements of Grammar**                      **3**

This means the course, Elements of Grammar, is English 1120. The numbers are useful for reference and records.

## Course Numbering Code

A standard code employed by all institutions in the State System of Higher Education was adopted by USU in 1970. Upon conversion to semesters, four-digit course numbers *replaced* the three-digit course numbers formerly used under the quarter system. The semester numbering system is as follows:

0010-0990	Remedial courses; will not satisfy baccalaureate requirements; nontransferable; not calculated in GPA.
1000-2790	Lower division (freshman and sophomore courses)
2800-2990	Lower division independent study designation (directed reading, individual projects, etc.)
3000-4790	Upper division (junior and senior courses)
4800-4990	Upper division independent study designations (directed reading, individual projects, festival, institutes, workshops, etc.)
5000-5990	Advanced upper division (may be used for a graduate degree with approval of the student's supervisory committee)
6000-7990	Graduate courses (students without baccalaureate degrees must obtain special permission to enroll)
5900-5990 6900-6990 7900-7990	Independent study designations (directed reading, individual projects, theses, dissertations, etc.)
6800-6890 7800-7890	Graduate seminars (includes methodology and research seminars)

Courses offered through Regional Campuses and Distance Education are designated by a <sup>DE</sup> following the course description.

*Freshmen or sophomores may take any lower-division course.* If there is a prerequisite for a particular course, it will be so stated in the course description.

*Juniors or seniors may take any lower- or upper-division course for which they have met the course requirements.* Course requirements will be identified in the course description. Seniors may take graduate courses only upon written consent from the instructor. The use of undergraduate coursework for a graduate degree at USU is regulated by the School of Graduate Studies. See *Split Form Policy* (page 113) and *Course-Level Numbering and Acceptability* (page 114).

*Graduate students may take any course for which they have met the course requirements,* but only graduate courses and individually approved undergraduate courses may be used for a graduate degree, although all courses completed will appear on student transcripts.

**Note:** In some cases, *additional* college or departmental requirements (which may not be included in the course description) *must be met* before a student may take a particular course. For more information, students should consult their advisor or the department offering the course.

Following the title of each course, the number of credits given for the course is indicated. The semester(s) it will likely be taught are indicated in abbreviated form in parentheses, following the course description. For example: (F) indicates that the course will likely be taught fall semester. The designation (F,Sp,Su) indicates that the course will likely be taught all three semesters: fall, spring, and summer. It does not mean that the student has to take the class all three semesters, but rather that he or she has a choice of any semester. In some cases, such as (F,Sp), even though more than one semester is indicated, the course will not be offered each semester, but only one of these semesters, the exact one yet to be decided.

Some course listings do not indicate semester(s) offered. In some cases, these courses may be taken any semester (e.g., continuing graduate advisement, thesis, dissertation, or internship courses). In other cases, the semester(s) to be offered has not yet been determined (e.g., special topics courses, which are offered infrequently). For current information about semesters to be offered, consult the department offering the course.

*For more definite up-to-date information, please refer to the course schedule, placed online prior to the beginning of each semester at: <http://www.usu.edu/registrar/catalogpdf/>*

Occasionally, two or more closely related courses (which usually have the same title) will be listed above one course description, such as **MATH 6110** and **MATH 6120, Differential Geometry**. Following each course title, the number of credits approved for each course will be shown. At the end of the course description will be two or more parenthetical entries, indicating the semester(s) the courses may be taught. The first entry refers to the semester(s) taught for the first course, the second entry refers to the second course, and so forth.

In some classes, the amount of credit for which students register can be individually arranged. One student may take 2 credits, another student 3 credits, etc. Students are responsible to ensure they are registered for the desired number of credits. Online registration will always default to the lowest offered number of credits. Academic credit is identified following the course title: (e.g., 1-3).

# Using This Catalog

Following some course titles in this catalog will be a single asterisk (\*), a double asterisk (\*\*), or a triple asterisk (\*\*\*). Such courses are taught during alternate years, as explained in the footnotes. For more information, consult the department offering the course or refer to the course schedules at: <http://www.usu.edu/registrar/catalogpdf/>

Catalog information and University requirements may change at any time. USU is not bound by requirements or regulations listed in this catalog. Information may change before a new catalog is issued, and students must adhere to changes. It is the student's obligation to ascertain current rules, regulations, fees, and requirements. As changes are approved for academic degree programs, policies, and procedures, updates will be made to the *Online General Catalog* at: <http://www.usu.edu/generalcatalog/>

## Course Prefixes

Each course listing is preceded by one of the following prefixes:

ACCT	Accounting
ADVS	Animal, Dairy and Veterinary Sciences
AG	Agriculture, College of
ANTH	Anthropology
APEC	Applied Economics
ART	Art
ARTH	Art History
AS	Aerospace Studies
ASTE	Agricultural Systems Technology and Education
AV	Aviation Technology
BIE	Biological and Irrigation Engineering
BIOL	Biology
BUS	Business, Jon M. Huntsman School of
CEE	Civil and Environmental Engineering
CHEM	Chemistry and Biochemistry
CHIN	Chinese
CLAS	Classics
CLIM	Climate
COMD	Communicative Disorders and Deaf Education
CS	Computer Science
DE	Dance Education
ECE	Electrical and Computer Engineering
ECN	Economics
EDUC	Education and Human Services, Emma Eccles Jones College of
ELED	Elementary Education
ENGL	English
ENGR	Engineering, General
ENVS	Environment and Society
ETE	Engineering and Technology Education
FCHD	Family, Consumer, and Human Development
FCSE	Family and Consumer Sciences Education
FIN	Finance
FREN	French
GEO	Geology
GEOG	Geography
GERM	German
GRK	Greek
HASS	Humanities, Arts, and Social Sciences; College of
HEP	Health Education Professional
HIST	History
HONR	Honors
HS	Health Sciences (offered jointly with Weber State University)
ID	Interior Design
IELI	Intensive English Language Institute
INST	Instructional Technology and Learning Sciences
ITAL	Italian

ITDS	Interdisciplinary Studies
JAPN	Japanese
JCOM	Journalism and Communication
KOR	Korean
LAEP	Landscape Architecture and Environmental Planning
LANG	Languages (General)
LATN	Latin
LATS	Latin American Studies
LING	Linguistics
MAE	Mechanical and Aerospace Engineering
MATH	Mathematics
MGT	Management
MIS	Management Information Systems
MSL	Military Science Leadership
MUSC	Music
NAV	Navajo
NEPA	National Environmental Policy Act Certificate Program
NFS	Nutrition and Food Sciences
NR	Natural Resources, College of
NURS	Nursing (offered jointly with Weber State University)
OSS	Office Systems Support
PE	Physical Education
PEP	Physical Education Professional
PFP	Personal Financial Planning
PHIL	Philosophy
PHYS	Physics
PLSC	Plant Science
POLS	Political Science
PORT	Portuguese
PRP	Parks and Recreation Professional
PSC	Plants, Soils, and Climate
PSY	Psychology
PUBH	Public Health
REH	Rehabilitation Counseling
RELS	Religious Studies
RUSS	Russian
SCED	Secondary Education
SCI	Science, College of
SOC	Sociology
SOIL	Soil Science
SPAN	Spanish
SPCH	Speech Communication
SPED	Special Education
STAT	Statistics
SW	Social Work
TEAL	Teacher Education and Leadership, School of
THEA	Theatre Arts
USU	University Studies
WATS	Watershed Sciences
WGS	Women and Gender Studies
WILD	Wildland Resources

## General Education Designations

Courses approved for General Education have one of the following designations, listed following the course number:

### Competency Courses

Communications Literacy, **CL1** and **CL2**

Quantitative Literacy, **QL**

### Breadth Courses

American Institutions, **BAI**

Creative Arts, **BCA**

Humanities, **BHU**

Life Sciences, **BLS**

Physical Sciences, **BPS**

Social Sciences, **BSS**

## University Studies Depth Education Designations

Courses approved for University Studies Depth Education have one of the following designations, listed following the course number:

### Intensive Courses

Communications Intensive, **CI**

Quantitative Intensive, **QI**

### Depth Courses

Humanities and Creative Arts, **DHA**

Life and Physical Sciences, **DSC**

Social Sciences, **DSS**

# University Terminology and Definitions

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## **“A” Pin**

Presented to undergraduate students who have received all A grades (4.0 GPA) for 15 or more graded credits each semester during two consecutive semesters in residency. Courses for which a P (Pass) grade is received do not qualify for graded credits.

## **A-Number (Banner ID Number)**

A nine-character code that uniquely identifies each student. This number (which is *not* social security number based) always consists of a capital A, followed by eight numbers. To find out their assigned A-Number, students should follow the link found at:

<http://www.usu.edu/myusu/>

## **Academic Advising**

Assistance to students in choosing courses by providing information about University Studies Requirements, majors, various academic programs, and academic policies and procedures. Advisors may also assist students in establishing their educational and career goals.

## **Academic Dismissal**

The status of a student who becomes subject to suspension for a third time. Students who have been dismissed may apply for readmission to the University after a layout of five or more calendar years. See page 63 for more information.

## **Academic Nepotism (Policy for Graduate Students)**

A faculty member is not to participate in graduate admission or graduate-assistant employment decisions, serve as major professor, or serve on the supervisory committee of a relative, including a person with whom he or she has or has had an amorous relationship. Graduate students may enroll in classes taught by a relative *only* under special conditions. For more information, students should contact the department head or the School of Graduate Studies.

## **Academic Probation**

The status assigned to a sophomore, junior, or senior with a cumulative GPA of less than 2.0. See page 62 for more information.

## **Academic Record Adjustment**

Students requesting an adjustment to their academic record for a prior term must submit a *Petition for Academic Record Adjustment* to the Registrar's Office. For more information, see page 61.

## **Academic Renewal**

Undergraduate students who have been admitted to Utah State University after an interruption in their collegiate education of five or more years may petition to have certain credits removed from the calculation of the GPA needed for credit. Further details about this procedure are found on page 61.

## **Academic Standing**

A student's academic standing is determined jointly by the number of credit hours attempted and the number of quality points earned. There are six categories of academic standing: good standing, provisional admission warning, academic warning, academic probation, academic suspension, and academic dismissal. See pages 61-63 for more information.

## **Academic Suspension**

The change in status that occurs when a student on academic probation has a semester GPA of less than 2.0. Students *who have been suspended once* may apply for readmission after a two-semester layout. Students *who have been suspended two times* may apply for readmission to the University following a layout of one full calendar year. See pages 62-63 for more information.

## **Academic Warning**

The status assigned to a freshman student with a cumulative GPA of less than 2.0. See page 62 for more information.

## **Access (Banner) System**

The web-based computer program which USU students can access for grades, transcripts, financial aid, and account information. The Access system (which is available 24 hours a day, 7 days a week, and can be accessed from any web-enabled system) allows students to register for, drop, and add classes. Students can login at:

<http://www.usu.edu/myusu/>

## **Add/Drop**

The process used if students need to change a schedule for which they have already registered. The procedure for adding courses is explained on page 56. Policies which apply to dropping courses are listed on page 58.

## **Aggiemail**

All students are encouraged to have an aggiemail e-mail account, and to update their "preferred e-mail" address in Banner. Students can keep this account after they leave USU. Information about how to create an aggiemail account can be found at:

<http://it.usu.edu/htm/email>

## **Adjunct Faculty**

Part-time certified instructors.

## **Advanced Placement (AP)**

Exams offered at the high school level only. University credits may be acquired through the AP examinations. These credits may be used to fill General Education requirements, and may also be accepted as equivalent to specific courses. See page 40 for more information.

## **Advisor**

A faculty or staff member who provides students with academic information about University, college, and departmental graduation requirements; assists students in the development of a course of study; helps students to understand the expected standards of achievement and likelihood of success in certain areas of study; and refers students to available campus resources to meet individual needs. Further information is shown on page 12. A current listing of advisors, along with their contact information, can be found online at:

<http://www.usu.edu/advising/advisors/>

## **Alumni**

Graduates or former students.

## **Articulation**

A term that is used to indicate that a course taken at another institution is equivalent to a course at USU. General Education articulation information for institutions with which USU has articulation agreements is available online within the *Advisor Handbook* at:

[http://www.usu.edu/advising/for\\_advisors/handbook/](http://www.usu.edu/advising/for_advisors/handbook/)

## **Articulation Agreements**

Documents that formally acknowledge how credits or associate degrees from other institutions equate to USU courses and requirements. These articulation agreements, as well as additional information about transferring to Utah State University, can be found at the Transfer website: <http://www.usu.edu/transfer/>

## **Attempted Hours (AHRs)**

The number of credit hours for which a student has enrolled. This includes current enrollments, as well as past enrollments.

# University Terminology and Definitions

## **Audit**

Registration for and participation in all functions of a course except tests and other graded exercises. No credit is given for an audit (a grade of AU is assigned), but courses that students have audited will appear on the transcript and may be repeated for credit.

## **Bachelor of Arts Degree vs. Bachelor of Science Degree**

The main difference between these two degrees is a foreign language requirement. Students who complete two years' training or equivalent in an approved foreign language, or one year or equivalent in each of two foreign languages, may qualify for a Bachelor of Arts degree. See pages 76-77 for further information. Most other baccalaureate degrees are awarded as a Bachelor of Science degree.

## **Bachelor's Degree**

A degree in an academic discipline which requires completion of a minimum of 120 semester credit hours, University Studies requirements, and a chosen major. Students must meet the minimum GPA requirements for their intended major.

## **Banner ID Number (A-Number)**

A nine-character code that uniquely identifies each student. This number (which is *not* social security number based) always consists of a capital A, followed by eight numbers. To find out their assigned A-Number, students should follow the link found at: <http://www.usu.edu/myusu/>

## **Breadth Requirements**

Courses that are part of the General Education requirements, and are intended to introduce students to different disciplines. At USU, all students must take a least one course or its equivalent in each of the following six categories: American Institutions, Creative Arts, Humanities, Life Sciences, Physical Sciences, and Social Sciences. A listing of approved Breadth courses is shown on pages 68-69.

## **Cashier**

The financial officer of the University who receives payment of tuition and miscellaneous fees.

## **Certificate**

A document certifying that one has fulfilled the requirements of and may practice in a certain vocation.

## **Class Rank**

Student's ranking of being a freshman (less than 30 credits), sophomore (30-59 credits), junior (60-89 credits), or senior (90 or more credits), based on the number of college-level credit hours earned.

## **Closed Class**

A class that has been filled by the maximum number of students allowed for that class.

## **College**

An academic division in a university. A college is composed of academic departments and is headed by a dean. USU has seven colleges: College of Agriculture; Jon M. Huntsman School of Business; Emma Eccles Jones College of Education and Human Services; College of Engineering; College of Humanities, Arts, and Social Sciences; College of Natural Resources; and College of Science.

## **College Level Examination Program (CLEP)**

A standardized examination in college-level subject matter. Subject examinations cover material offered in specific advanced-level courses. Credits may be acquired through the CLEP examinations. These credits may be used to fill General Education requirements, and may also be accepted as equivalent to specific courses. See page 41 for more information.

## **College Work-Study**

A form of financial aid based on need which provides students with paid employment while in school.

## **Competency Test**

A test which is used to determine if a student has the acquired knowledge of a college-level course.

## **Complete Withdrawal**

The process of withdrawing from all courses before a semester has ended. This must be done by meeting with the advisor in the Office of Retention and First-Year Experience (TSC 314).

## **Composite Major**

When elements of two major programs are combined into one major program. For example, the Elementary Education/Special Education major is an approved composite of two different majors.

## **Computer and Information Literacy (CIL)**

A computer examination that consists of six modules: information law and ethics, information resources, document processing, operating systems, spreadsheets, and electronic presentations. CIL is part of the General Education requirements.

## **Concurrent Enrollment**

When a high school student is enrolled in a university course for which the student simultaneously receives high school and university credit.

## **Connections (University Connections Course)**

An orientation and transition-to-college course. More information about this course is shown on page 55. Also see: <http://www.usu.edu/connections/>

## **Convocations**

A lecture series.

## **Co-op**

Two or more related internship work experiences.

## **Corequisites**

Two or more courses which must be taken during the same semester, because the work in one course supplements or reinforces what is taught in the other.

## **Course Fee**

A fee that is attached to a specific course, in addition to tuition. Course fees may be found in the online course schedules at: <http://www.usu.edu/registrar/catalogpdf/>

## **Course Load**

The number of credit hours carried by a student during a given semester. Students need to average a minimum of 15 credit hours per semester in order to graduate in four years.

## **Credit Hours**

Credits are related to the number of hours of instruction per week during the academic term.

## **Credit Limit**

Students registering for *more than 18 credits* must present their advisor's signed authorization to the Registrar's Office.

## **Course Reference Number (CRN Number)**

A five-digit code that identifies a specific course. CRN numbers may be found in the online course schedules at: <http://www.usu.edu/registrar/catalogpdf/>



# University Terminology and Definitions

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## **Cum Laude**

A Latin Scholastic Distinction designated for students who graduate with a cumulative GPA between 3.500 and 3.799.

## **Curriculum**

A series of courses which meet a particular academic or vocational goal.

## **DANTES Standardized Subject Tests (DSST)**

DSSTs provide an opportunity for people to obtain college credit for what they have learned in nontraditional ways. Designed originally for the military, DSSTs are available to civilian students and adult learners as well. Credits may be acquired through the DSST examinations. These credits may be used to fill General Education Requirements, and may also be accepted as equivalent to specific courses. For more information, as well as a list of available exams, see page 42.

## **Dean**

College or university administrative official. An academic dean usually heads a college within the university.

## **Dean's List (Honor Roll)**

A recognition given to students who earn a minimum 3.500 GPA in 15 or more graded credits, except for summer semester for which 12 or more graded credits are required.

## **Declaration of Major**

A process whereby students formally notify the Registrar's Office of the major which they choose to include in their degree program.

## **Deferred Admission**

When a student is accepted for a specific term, but chooses to defer his or her admission until a future term. More information about admission deferment is shown on page 31.

## **Degree Planner (Degree Evaluation)**

A Web-based program providing students with a summary of their academic progress, showing courses completed and courses needed for the student's major. This program is a Banner (Access) sub-system which generates **unofficial** degree evaluations. After students have completed their application for graduation, the Registrar's Office performs an official degree evaluation.

## **Department Head**

The administrative head of an academic department.

## **Depth Education Requirements**

Courses that are part of the University Studies requirements and are intended to provide students with more in-depth background in different disciplines. Approved Depth Education courses are shown on pages 70-75.

## **Discipline**

A subject area. English, history, chemistry, and elementary education are examples of disciplines.

## **Dissertation**

A written thesis by a candidate for a doctoral degree. Information about preparation and approval of dissertations is shown on pages 118-119.

## **Distance Education Programs**

Outreach programs for students who do not attend traditional daytime classes on the main campus. Distance Education programs include Independent Study and Time Enhanced Learning, as well as courses offered at remote locations. For more information, see the *Regional Campuses and Distance Education (RCDE)* section of this catalog on pages 103-105.

## **Drop/Add**

The process used if students need to change a schedule for which they have already registered. Policies which apply to dropping courses are listed on page 58. The procedure for adding courses is explained on page 56.

## **Dual Major**

Any two majors that are completed at the same time. Students must complete *all* requirements for *both* majors. For example, a student may get a dual major in History and English.

## **Earned Hours (EHRS)**

The number of credit hours in which a student earns an A, B, C, D, or P grade. Earned hours count toward the 120 credits needed for graduation.

## **Elective**

A college-level course or subject taken by a student which counts as credit earned toward graduation requirements, but is not required for a major, minor, or University Studies.

## **Emeritus Faculty Member**

A faculty member who has honorably retired from his or her position with a university. Information about USU emeritus faculty members is included at the end of the online *Faculty and Professional Staff* listing at: <http://www.usu.edu/generalcatalog/FacStaff.pdf>

## **Emphasis**

An approved area of study, having a specific curriculum, within a particular undergraduate major. All emphases *must* be sanctioned by the Utah State Board of Regents.

## **Family Educational Rights and Privacy Act (FERPA)**

A law that (1) provides that students will have access to inspect or review their educational records and (2) protects the rights of a student to privacy by limiting access to the educational record without express written consent. Details of this law are explained on pages 81-83.

## **Financial Aid**

Scholarships, grants, loans, and work assignments which are awarded to a student to help defray, in part or in whole, college-related expenses. Information about the types and amounts of financial aid available is shown in the *Financial Aid and Scholarship Information* section of this catalog (pages 46-51).

## **Full-Time Student**

A student registered for 12 or more credit hours during a semester. In order to graduate after completing eight semesters of study, a student must register for an average of 15 credit hours per semester.

## **General Catalog**

The official Utah State University document pertaining to academic, business, and extracurricular matters. It functions as a contract for graduation requirements for students upon their entry into the University. For the most current information, see the *Online General Catalog* at: <http://www.usu.edu/generalcatalog/>

## **General Education Requirements**

A set of requirements that all candidates for a bachelor's degree, regardless of major, must satisfy. At USU, General Education is part of the University Studies Requirements. For more information, see pages 67-69.

# University Terminology and Definitions

## **GPA Hours**

Credit hours in which a student earns an A, B, C, D, or F grade. GPA hours are credit hours used in the calculation of the grade point average.

## **Grade Point Average (GPA)**

The ratio of the number of quality points earned divided by the number of GPA hours.

## **Graduate Student**

A student who has earned a bachelor's degree and is working toward a master's, doctorate, or other advanced degree. For information about graduate admission, see pages 36-37. Policies and procedures pertaining to graduate students are shown on pages 110-120.

## **Grant**

Student financial aid based on need. Grants do not have to be repaid. Information about available grants is shown on page 46.

## **Hold**

An official action taken by the University to prevent student registration or receipt of grades and transcripts until a student satisfies a requirement. For example, a registration hold is placed on a new student until he or she has met with an academic advisor.

## **Honor Roll (Dean's List)**

A recognition given to students who earn a minimum 3.500 GPA in 15 or more graded credits, except for summer semester for which 12 or more graded credits are required.

## **Honors Program**

A program for high-achieving students. Program members may work toward one of three different Honors degrees: Departmental Honors, Departmental Honors with Honors in University Studies, and University Honors. Requirements for these degrees are explained on page 310.

## **Incomplete Grade (I)**

A temporary grade that may be assigned when a student is unable to complete all of the work in a course due to extenuating circumstances, but not due to poor performance. An incomplete grade request is initiated by the student. The student is then required to complete the work by the time agreed upon, up to a maximum of 12 months. A written plan is required and is filed with the student, instructor, and department. Acceptable extenuating circumstances, as well as the procedure for resolution of an I grade, are explained on page 59.

## **Independent Study Courses**

Courses for which a student does not have regular class meetings. The student works independently and makes arrangements with the instructor to submit assignments and to take examinations. At USU, these courses are offered through Distance Education Time Enhanced Learning, usually by online correspondence and/or CD. More information about independent study courses can be found at: <http://distance.usu.edu/htm/online/istudy>

## **Intent to Transfer Program**

A program designed to assist transfer students in their transition to USU. Students sign up for the program while they are still attending another institution. The program is designed to ensure that students transfer with as many completed credits as possible that will count toward the USU University Studies and major requirements. Information about the Intent to Transfer Agreement is shown at: [http://www.usu.edu/transfer/intent\\_to\\_transfer/](http://www.usu.edu/transfer/intent_to_transfer/)

## **Internship**

An opportunity for students to combine a career-related work experience with academic coursework. At USU, internships may be arranged through the Cooperative Education Internship Program, University Inn 102, (435) 797-7777. Further information may be found online at: <http://www.usu.edu/career/internships/>

## **Land Grant**

A grant of land made by the government. USU belongs to a family of institutions known as land-grant universities.

## **Late Registration Fee**

Following the published add deadline, a fee of \$100 per course will be assessed for all undergraduate and graduate courses added. This fee does *not* apply to courses taught at Regional Campuses and Distance Education centers. See the *Registration Calendar* on page 8 for specific dates on which a late registration fee will be assessed.

## **Latin Scholastic Distinctions**

To qualify for Latin Scholastic Distinctions at graduation (including Summa Cum Laude, Magna Cum Laude, and Cum Laude), a student must have completed a *minimum* of 40 USU semester credits. For details of how to earn these distinctions, see page 78.

## **Leave of Absence**

A program for students who plan to leave USU before, during, or at the end of a semester, intend to return, and have an expected return date. This program is beneficial for students who intend to perform humanitarian service or serve in the military. Regulations concerning a leave of absence can be found on page 58 (undergraduate) and page 115 (graduate). Also see the Change of Enrollment information at: <http://www.usu.edu/rfyeloa/>

## **Letter of Completion**

A letter indicating that a student has completed the General Education requirements of a university. The letter is only used when a student transfers to another institution and needs verification that the General Education requirements have already been satisfied.

## **Loan**

Loaned money which must be repaid over a period of time. Typically, a student must repay the loan amount plus interest. Information about available loans is shown on pages 46-47.

## **Lower-Division Courses**

Courses numbered at the 1000- and 2000-level that are usually taken during a student's freshman and sophomore years.

## **Magna Cum Laude**

A Latin Scholastic Distinction designated for students who graduate with a cumulative GPA between 3.800 and 3.949.

## **Major**

An approved concentrated area of study, having a specific curriculum, in an academic discipline. A major usually requires 30 to 70 semester credit hours of coursework.

## **Mathematics Prerequisite Acceptability Time Limit (MPATL)**

ACT and SAT scores for mathematics competency and passing grades in MATH 0900, 1010, 1050, and 1060 are valid for use in placement and as prerequisites for one calendar year for nonmatriculated students and three successive semesters (including summer semester) for matriculated students. (See page 44 for specific dates by which prerequisites must be completed.) **Note:** This acceptability time limit applies *only* to prerequisites for MATH 1010, 1030, 1050, 1060, 1100, 1210, 2020, and STAT 1040. The time limit *does not apply* to mathematics prerequisites for courses offered by other departments.

# University Terminology and Definitions

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## **Matriculated Student**

A student who enrolls or registers in a college or university as a degree candidate (necessary for financial aid).

## **Matriculation**

The process of applying and gaining acceptance into a degree program at a college or university. Being matriculated is important for academic advisement and financial aid purposes, and allows students to take advantage of all services within the University.

## **Minor**

An approved secondary or supplementary field of study. A minor does not require as much coursework as a major.

## **Nonmatriculated Student**

An individual who may be enrolled in courses at a college or university, but is not working toward a degree.

## **Part-Time Student**

A student who registers for fewer than 12 semester credit hours.

## **Pass (P), D+, D, F Option**

Students may register for a Pass (P), D+, D, F option. The grade of Pass (P) indicates academic achievement of not less than C-. Credits for which the Pass (P) grade is received are not quality hours, and are therefore not used in the calculation of a student's grade point average. At no future time may the student request a letter grade, once the P, D+, D, F option has been requested. (See pages 56-57 for more information.)

## **Philanthropy**

An active effort to promote human welfare. At USU, this term often refers to philanthropic gifts to the University to be used for purposes such as scholarships, research, or construction of buildings and other facilities. For information about giving to USU, see:

<http://www.usu.edu/advancement/giving/>

## **PIN Number**

When students are first admitted to USU, they are assigned an A-Number (Banner ID Number), as well as a PIN (Personal Identification Number) which corresponds to their date of birth (MMDDYY). Upon logging into Access (Banner) the first time, students will be required to change their PIN. Every 180 days, the system will prompt students to change their PIN. The PIN must be 6 characters long and may *only* contain numbers and letters (*no spaces or other characters* may be included). Students may login to Access (Banner) at: <http://www.usu.edu/myusu/>

## **Placement Test**

A test given to determine the appropriate level at which to "place" a student in certain courses. At USU, the most common placement tests are used for mathematics. Information about the various placement tests is shown on page 44.

## **Plateau Tuition**

A flat rate of tuition assessed to students who register for 13 to 18 credits. In general, the tuition amount increases for each credit a student takes up through 13 credits. There is no tuition increase between 13 and 18 credits. The tuition amount increases again for students who enroll for more than 18 credit hours. Tuition and fee tables may be accessed at: <http://www.usu.edu/registrar/payment/>

## **Portfolio**

An arrangement of documents and/or drawings that are used in some majors and degree programs for admission decisions, assessment, or career placement.

## **Practicum**

A course of study designed especially for the preparation of teachers and clinicians. A practicum involves the supervised practical application of previously studied theory.

## **Prerequisite**

A course students must take prior to (and in preparation for) another course (which is usually more advanced). A different kind of prerequisite may require a student to be enrolled in a certain major or certain academic classification in order to qualify for enrollment in the course. Approved prerequisites are shown within the description of each course. See the *Course Descriptions* section at the end of this catalog. Prerequisites may also be found by clicking on the **Look up Courses via ACCESS** link at: <http://www.usu.edu/registrar/catalogpdf/>

## **Priority Registration**

The order in which students may register for classes. A priority registration schedule indicates the earliest possible day a student may register for classes. Priority is given first to graduate students, followed by seniors, juniors, sophomores, and freshmen, based on earned credit hours. Priority registration dates are shown on page 8.

## **Professional Ranks**

Faculty rank, including lecturer, instructor, assistant professor, associate professor, and professor. Some faculty ranks are preceded by "research" or "adjunct."

## **Provisional Admission Warning**

Under special circumstances, students who do not qualify for enrollment into one of the academic colleges or the Undeclared Program may be considered for provisional admission warning. New students who graduated from high school with an admissions index score below 90 may be considered provisionally. Provisional admission warning offers students a chance to prove themselves academically at the University. Provisionally admitted students must sign an institutional agreement with the Office of University Advising, indicating that they are fully aware of the provisions associated with their admission. For more information, see pages 31-32.

## **Provost**

The chief academic officer of the University.

## **Purge of Registration**

If a student has not paid tuition and fees in full, the Registrar's Office may cancel (or "purge") the student's registration for the upcoming semester, meaning the student will no longer have a seat reserved in the classes he or she has chosen. However, the student is responsible to drop unwanted courses and *should not* rely on the purge. For policies governing the registration purge, see pages 57-58.

## **Quality Points (QPTS)**

The value assigned to each grade. For example, an A earns 4 quality points for each semester credit hour attempted. For a 3 semester credit hour course in which an A was earned, a student would receive 12 quality points.

## **Recitation**

A class period especially in association with and for review of a lecture.

## **Registrar**

The administrative officer who maintains enrollment records and certifies the academic standing, as well as the fulfillment of graduation requirements, for all enrolled students.

# University Terminology and Definitions

## Registration

The process of enrolling in classes for an upcoming semester. Registration may be accomplished by submitting certain forms to the Registrar's Office, or by using the Access (Banner) System. For login to Banner, go to: <http://www.usu.edu/myusu/>

## Remedial Course

A course numbered lower than 1000. Remedial courses will not satisfy baccalaureate requirements, are not transferable, and are not calculated in a student's grade point average or earned credits. USU offers remedial courses in English and mathematics. Students enrolling in a remedial course at USU must usually pay a remedial course fee, in addition to regular tuition.

## Residency

A classification for tuition purposes. Utah residents pay lower tuition than nonresidents. Tuition and fee tables showing resident and nonresident tuition amounts can be accessed at:

<http://www.usu.edu/registrar/payment/>. Information about the residency policy and appeal procedures is shown on page 35.

## Rhetoric Associates

Students with outstanding communication skills in reading, writing, and speaking who are selected to help other students. Rhetoric Associates are assigned to serve as initial readers for 10-15 students in a class, following up their written comments with individual conferences.

## Sabbatical Leave

A periodical leave of absence during which a person interrupts his or her normal work to wholly devote time to further intensive study. This term is usually applied to a sabbatical leave taken by a faculty member.

## Schedule of Classes

Effective Summer Semester 2009, the *Schedule of Classes* is no longer produced as a printed publication. However, the information regarding registration and final exam schedules, formerly found in the printed *Schedule of Classes*, can be found in this catalog (see pages 6-9). Information about times, locations, and fees for courses taught each semester can be found can be found through Banner (Access) at: <http://www.usu.edu/registrar/catalogpdf/>

## Scholarship

Student financial aid based on academic achievement, need, or a combination of factors. Scholarships do not have to be repaid, but philanthropy is encouraged. In addition, students who receive endowed scholarships are highly encouraged to express gratitude to donors. Information about available University scholarships is shown on pages 47-51. Private endowment scholarships, available through the seven USU colleges, are listed online at:

<http://www.usu.edu/generalcatalog/scholarships/college.cfm>

## Semester

An academic term of 15 weeks, followed by one week of final exams. At USU, there are two 15-week semesters, plus summer sessions, during each academic year. Semester calendars are shown on pages 5-8.

## Service-Learning

A credit-bearing educational experience where students: (1) gain a broader understanding of course content, (2) earn a deeper appreciation of the discipline, (3) help meet community needs, (4) reflect on service activities, and (5) develop an enhanced sense of civic responsibility. Service-Learning focuses on critical thinking, social development, and civic responsibility as part of a student's formal academic studies.

## Service-Learning Scholar

A student admitted to the Service-Learning Scholars program. Successful completion of program requirements results in the awarding of a Service-Learning Certificate upon graduation.

## Space Grant

Funds distributed by the National Aeronautics and Space Administration (NASA) to USU as part of the National Space Grant College and Fellowship Program.

## Specialization

An approved area of study, having a specific curriculum, within a particular graduate degree. All specializations *must* be sanctioned by the Utah State Board of Regents.

## Split Form

An undergraduate student doing well in his or her studies and planning a graduate degree at USU may file a Split Form to request that some coursework be reserved (split out) from the undergraduate degree. The student must have filed an *Application for Graduation* in the Graduation Office, must have a 3.0 or higher GPA, and must have applied for admission to the School of Graduate Studies. For further information about filing a Split Form, see pages 79 and 113. A Split Form may be accessed and completed online at:

<http://www.usu.edu/graduateschool/apply/pdf/SplitForm.pdf>

## Summa Cum Laude

A Latin Scholastic Distinction designated for students who graduate with a cumulative GPA between 3.950 and 4.000.

## Supplemental Instruction (SI)

A program in which a student who has successfully completed a University Studies class is hired to attend all class sessions and conduct review sessions. This student helps other students develop study strategies geared at enhancing academic achievement in that class.

## Syllabus

The document that a professor provides as a course outline. A syllabus will usually include assignments, due dates, test dates, grading procedures, and attendance policies.

## Tenure

A status granted to a faculty member after a trial period (usually six years). Tenure gives protection from summary dismissal. During the probationary period, faculty on a tenure track are reviewed on an annual basis. Tenured faculty are subject to post-tenure review as well.

## Thesis

A contribution to the field of knowledge based on a student's own research or a treatment and presentation of known subject matter from a new point of view. Information about preparation and approval of theses is shown on pages 118-119.

## Transcript

The official record of a student's academic work at a university, listing credit courses, grades, and credit hours earned or attempted by a student. Official transcripts may be obtained by submitting a signed request to the Registrar's Office, *in person* at TSC 246; *by mail* to Utah State University, 1600 Old Main Hill, Logan UT 84322-1600; or via the Internet. To request an official transcript online, students should login to Access at: <http://www.usu.edu/myusu/> (After logging in, click on **Student Records**, then on **Order Transcript**.)

# University Terminology and Definitions

## Transfer Credit

Credit which was earned at another college or university, and which is accepted by USU. Further information about transfer credit is shown on pages 32-34.

## Transfer Student

A student is considered to be a transfer student if he or she has completed at least 24 semester credits of post-high school work at another institution. This does not include concurrent enrollment or AP credits. Information regarding transfer student admission is shown on pages 32-34. Additional information about transferring to USU can be found at: <http://www.usu.edu/transfer/>

## Tuition

The amount charged per semester credit hour for instruction at a college or university. Tuition and fee tables showing resident and nonresident tuition amounts for USU students can be accessed at: <http://www.usu.edu/registrar/payment/>

## Tuition Installment Plan (TIP)

The Tuition Installment Plan (TIP) allows students to defer a portion of their tuition until later in the semester. For details about participation in the TIP, see page 65.

## Tuition Surcharge for Excessive Credits

Students who have attempted 170 credits or more will be charged out-of-state tuition according to Board of Regents Policy. In some circumstances (as detailed on page 64), the surcharge may be waived. The student may obtain a petition to waive the surcharge at: <http://www.usu.edu/registrar/forms/pdf/Surcharge.pdf>

## Tutor

An individual who provides private instruction or coaching. Tutoring assistance at USU is provided by the Academic Resource Center. Further information may be found at: <http://www.usu.edu/arc/tutoring/>

## Undeclared Major

The category for exploratory students who have not yet decided upon a major program. Undeclared majors are advised through the Office of University Advising, Taggart Student Center 304, (435) 797-3373.

## Undergraduate

A college or university student who has not yet earned a bachelor's degree.

## Undergraduate Teaching Fellows

A program offering outstanding students an opportunity to work in meaningful academic employment within their major field. Students chosen as Teaching Fellows are assigned to work with a faculty member in the classroom and are supervised by a faculty mentor. Further information can be found at: <http://www.usu.edu/provost/student/teachingfellows.cfm>

## University Studies Requirements

Requirements that all students, regardless of major, must satisfy in order to qualify for a bachelor's degree. For more information, see pages 67-75.

## Upper-Division Courses

Courses numbered at the 3000-level or higher that are usually taken during a student's junior and senior years.

## Common USU Acronyms

AHRS	Attempted Hours
AP	Advanced Placement (examinations offered at high school level)
APS	Associate of Applied Science
ARC	Academic Resource Center
AS	Associate of Science
ASUSU	Associated Students of Utah State University
BA	Bachelor of Arts
BAI	Breadth American Institutions
BCA	Breadth Creative Arts
BFA	Bachelor of Fine Arts
BHU	Breadth Humanities
BLS	Breadth Life Sciences
BPS	Breadth Physical Sciences
BS	Bachelor of Science
BSS	Breadth Social Sciences
CI	Communications Intensive
CIL	Computer and Information Literacy
CL1	Communications Literacy (freshman level)
CL2	Communications Literacy (sophomore level)
CLEP	College-Level Examination Program (examinations in college-level subject matter)
CRN	Course Reference Number
DHA	Depth Humanities and Creative Arts
DRC	Disability Resource Center
DSC	Depth Life and Physical Sciences
DSS	Depth Social Sciences
EdD	Doctor of Education
EdS	Educational Specialist
EHRS	Earned Hours
FERPA	Family Educational Rights and Privacy Act
GPAHS	Hours Used to Calculate GPA
HASS	College of Humanites, Arts, and Social Sciences
HPER	Health, Physical Education and Recreation
IBO	International Baccalaureate Organization
MA	Master of Arts
MBA	Master of Business Administration
ME	Master of Engineering
MEd	Master of Education
MFA	Master of Fine Arts
MNR	Master of Natural Resources
MPATL	Math Prerequisite Acceptability Time Limit
MS	Master of Science
MSS	Master of Social Sciences
PhD	Doctor of Philosophy
PIN	Personal Identification Number
QI	Quantitative Intensive
QL	Quantitative Literacy
QPTS	Quality Points
SI	Supplemental Instruction
SOAR	Student Orientation, Advising, and Registration
STAB	Student Activities Board
TIP	Tuition Installment Plan
TOEFL	Test of English as a Foreign Language
TSC	Taggart Student Center
UA	University Advising, Office of

# Getting Started at Utah State University

## Student Checklist

To get started at USU, students need to complete a number of steps, beginning with application for admission, obtaining any needed financial aid, making arrangements for housing and meals, and proceeding on to orientation, advising, registration, and payment of tuition and fees. Sequentially completing the procedures outlined below will help ensure a successful beginning at Utah State University.

### **Apply for Admission to the University**

A nonrefundable \$40 application fee, a high school transcript or GED score, and an ACT or SAT score are generally required for new freshmen. Application deadlines for new freshmen are as follows: **Fall Semester**—April 1; **Spring Semester**—November 1; and **Summer Semester**—April 1. With an additional \$15 late fee, applications may be accepted after these deadlines. For further information about undergraduate admission, see pages 30-35. International students should see pages 38-39.

A bachelor's degree from an accredited college or university is required for admission to a graduate program. Application-for-admission forms are obtained online at:

<http://www.usu.edu/graduateschool/apply/>

For more information, see pages 36-37.

### **Apply for Financial Aid and Scholarships**

Application for financial aid begins in January for the following academic year. Scholarships are awarded to qualifying applicants who apply on or before February 1, prior to the academic year. See pages 46-51 for information about available financial aid and scholarships for undergraduate students.

Financial assistance available for graduate students is explained on pages 111-112.

### **Apply for University Housing and Dining**

Students who would like to live in University housing can find further information at: <http://www.housing.usu.edu>. Also see pages 52-53 in this catalog. For more information about dining services, see page 54 or visit: <http://www.usu.edu/dining/>

### **Attend SOAR (Orientation)**

Newly admitted first-year students are required to participate in a Student Orientation, Advising, and Registration (SOAR) session before they may register for classes. For transfer students, orientation is optional. See page 55 for more information.

### **Obtain Academic Advising**

For newly admitted first-year students, academic advising is required, and is obtained during SOAR. New transfer students are required to contact their academic advisor before registering for classes. Additional information is on pages 12 and 55.

### **Learn about USU Policies and Procedures**

All students should understand the policies and procedures in effect at USU. Many of these policies are explained on pages 56-63 and pages 80-83. Additional policies may be viewed online at: <http://www.usu.edu/policies/>

### **Learn how Previously Earned Credits Apply**

New freshmen who have earned college-level credits through AP and CLEP examinations or through concurrent enrollment, as well as transfer students who have earned credits at other colleges and universities, should consult with their academic advisor to learn how these credits may be applied at USU. More information about credit by examination is shown on pages 40-45. Information about transferring credit from other institutions is shown on pages 32-34.

### **Learn about General Education and Depth Education Requirements**

Undergraduate students working toward an associate or bachelor's degree are required to complete General Education requirements. Students earning a bachelor's degree must also earn Depth Education credits. More information about these requirements is shown on pages 67-75.

### **Register for Classes**

Newly admitted first-year students will register during SOAR for their first semester of classes. Transfer students may register after consulting with their academic advisor. See pages 56-58 for further information about registration procedures.

Matriculated graduate students may register on or after the priority registration date shown on the *Registration Calendar* (see page 8).

### **Pay Tuition and Student Fees**

Tuition and fee tables, as well as information about payment options and deadlines, may be accessed at: <http://www.usu.edu/registrar/payment/>

Fees pertaining to students' classes may be found in the online *Schedule of Classes* at: <http://www.usu.edu/registrar/catalogpdf/>

To find out the amount owed to USU, students should login to Access at: <http://www.usu.edu/myusu/> After logging in and clicking on the **student** tab, click on **registration**.

More information about tuition, fees, and refunds is shown on pages 64-66.

### **Learn about Academic Support Programs and Student Resources**

USU offers many academic support programs and student resources designed to help students progress toward completion of their degrees. These include workshops, supplemental instruction, tutoring programs, and financial planning, as well as services for qualified students having disabilities. These programs and resources are explained on pages 84-92.

# Undergraduate Admission

**Director, Admissions Office:** Jennifer A. Putnam

**Location:** Taggart Student Center 102

**Phone:** (435) 797-1079, (435) 797-1129, or (800) 488-8108

**FAX:** (435) 797-3708

**E-mail:** [admit@usu.edu](mailto:admit@usu.edu)

**WWW:** <http://www.usu.edu/admissions>

The Utah State University undergraduate admissions policy is designed to admit students who have the best chance to successfully complete a university program of study. USU grants admission, without regard to race, creed, sex, or national origin, to those students who satisfy the admissions requirements.

The *Application for Undergraduate Admission and Scholarships* is available online at <http://www.usu.edu/admissions>. For a paper application, please contact the Admissions Office.

Application materials may be sent to:

**Admissions Office**  
**Utah State University**  
**0160 Old Main Hill**  
**Logan UT 84322-0160**

## New Freshman Admission

New freshman applicants are expected to have graduated from an accredited high school with a minimum 2.5 GPA, a minimum ACT score of 18 (SAT score of at least 860), and a minimum 90 Admissions Index score. (See Admissions Index table on page 31.) In order to be admitted in good standing, all three requirements must be met. More information about the Admissions Index is available at: <http://www.usu.edu/admissions>

Applicants whose scores do not meet the standard will be considered on an individual basis. Applicants who have not graduated from high school may apply with a GED, instead of a high school transcript. A minimum GED score of 550 (equivalent to 55) is required. Applicants with a minimum Admissions Index score of 85 may be admitted into provisional admission warning at one of Utah State's Regional Campuses or Distance Education centers located throughout the state.

### New Freshman Application Materials

1. Application for Undergraduate Admission and Scholarships
2. Nonrefundable \$40 application fee (\$55 if late)
3. High school transcript or GED score
4. ACT or SAT score (waived for applicants 25 and older)
5. Official college transcript of concurrent enrollment

### New Freshman Application Deadlines

Admissions applications are accepted *after* posted deadlines with an *additional \$15 late fee*. Scholarship consideration is given *only* to fall semester applicants.

**Fall Semester**—April 1

(Final scholarship deadline is February 1.)

**Spring Semester**—November 1

**Summer Semester**—April 1

### High School Curriculum

Students who have graduated from high school and who desire to attend Utah State University must have completed a preparatory course of study, including the following:

#### English

Four years (units), emphasizing composition/literature.

#### Mathematics

Three years (units), selected from elementary algebra, geometry, intermediate algebra, trigonometry, college or advanced algebra, or calculus. It is strongly recommended that students take mathematics up to at least trigonometry.

#### Biological/Physical Science

Three years (units), which meet either state or local graduation requirements. At least one unit must provide a laboratory experience.

#### American History

One year (unit).

#### Additional Courses

Four years (units), chosen from at least two of the following: history, English, mathematics beyond intermediate algebra, laboratory science, technology and engineering education, foreign language, social science, and fine arts.

#### Foreign Language

Two years (units) recommended, which must be of the same foreign language.

Students who meet the minimum index requirements, but have less than the required number of units, will be admitted on the condition that the deficiency is satisfied at the University within the first 30 semester credits of study.

When the admission decision is made, an official letter of notification will be sent to the student. Admission status may also be checked online.

### Early Admission

A high school student who has completed his or her junior year and maintained a superior scholastic record may be granted special consideration for admission. An applicant must satisfy the following requirements:

1. Submit an official application, ACT/SAT scores, a high school transcript, and a \$40 application fee.
2. Submit letters of approval and recommendation from:
  - (a) Superintendent or principal
  - (b) Parent or guardian
3. Admission is not automatic, and will be determined by the admissions committee.
4. Applications for admission and credentials from the high school must be received by the University according to the deadline dates listed on this page under *New Freshman Application Deadlines*.

### Home-schooled Students

Home-schooled students applying for admission to Utah State University who submit a transcript from an accredited home-school organization will be evaluated the same as any traditional high school students. They must satisfy the University's admission requirements of a minimum 2.5 grade point average, a minimum ACT score of 18 (or an equivalent SAT score of at least 860), and a minimum Admissions Index score of 90. (See Admissions Index table on page 31.)

# Undergraduate Admission

To be admitted to Utah State University, home-schooled students *without* transcripts must provide a list of classes they have completed, and must submit a minimum ACT score of 21 (SAT score of at least 980); or a minimum ACT score of 18 (SAT score of at least 860) and a minimum score of 550 (equivalent to 55) on the GED.

In consultation with the department of the student's intended major, the Director of Admissions will review all materials and make a final decision.

## Utah Basic Skills Competency Test (UBSCT)

Students with the Basic High School Diploma who meet the University's admission standards of a 2.5 minimum GPA, ACT score of at least 18 (SAT score of at least 860), and an Admissions Index score of at least 90 will be admitted in *good standing*. If they satisfy the University's admission standards, students having an Alternative Completion Diploma may be offered admission on a case-by-case basis. Students with a Certificate of Completion will be required to take the GED and pass with a battery score of at least 550 (equivalent to 55), and achieve a minimum ACT score of 18 (SAT score of at least 860). Effective Fall 2006, **all** seniors graduating from Utah high schools are required to pass the UBSCT.

## Credit by Examination

New freshmen may receive credits for examination scores received prior to enrollment at USU. Credits may be earned with satisfactory scores on Advanced Placement (AP), College-Level Examination Program (CLEP), DANTES Subject Standardized Tests (DSST), and International Baccalaureate Organization (IBO) examinations. To ensure that credits earned by examination will be posted to their transcripts, students are responsible to submit all of their test scores to the Admissions Office. For further information about these examinations, as well as minimum satisfactory scores for individual tests, see pages 40-45.

## Admission Deferment

Newly accepted freshman, transfer, or readmitted students who wish to defer their start date to a later semester may do so (without reapplying)

by submitting an *Admission Deferment Application* to the Admissions Office. International students and graduate students *may not* use this form. The application is due *no later* than the first day of classes for the semester the student has been admitted to. Deferments are generally granted for up to one year. However, they may be granted for up to two years for those participating in official assignments such as military, church, or humanitarian service. If requesting a deferment for more than one year, the student must submit an official letter of assignment. All deferment applications must be approved by the admissions committee. The *Admissions Deferment Application* is available online at: <http://www.usu.edu/studemp/leaveofabsence/>. Questions should be directed to the Admissions Office at (435) 797-1079.

## Undeclared Program

Newly admitted students with less than 60 semester credits, who meet the University admission standards, but who have not declared a major or who do not qualify for enrollment into one of the academic colleges, are automatically placed in the Undeclared Program. No degrees are offered through the Undeclared Program. Undeclared students who have not declared a major by the time they complete 45 semester credits will be required to sign an institutional agreement with the Office of University Advising.

## Provisional Admission Warning

Under special circumstances, students who do not qualify for enrollment into one of the academic colleges may be considered for provisional admission. New students who graduated from high school with an admissions index score below 90 may be considered provisionally. Provisional admission warning offers students a chance to prove themselves academically at the University.

Students who are admitted provisionally will have an academic standing of *provisional admission warning*, which is equivalent to academic warning (see page 61). After grades are posted at the end of the first semester, a student whose USU cumulative GPA is 2.0 or higher will be considered to be in *good standing*. A student whose USU cumulative GPA is less than 2.0 will be placed on *academic probation*.

## Admissions Index

SAT CR+M	ACT Comp	GPA																													
		4.0	3.9	3.8	3.7	3.6	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1
1600	36	142	140	138	136	135	133	131	129	128	126	124	122	121	119	117	115	113	112	110	108	106	105	103	101	99	97	96	94	92	90
1540	35	140	138	136	135	133	131	129	128	126	124	122	120	119	117	115	113	112	110	108	106	105	103	101	99	97	96	94	92	90	89
1490	34	138	136	135	133	131	129	128	126	124	122	120	119	117	115	113	112	110	108	106	105	103	101	99	97	96	94	92	90	89	87
1440	33	136	135	133	131	129	128	126	124	122	120	119	117	115	113	112	110	108	106	105	103	101	99	97	96	94	92	90	89	87	85
1400	32	135	133	131	129	128	126	124	122	120	119	117	115	113	112	110	108	106	104	103	101	99	97	96	94	92	90	89	87	85	83
1360	31	133	131	129	128	126	124	122	120	119	117	115	113	112	110	108	106	104	103	101	99	97	96	94	92	90	89	87	85	83	81
1330	30	131	129	127	126	124	122	120	119	117	115	113	112	110	108	106	104	103	101	99	97	96	94	92	90	88	87	85	83	81	80
1290	29	129	127	126	124	122	120	119	117	115	113	112	110	108	106	104	103	101	99	97	96	94	92	90	88	87	85	83	81	80	78
1250	28	127	126	124	122	120	119	117	115	113	112	110	108	106	104	103	101	99	97	96	94	92	90	88	87	85	83	81	80	78	76
1210	27	126	124	122	120	119	117	115	113	111	110	108	106	104	103	101	99	97	96	94	92	90	88	87	85	83	81	80	78	76	74
1170	26	124	122	120	119	117	115	113	111	110	108	106	104	103	101	99	97	96	94	92	90	88	87	85	83	81	80	78	76	74	72
1130	25	122	120	119	117	115	113	111	110	108	106	104	103	101	99	97	96	94	92	90	88	87	85	83	81	80	78	76	74	72	71
1090	24	120	119	117	115	113	111	110	108	106	104	103	101	99	97	95	94	92	90	88	87	85	83	81	80	78	76	74	72	71	69
1050	23	119	117	115	113	111	110	108	106	104	103	101	99	97	95	94	92	90	88	87	85	83	81	80	78	76	74	72	71	69	67
1020	22	117	115	113	111	110	108	106	104	103	101	99	97	95	94	92	90	88	87	85	83	81	79	78	76	74	72	71	69	67	65
980	21	115	113	111	110	108	106	104	103	101	99	97	95	94	92	90	88	87	85	83	81	79	78	76	74	72	71	69	67	65	64
940	20	113	111	110	108	106	104	103	101	99	97	95	94	92	90	88	87	85	83	81	79	78	76	74	72	71	69	67	65	64	62
900	19	111	110	108	106	104	102	101	99	97	95	94	92	90	88	87	85	83	81	79	78	76	74	72	71	69	67	65	63	62	60
860	18	110	108	106	104	102	101	99	97	95	94	92	90	88	87	85	83	81	79	78	76	74	72	71	69	67	65	63	62	60	58
820	17	108	106	104	102	101	99	97	95	94	92	90	88	87	85	83	81	79	78	76	74	72	71	69	67	65	63	62	60	58	56
770	16	106	104	102	101	99	97	95	94	92	90	88	86	85	83	81	79	78	76	74	72	71	69	67	65	63	62	60	58	56	55
720	15	104	102	101	99	97	95	94	92	90	88	86	85	83	81	79	78	76	74	72	71	69	67	65	63	62	60	58	56	55	53
670	14	102	101	99	97	95	94	92	90	88	86	85	83	81	79	78	76	74	72	71	69	67	65	63	62	60	58	56	55	53	51
620	13	101	99	97	95	94	92	90	88	86	85	83	81	79	78	76	74	72	70	69	67	65	63	62	60	58	56	55	53	51	49
560	12	99	97	95	94	92	90	88	86	85	83	81	79	78	76	74	72	70	69	67	65	63	62	60	58	56	55	53	51	49	47
510	11	97	95	93	92	90	88	86	85	83	81	79	78	76	74	72	70	69	67	65	63	62	60	58	56	54	53	51	49	47	46
430	10	95	93	92	90	88	86	85	83	81	79	78	76	74	72	70	69	67	65	63	62	60	58	56	54	53	51	49	47	46	44
400	9	93	92	90	88	86	85	83	81	79	78	76	74	72	70	69	67	65	63	62	60	58	56	54	53	51	49	47	46	44	42
380	8	92	90	88	86	85	83	81	79	77	76	74	72	70	69	67	65	63	62	60	58	56	54	53	51	49	47	46	44	42	40
350	7	90	88	86	85	83	81	79	77	76	74	72	70	69	67	65	63	62	60	58	56	54	53	51	49	47	46	44	42	40	38
320	6	88	86	85	83	81	79	77	76	74	72	70	69	67	65	63	62	60	58	56	54	53	51	49	47	46	44	42	40	38	37
290	5	86	85	83	81	79	77	76	74	72	70	69	67	65	63	62	60	58	56	54	53	51	49	47	46	44	42	40	38	37	35

Updated February 2009



# Undergraduate Admission

Students admitted provisionally are advised through the Office of University Advising, located in Taggart Student Center Room 304. Provisionally admitted students must sign an institutional agreement with the Office of University Advising, indicating that they are fully aware of the provisions associated with their admission.

## Declaring a Major

When a student has demonstrated an ability to maintain a GPA appropriate for the intended major, the student may submit a *Change of Matriculation* form through the Registrar's Office. It is the *student's responsibility*, in consultation with an advisor, to complete all necessary paperwork.

## Nontraditional Admission

An applicant who is not a high school graduate may be considered for admission by presenting satisfactory evidence of ability to do university work. This evidence may be demonstrated by scores on the General Education Development Test (GED). Admission will *not* be offered *unless* a student has a high school diploma or a GED Test score of 550 (equivalent to 55) or higher *and* passes *all* subtests. (Students in this category include those whose high school class has graduated and those over the age of 18.) Students must also take the ACT/SAT if not previously taken. If the student has been out of high school for seven years or more, this requirement is waived.

## Transfer Student Admission

Transfer students with at least 24 semester credits earned at another regionally accredited institution must meet the minimum GPA requirement for their desired major. Minimum GPA requirements may be found in the major requirement sheets at:

<http://www.usu.edu/majorsheets/>

Applicants whose GPA does not meet the requirements of their desired major may be offered an "undeclared" major, if they have at least a 2.2 GPA and fewer than 60 transfer credits. Applicants with at least a 2.0 GPA may be admitted into provisional admission warning at one of Utah State's Regional Campuses or Distance Education centers located throughout the state. Transfer students with less than 24 semester transfer credits will be evaluated based on their high school GPA and ACT or SAT score.

## Transfer Student Application Materials

1. Application for Undergraduate Admission and Scholarships
2. Nonrefundable \$40 Application Fee (\$55 if late)
3. Official college transcript(s) from all institutions previously attended

(Note: If less than 24 transferable college credits have been earned, then high school transcript and ACT or SAT scores are also required.)

Transcripts submitted for admission become the property of the University and are not returned.

## Transfer Student Application Deadlines

Admissions applications are accepted *after* posted deadlines with an *additional \$15 late fee*. Scholarship consideration is given *only* to fall semester applicants.

**Fall Semester**—July 1

(Final scholarship deadline is April 1.)

**Spring Semester**—November 1

**Summer Semester**—April 1

## Transfer Student Admission Deferment

Transfer students who wish to defer their start date to a later semester may do so (without reapplying) by submitting an *Admission Deferment Application* to the Admissions Office. For further information, see *Admission Deferment* information on page 31.

## Credit Transfer Policy

At its discretion, the University may accept transfer credit from accredited and nonaccredited institutions and miscellaneous sources. These may include:

- (1) accredited institutions, (2) foreign universities, (3) U.S. military credit for approved job and educational experiences, (4) credit by examination, and (5) miscellaneous sources, such as internships and nontraditional learning experiences. Further details about these sources are shown below.

The following evaluation criteria for acceptance will be used:

- (1) accreditation status of the institution, (2) recognized national standards published by the American Association of Collegiate Registrars and by the American Council on Education, (3) guidelines given by the State Board of Regents (including guidelines for CLEP and AP credit), and (4) recommendations given by various University units having appropriate academic competence, including the Faculty Senate, as well as college and departmental curriculum committees.

### Acceptance of credit should *not* be confused with its application.

Transfer credit may or may not apply to the graduation requirements of Utah State University, regardless of the number of credits transferred.

Credit other than that intended wholly to meet the General Education requirements of the receiving institution will be applied on the basis of the appropriateness of credit to a particular institution's specific degree program requirements as determined by the receiving institution. At Utah State University, coursework acceptability will be determined by the student's major department.

Credit for quarter courses numbered 100 or above, or for semester courses numbered 1000 or above, earned in the Utah System of Higher Education (USHE) is transferable within the System and will be carried on the student's transcript by the receiving institution.

In order to transfer credit to Utah State University, official transcripts of credit must be submitted to the Admissions Office. Submitted transcripts become the property of Utah State University, and will not be returned. Transcripts from *all* institutions previously attended are required.

Students who transfer to USU and have an Associate of Arts or an Associate of Science degree (or have completed the General Education requirements) from one of the approved transfer institutions will be deemed as having satisfied the General Education portion of the University Studies requirements. However, the Depth Education requirements (shown on pages 70-75) must still be completed. A list of approved transfer institutions is shown on page 33.

When a student transfers *without* an Associate of Arts or Associate of Science degree *or* meets the General Education requirements of an institution not offering the Associate of Arts or Associate of Science degree by earning a 60 to 63 semester credit hour diploma, a registrar's certification that the transferring student has completed baccalaureate-level General Education requirements at the sending institution will be accepted by the receiving USHE institution in lieu of the AA/AS degree. The registrar at the sending institution will forward to the receiving institution an up-to-date description of the General Education requirements.

# Undergraduate Admission

Students who transfer to Utah State University with *less than an Associate Degree* (and have not completed General Education requirements) **or** with an Associate of Applied Science Degree will have their General Education courses evaluated on a course-by-course basis and may be required to take any additional courses necessary to satisfy the General Education requirements at Utah State University. However, if these students have taken equivalent General Education courses at the sending institution, these courses will be accepted toward satisfying General Education requirements at Utah State University.

Courses approved as fulfilling General Education requirements at a USHE institution will be acceptable to Utah State University as satisfying comparable General Education requirements. Acceptability of General Education coursework from other institutions will be determined by the student's major department at Utah State University.

## Approved Transfer Institutions

The General Education portion of the University Studies requirements may be satisfied by an Associate of Arts or Associate of Science degree from one of the following approved transfer institutions. A registrar's certification, stating that the student has completed the General Education requirements of one of these transfer institutions, may also be acceptable. However, Utah State University will require students to satisfy the Breadth American Institutions requirement, if an equivalent course has not been completed. Also, students must satisfy any deficiencies in General Education requirements, including Communications Literacy; Quantitative Literacy; and Breadth courses in the Creative Arts, Humanities, Life Sciences, Physical Sciences, and Social Sciences categories. USU advisors reserve the right to review the student's associate degree to determine which additional courses may be required for meeting these deficiencies.

### Utah

Brigham Young University  
College of Eastern Utah  
Dixie State College of Utah  
LDS Business College  
Salt Lake Community College  
Snow College  
Southern Utah University  
University of Utah  
Utah Valley University  
Weber State University  
Westminster College

### Hawaii

Brigham Young University (Hawaii)

### Idaho

Boise State University  
Brigham Young University (Idaho)  
College of Southern Idaho  
Idaho State University

### Wyoming

Northwest College  
Western Wyoming Community College

Students who transfer from an institution that is not listed above will have their General Education coursework evaluated by the appropriate academic department at Utah State University.

For an institution to be considered for inclusion in the above articulation agreements, the institution's General Education requirements must be reviewed and approved by both the USU General Education Subcommittee and the Educational Policies Committee. Institutional representatives should submit their requests, along with a copy of their institution's catalog, to: John Mortensen, Registrar's Office, Utah State University, 1600 Old Main Hill, Logan UT 84322-1600.

## Articulation Agreements

Utah State University maintains annual course-by-course articulation agreements with the following institutions:

Boise State University  
Brigham Young University  
Brigham Young University (Hawaii)  
Brigham Young University (Idaho)  
College of Eastern Utah  
College of Southern Idaho  
Dixie State College of Utah  
Idaho State University  
LDS Business College  
Northwest College  
Salt Lake Community College  
Snow College  
Southern Utah University  
University of Utah  
Utah Valley University  
Weber State University  
Western Wyoming Community College  
Westminster College

These course-by-course agreements show how courses taken at these institutions will be accepted and applied at Utah State University.

In addition to the course-by-course articulations, Utah State maintains general education articulation agreements with the same institutions as listed above. These agreements show how individual courses taken at these institutions will meet Utah State's University Studies requirements.

These articulation agreements, as well as additional information about transferring to Utah State University, can be found at the Transfer website: <http://www.usu.edu/transfer/>

## Guidelines for Transferable Credit

Transfer credit earned at institutions that are accredited by one of the six regional accrediting associations will be accepted if the work is parallel in nature to programs offered at Utah State University.

The six regional accrediting associations are: (1) Middle States Association of Colleges and Schools, Commission on Higher Education (MSA); (2) Northwest Commission on Colleges and Universities (NWCCU); (3) North Central Association of Colleges and Schools, Higher Learning Commission (NCA); (4) New England Association of Schools and Colleges, Inc., Commission on Institutions of Higher Education (NEASC-CIHE); (5) Southern Association of Colleges and Schools, Commission on Colleges (SACS); and (6) Western Association of Schools and Colleges, Accrediting Commission for Senior Colleges and Universities (WASC-ACSCU).

# Undergraduate Admission

Utah State University *may* award credit for academic work completed at institutions that are not regionally accredited if the courses:

1. articulate to University Studies or General Education requirements at USU,
2. correspond to recognized standards published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO) and the American Council on Education (ACE), or
3. are approved by the department and college in which the subject matter is taught at Utah State University.

Utah State University does *not* accept transfer credit from nonregional-accredited institutions in those cases where USU lacks an academic unit to evaluate such transfer credit.

Subcollege-level courses which are developmental, remedial, or preparatory are *not transferable*.

Vocational-technical courses are generally *not transferable*. Exceptions may be made by individual departments if the coursework is pertinent to the student's major.

Religion courses are generally *not transferable*. These courses will be evaluated based on the particular orientation of the course. In order to be considered, courses in religion must be listed on an official transcript from a regionally accredited institution.

Credit may be transferred from recognized international universities. Transcripts or documented evidence (translated into English) must be presented, indicating successful completion of coursework. Courses must be consistent in level, duration, and content with courses offered at American universities. For further information about the transferability of international credit, contact the Office of International Students and Scholars, Taggart Student Center 313, (435) 797-1124.

Subject to evaluation by Utah State University, to ensure credit is granted in accordance with USU policies, credit may be earned through the College-Level Examination Program (CLEP), DANTES Subject Standardized Tests (DSST), and International Baccalaureate Organization (IBO) examinations *or* by taking Advanced Placement (AP) examinations while a student is in high school. For further information about these examinations, see the *Credit by Examination and Advanced Coursework* section of this catalog on pages 40-45.

For further information about transfer credit evaluation and articulation, visit the Transfer website at: <http://www.usu.edu/transfer/>

## Military Credit

The University may grant elective credit to students currently enrolled at the University who have served in the armed forces. The number of elective credits granted depends upon the length of military service.

Length of Active Duty	Elective Credits
Six months to one year .....	4
More than one year .....	10
Qualifying for a commission.....	12

Other military credit may be accepted for transfer, if such credit meets University requirements. The *Guide to the Evaluation of Educational Experiences in the Armed Services* is used by articulation personnel in the Registrar's Office for determining transfer of credit.

Qualified applicants must submit the form DD214, form DD295, or an AARTS/SMART transcript to the Admissions Office. Credits are then

evaluated for acceptance *only* when a Military Credit Evaluation form is submitted to articulation personnel in the Registrar's Office. The form and instructions can be found online at:

<http://www.usu.edu/registrar/forms>

## AARTS/SMART Transcripts

Students who are eligible for an AARTS or SMART transcript should provide the Admissions Office with one of these, *instead of* the DD214 or DD295 form. For more information and to order transcripts online, visit the following websites:

**Army (AARTS):** <http://aarts.army.mil/index.htm>

**Navy (SMART):** <https://smart.navy.mil/smart/welcome.do>

## Readmission

Students who were in attendance the previous spring semester are not required to reapply for fall semester unless the student withdrew from the University or if academic action (warning, probation, or suspension) or graduation occurred at the conclusion of the spring semester. Former students of the University returning after an absence of one year or longer are required to file an application for readmission, unless a *Leave of Absence* form was filed.

## Returning USU Student Admission Requirements

Applicants must meet the minimum GPA requirement for their desired major. Minimum GPA requirements may be found in the major requirement sheets at:

<http://www.usu.edu/majorsheets/>

Applicants whose GPA does not meet the requirements of their desired major may be offered an "undeclared" major, if they have at least a 2.2 GPA and fewer than 60 transfer credits. Applicants with at least a 2.0 GPA may be admitted into provisional admission warning at one of Utah State's Regional Campuses or Distance Education centers located throughout the state.

## Returning USU Student Application Materials

1. Application for Undergraduate Admission and Scholarships
2. Nonrefundable \$20 Application Fee (\$35 if late)
3. College transcript(s) (from colleges attended since USU)

## Returning USU Student Application Deadlines

**Fall Semester**—July 1

**Spring Semester**—November 1

**Summer Semester**—April 1

## Academic Action Readmission Deadlines

Students who desire to be readmitted following academic action (probation, suspension, or dismissal), must apply by April 1 in order to be considered for admission to summer semester, by July 1 in order to be considered for admission to fall semester, or by October 1 in order to be considered for admission to spring semester.

## Readmitted Student Admission Deferment

Readmitted students who wish to defer their start date to a later semester may do so (without reapplying) by submitting an *Admission Deferment Application* to the Admissions Office. For further information, see *Admission Deferment* information on page 31.

## Residency Policy and Appeal

Persons who have been classified as nonresident students and who feel they now satisfy the requirements for Utah Resident Status for Tuition Purposes must file an application with the Residency Office, Taggart Student Center 102. Applications are processed each semester. The deadline is *no later than the end of the third week of the semester*. Applications received after this deadline will be considered for the next semester. The application will not be processed until the student is admitted to the University. There is no application fee.

If an application is denied by the Residency Office, the student may appeal to the Residency Appeals Committee *no later than the 20th calendar day of the semester*. Appeals cannot be considered after this deadline.

To qualify for Utah resident status for tuition purposes, a person is required to:

1. Be a U.S. citizen or have permanent resident status.
2. Document living in Utah for 12 continuous months, as a student or working.
3. Not be claimed as a dependent on tax returns by anyone who is not a resident of Utah.
4. Obtain a Utah vehicle registration, voter registration, and driver's license *at least three months* prior to submitting an application for residency.

Each person who applies for Utah resident status for tuition purposes is considered on the totality of evidence. Based upon review of each application, additional documentation may be required, including Utah voter registration, evidence of employment in Utah, proof of payment of Utah income taxes for the previous year, Utah vehicle registration, etc.

Persons having questions about a specific situation (not covered by the information above) should contact the Admissions Office.

### Exceptions

Provisions in the law enable a person to be granted Utah residency for tuition purposes as an *exception* to the regulations listed above. A few exceptions are listed below, but students should contact the Admissions Office for more information regarding requirements and restrictions for each exception.

1. Dependent children and spouses of those who obtain full-time employment and move to Utah.

2. Certain individuals recruited or transferred to Utah with full-time employment.
3. Dependent persons having a parent who has been a legal resident of Utah for at least one year.
4. Persons who marry a Utah resident. (The spouse must have been a Utah resident *before* the marriage.)
5. Active-duty military personnel with current duty station in Utah can pay resident tuition while they are stationed in Utah. Also, there are some exceptions for certain military members who are deployed while attending school.
6. Native Americans who are registered on the tribal rolls of tribes whose lands are contiguous to Utah. (Documentation is required.)

Other requirements may apply. For further residency information, contact the USU Admissions Office, Taggart Student Center 102, (435) 797-1079, or visit:  
<http://www.usu.edu/admissions/information/residency.cfm>

The residency application is available for download at:  
<http://www.usu.edu/admissions/information/residency.pdf>

**Note:** Western Undergraduate Exchange (WUE) students *are not eligible* to establish residency for tuition purposes. Time in state and/or credits earned while on WUE *will not* count toward residency.

## Other Admissions Information

### Veterans Educational Benefits

Veterans or qualified dependents of disabled or deceased veterans who may be eligible for Veterans Educational Benefits should contact the Office of Veterans Services, or telephone (435) 797-1102 for information concerning their educational benefits. Veterans or eligible dependents must make application for admission and be matriculated in a degree program.

### Western Undergraduate Exchange

Utah State University participates in the Western Undergraduate Exchange (WUE), a program of the Western Interstate Commission for Higher Education (WICHE). Through WUE, certain students who are not residents of the State of Utah may enroll at Utah State University by paying resident tuition plus 50 percent of that amount (plus other fees that are paid by all students). For further information, see WUE text in the *Financial Aid and Scholarship Information* section, page 49.

### International Student Admission

For information about admission procedures for international students, see pages 38-39.

# Graduate Admission

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Dean of School of Graduate Studies: Byron R. Burnham

Location: Main 164

Phone: (435) 797-1189

FAX: (435) 797-1192

WWW: <http://www.usu.edu/graduateschool/>

E-mail and Informational Links:

<http://www.usu.edu/graduateschool/contact/>

## Admission Requirements

The School of Graduate Studies requirements for admission to a graduate degree program are as follows:

1. A bachelor's degree (or, for most doctoral programs, a master's degree) that will be completed *before* the student matriculates in the degree program.
2. A 3.0 or higher grade point average on the student's last 60 semester or 90 quarter credits.
3. A score or scores at or above the 40th percentile on the appropriate admissions test.
4. Satisfactory letters of recommendation.

Requirements *in addition* to those listed above may apply, as determined by the department into which the student desires to matriculate.

## Application Procedures

Application-for-admission forms are obtained online at:

<http://www.usu.edu/graduateschool/apply/>

Before the student's application will be considered complete and ready for review by the School of Graduate Studies, the following items must be received by the Graduate School:

1. A completed online **application form** accompanied by the nonrefundable **\$55 application fee**, which is required for both international and domestic students.
2. An **official transcript from each previously attended college and/or university** (except USU), which must be sent directly from each institution to the USU School of Graduate Studies. Transcripts must be submitted for **all** coursework above the high-school level and **all** prior degrees. Transcripts accumulated on one record are not acceptable. Transcripts not in English must be accompanied by a notarized translation. Transcripts submitted as application credentials become the property of the School of Graduate Studies and will not be copied for or returned to the applicant. A bachelor's degree from an accredited college or university with a minimum 3.0 GPA for the last 90 quarter or 60 semester credits earned, is required.
3. **Score(s) on the appropriate admissions test(s)** sent directly to the School of Graduate Studies by the testing agency. Most departments require Graduate Record Examination (GRE) scores; however, the General Management Test (GMAT) or the Miller Analogy Test is acceptable for some master's degree programs. (For further details, see the *Admissions Tests* information shown on this page.)

4. **Three letters of recommendation**, each of which must address the applicant's potential for success in the proposed graduate degree program. If the applicant has been enrolled in school during the last five years, *at least two* of the letters must come from persons who are familiar with, and can make an authoritative assessment of, the applicant's recent academic progress and success. **Recommender names and e-mail addresses are required on the online application.** Once a prospective student has completed the online application with the fee paid, the School of Graduate Studies will notify the applicant's recommenders to send their letters electronically.

## Application Target Dates

Completed application forms, transcripts, letters of recommendation, test scores, and the application fee should be submitted on or before the following dates (some departments have earlier deadlines; see departmental descriptions). It may not be possible to process applications for the following semester when they are submitted after the target date.

March 15 for summer semester

June 15 for fall semester

October 15 for spring semester

As soon as an application is complete, a recommendation is made by the appropriate department to the graduate dean, who must approve all admissions. **No notification of acceptance or rejection other than that from the graduate dean is official.**

## Summer Semester Admission

The summer semester consists of two one-week presessions for workshops and short special programs, an eight-week semester of regular coursework, and a postsession of one week for workshops and seminars. Nonresident students pay *only* resident tuition for summer semester credits. All summer semester students are eligible to register the following fall semester. For information regarding deadlines, students should contact the department to which they plan to apply.

## Admissions Tests

An admission test is required of all applicants. Scores at or above the 40th percentile are required by the School of Graduate Studies. Departments may set higher criteria. Most applicants must take the Graduate Record Examination (GRE) general test (minimum of 40th percentile on the verbal and quantitative tests). At this time, the School of Graduate Studies *does not require* the Analytical Writing Score. However, since some departments may require the Analytical Writing Score, students should abide by the requirements of the department to which they are applying. Some departments will accept the Miller Analogies Test (MAT) for master's degree applications. Applicants to the Master of Business Administration, the MS in Management Information Systems, and Master of Accounting programs are required to take the Graduate Management Admission Test (GMAT). Registration forms for the GRE and the GMAT are available at the School of Graduate Studies. Applicants should request that their test report be sent directly to the School of Graduate Studies. The official test report must be received before an application is considered complete.

## Concurrent Degrees

If a student wishes to be considered for two degree programs, an application should be submitted for the first degree program. If admission is granted, the student may then apply for a second degree program after submitting a letter from the head of the department to which the student has been admitted. The letter should indicate that the department has no objection to the student applying for the second degree program. This application process applies to both separate and concurrent degree programs (see *Concurrent Degrees*, pages 119-120).

## Bachelor's Degree Requirement

A bachelor's degree from an accredited U.S. college or university or a similarly recognized international university is required for admission to a graduate program. Three-year bachelor's degrees from accredited or similarly recognized institutions are accepted with the endorsement of the academic department in which the student wishes to study.

## International Applicants

International applicants from non-English-speaking countries must demonstrate competency in the English language. A minimum score on the Test of English as a Foreign Language (TOEFL) of 550 (paper based), 213 (computer based), or 79 (Internet based), or the equivalent score of 6.0 on the International English Language Testing System (IELTS) satisfies this requirement. Both tests are valid for only two years. If an international applicant has a degree from a university in an English-speaking country, the TOEFL is not required.

An applicant who is admitted with a TOEFL (or IELTS) score below the required minimum, and who has not obtained a degree in an English-speaking country, must take the English Language Placement Test given by the Intensive English Language Institute (IELI) at USU. The test must be taken before a student is allowed to register. The results of the exam are used to place students into one of three categories: (1) full-time study of English in the Intensive English Language Institute; (2) a combination of English-language study and academic study, if approved by the IELI director, the student's advisor, and the graduate dean; or (3) full-time academic studies. Students placed in the Intensive English Program must remain in the program until the required English proficiency is attained. Those in category (1) are not allowed to register for non-IELI classes.

International students must also submit an I-20 application form and a financial guarantee. Because of immigration regulations, international students cannot be admitted to provisional matriculation.

## Program Continuity

A fee of \$20 is charged if a student begins a graduate program before or after the semester for which he or she was accepted. If a graduate student's attendance is postponed for more than one semester, the

department or the School of Graduate Studies may require the student to reapply for admission.

## Multiple Degree Programs

With the approval of the cooperating departments and the graduate dean, students may pursue more than one degree program.

An applicant should apply for admission to the first degree program. If admission is granted, the student may then apply for a second degree program, after submitting a letter from the head of the department to which the student has been admitted. The letter should indicate that the department has no objection to the student applying for the second degree program.

## Transfer and Nonmatriculated Credits

Provided USU residency requirements (see specific credit requirements under each degree) will be met, a student's supervisory committee may recommend transfer of graduate credits earned at another accredited institution, including credits with earned *P* grades. The credits must *not* have been used for another degree. Only 12 semester credits may be transferred into a graduate program at USU. Credits with *P* grades may be transferred *only* with committee approval. Transfer credits *cannot replace* required residency credits. Transfer credits are subject to approval of the supervisory committee and the dean of the School of Graduate Studies. Credits more than eight years old may not be acceptable (see *Time Limit* section, page 112). Transfer credits will be shown on official USU transcripts upon completion of the degree. These stipulations apply to nonmatriculated credits.

*No more than 12 credits* taken at USU or another institution *prior to matriculation at USU* may be used in a program of study.

## Residency Requirement

At least 24 semester credits for a master's degree must be from a supervisory committee- and SGS-approved Program of Study from Utah State University. Furthermore, any allowed transfer credits cannot replace required residency credit.

For the PhD, a minimum of 33 USU credits from an approved Program of Study is required. At least three semesters, two of which must be consecutive, of full-time registration in residency at USU are required.

For the EdD, a minimum of 39 USU semester credits from an approved program of study is required. At least three semesters must be full-time registration in residence at USU; none of the semesters need to be consecutive, but two full-time semesters must be taken on campus prior to dissertation credit. Some departments also have language requirements.

# International Student Admission and Programs

## Director of the Office of International Students and Scholars:

Jeannie Pacheco

**Location:** Taggart Student Center 313

**Phone:** (435) 797-1124

**FAX:** (435) 797-3522

**E-mail:** [iss@aggiemail.usu.edu](mailto:iss@aggiemail.usu.edu) (prospective students/  
admissions questions)

**E-mail:** [oiss@aggiemail.usu.edu](mailto:oiss@aggiemail.usu.edu) (current students)

**WWW:** <http://www.usu.edu/oiss/>

The Office of International Students and Scholars (OISS) is committed to providing quality services to international students, scholars, and their families, and helping them to succeed, both academically and personally, in a caring and nurturing environment. OISS provides leadership and support to enhance the academic, social, and personal interactions of students and scholars while at USU, in the Logan community, and beyond. These services include, but are not limited to, international admissions, academic and cultural orientation programs, general advising, transportation, conflict resolution and mediation, immigration matters including SEVIS, peer mentoring, and cultural events planning. OISS also provides referrals to other campus units, including Student Health and Wellness Center, Counseling Center, Academic Resource Center, the Office of University Advising, the Office of Retention and First-Year Experience, Housing Services, Dining Services, Intensive English Language Institute, Registrar's Office, Cashiers Office, Student Employment, and Career Services, to ensure academic success through graduation.

## Undergraduate Admission Requirements

### International Undergraduate Student Admission

The following fees, documents, and information should be submitted to OISS four months (January 15, summer semester; April 15, fall semester; September 15, spring semester) prior to the beginning of the semester for which an international student wishes to be considered for admission:

1. Utah State University international application for admission and a \$50 nonrefundable application fee. Applications submitted after the recommended filing date will be charged an additional \$15 nonrefundable late fee.
2. Official transcripts and certificates or certified true copies for each secondary school, college, and university attended with official English translation of all documents.
3. Evidence of financial capability must be provided with the application, as specified on the application form.
4. International students must be proficient in the use of English. Proficiency is determined for undergraduates by a minimum TOEFL score of 500 on the manual (paper/pencil) test, 173 on the computerized test, 61 on the iBT (Internet-based TOEFL), a minimum IELTS score of 5.0, a Michigan test score of 80, or by passing level 4 (advanced level) of the Intensive English program at Utah State University.

Qualified students in level 4 (advanced level) of Intensive English may take one or more academic courses if approved by the Intensive English faculty and their academic advisor. Audited courses are not recognized by the U.S. Citizenship and Immigration Services (USCIS) toward the requirement of carrying a full course of study.

Failure to carry a full course of study (at least 12 credits per semester for undergraduates), failure to make satisfactory progress toward the receipt of an undergraduate or advanced degree, or failure to comply with any other immigration requirements for students attending USU will be grounds for suspension or dismissal in accordance with existing University policy.

For further information about undergraduate admission, see pages 30-35. See pages 62-63 for explanations of University policies concerning academic suspension and dismissal.

### SEVIS

SEVIS is an Internet-based system that allows schools and the U.S. Citizenship and Immigration Services (USCIS) to exchange data on the visa status of international students. Accurate and current information is transmitted electronically throughout an F-1 or J-1 student's academic career and throughout a J-1 scholar's stay in the United States. U.S. embassies and consulates will also have access to SEVIS.

The University is committed to assisting students in the following ways, to prevent status violations from occurring:

1. OISS will require mandatory orientation programs for all newly enrolled international students. The new rules and regulations will be thoroughly discussed and explained.
2. OISS will offer orientation for all newly arrived international scholars.
3. Informational sessions will be offered throughout the semester for students and scholars who are already on campus.

### International Scholarships

Utah State University offers a limited amount of scholarships to international students. For more information, visit the OISS website: <http://www.usu.edu/oiss/>

### Transfer Student Admission

Applicants with at least 24 semester credits earned at another recognized institution will be admitted if they have a transfer GPA of 2.50 or higher. Those transfer students having a GPA between 2.20 and 2.49 will be considered on an individual basis. Many USU undergraduate majors require a higher GPA for admission. For specific GPA requirements, refer to this catalog or consult the departments. In cases where the student is admissible to the University but does not meet the minimum GPA requirement for admission to the desired major, admission will be offered as an "undeclared" major. Applicants having fewer than 24 semester transfer credits must submit an official high school transcript (including a translated version). Official transcripts of credit must accompany applications for admission when submitted by students who have attended other collegiate institutions. Transcripts submitted for admission become the property of the University and are not returned. *Transcripts from all institutions previously attended are required (including a translated version)*. At its discretion, the University may accept transfer credit from accredited and nonaccredited institutions and miscellaneous sources. **Acceptance of credit should not be confused with its application. Transfer credit may or may not apply to the graduation requirements of an institution, regardless of the number of credits transferred.** Students who would like their college or university work considered for transfer credit must include a course syllabus or description (translated into English) of this work.

See pages 32-34 for more information about transfer student admission.

# International Student Admission and Programs

## Readmission

Students who were in attendance the previous spring semester are not required to reapply for fall semester unless the student withdrew from the University or if academic action (probation or suspension) or graduation occurred at the conclusion of the spring semester. Former students of the University returning after an absence of one year or longer are required to file an application for readmission, unless a *Leave of Absence* form was filed.

Additional information about readmission of returning USU students is shown on page 34. The policy regarding leave of absence is explained on page 58 (undergraduate) and page 115 (graduate).

## International Baccalaureate

USU recognizes the International Baccalaureate diploma and awards credits for General Education requirements, excluding the Breadth American Institutions, Communications Literacy, and mathematics Quantitative Literacy requirements necessary for graduation.

Students who have *not* completed the International Baccalaureate diploma may receive 3 or more credits for scores of 4 to 7 on standard-level or higher-level exams, up to a maximum of 30 credits.

If, prior to (or after) taking an IBO examination, a student receives credit (including AP credit) **for any coursework equivalent to the subject matter** of an IBO examination, the credits earned for the course will be deducted from the credits awarded for the examination.

Further information about the International Baccalaureate Organization (IBO), as well as information about the number and type of USU credits awarded for standard-level and higher-level scores on individual IBO tests, is shown on pages 43-44.

## Graduate Admission

Any student who has graduated from USU or any other university must apply to the School of Graduate Studies for admission and present two copies of official transcripts. Refer to the *Graduate Admission* section of this catalog on pages 36-37 for further information.

## Required New International Student Orientation

Newly admitted or readmitted students must participate in New International Student Orientation. This orientation is designed to assist students in making a successful transition to USU. In addition to registering for classes, students have the opportunity to receive individual advice about degree requirements, as well as vital information about immigration, health insurance, housing, student services, campus life, and athletics. This orientation also gives students a chance to make new friends. New and returning international students should be aware that a *registration hold* will be placed on their file until some form of orientation is completed. After admission to USU, students will receive information about New International Student Orientation.

New students who are required to take the IELI Placement Examination will be able to schedule an appointment at the orientation.

For further information, contact OISS by phone at (435) 797-1124 or by e-mail at [iss@aggiemail.usu.edu](mailto:iss@aggiemail.usu.edu).

## Undergraduate Graduation Requirements

For further information, refer to pages 76-79 in this catalog.

## Intensive English Language Institute

The Intensive English Language Institute (IELI) is an academic program in the College of Humanities, Arts, and Social Sciences. IELI teaches international students, residents, and refugees the English skills and cultural knowledge they need to be successful university students. IELI also trains international teaching assistants (ITAs) for USU. Information about the ITA training is available through the School of Graduate Studies. The IELI program accepts students seeking a degree at Utah State University, as well as students who want to study English for personal or professional reasons. Students may enroll to study *only* English.

Undergraduate students who apply to USU without a TOEFL score of at least 500 paper/pencil or at least 61 iBT (Internet-based test), or a minimum IELTS score of 5.0; and graduate students applying without a minimum TOEFL score of 550 paper/pencil or 79 iBT (Internet-based test), or a minimum IELTS score of 6.0, must take the IELI Placement Examination, given the first day of each semester, including the first day of the IELI summer session. Based on the examination results, students will be required to study in the IELI or exempted from further study and permitted to take classes in their major fields. For additional information, contact the Intensive English Language Institute (IELI) office by phone at (435) 797-2081 or by e-mail at: [ieli@aggiemail.usu.edu](mailto:ieli@aggiemail.usu.edu). Also, see the *Intensive English Language Institute* section of this catalog (page 313). **Note:** The minimum TOEFL and IELTS scores acceptable for undergraduate students entering USU during the 2010-2011 academic year will be raised to 525 paper/pencil, iBT 71, and IELTS 6.0 (with a minimum of 5.0 on each sub-scale).

## Summer Full-time Status

To be considered as full-time students during the summer, international students may *not* take all of their courses during one short-term session. More specifically, international students must spread their credit load throughout the summer by taking a minimum of one course during the first four-week session and a minimum of one course during the eight-week session. Undergraduate students must complete a minimum of 12 credits, and graduate students must complete a minimum of 9 credits. A maximum of 3 credits of distance education (online or independent study classes) may count toward the 9- or 12-credit requirement per semester.

## Special Programs

### Community and University Friends of International Students and Scholars (CUFISS)

CUFISS is a collaboration between the University and community which helps facilitate with activities, as well as with cultural and educational opportunities. For additional information, contact OISS by phone at (435) 797-1124 or by e-mail at [iss@aggiemail.usu.edu](mailto:iss@aggiemail.usu.edu).

### Study Abroad Programs

The USU Study Abroad Office provides information on a range of programs offering opportunities for study all over the world. USU offers many study abroad exchanges for a semester, academic year, or summer term in conjunction with other universities. Students can complete major or minor requirements while on study abroad. For further information, refer to pages 85-86 in this catalog.



# Credit by Examination and Advanced Coursework

## Advanced Placement (AP)

Advanced Placement examinations are offered at the high school level only. A number of examination areas are available; not all high schools offer all available AP examinations. Generally, the major areas chosen include English, American history, mathematics, chemistry, and physics.

Examinations are scored on a one-to-five scale. Students may receive 3 to 10 credits for a composite score of 3, 4, or 5 on any Advanced Placement examination. Earned credits may be applied toward the University Studies requirements, and may also be accepted as equivalent to specific courses. This information is summarized below.

AP Score	USU Credits Granted
0, 1, or 2	0
3, 4, or 5	3 to 10

Other institutions have policies differing from those of USU regarding AP scores and credits granted for those scores. For transfer students with less than an associate degree, AP credit posted to another institution's transcript is reevaluated based on USU's standard.

If, prior to (or after) taking an AP examination, a student receives credit for any coursework equivalent to the subject matter of an AP examination, the number of credits earned for the course will be deducted from the credits awarded for the examination.

To ensure that AP credits will be posted to their transcripts, students are responsible to submit their AP scores to the Admissions Office, Taggart Student Center 102. Efficient posting of AP credits helps advisors counsel students about requirements.

For further information regarding credits granted for AP examinations, contact the Registrar's Office, (435) 797-1081.

### AP Tests Taken Prior to Fall 2007

For historical data on how credits were accepted prior to Fall 2007, contact the Registrar's Office at (435) 797-1081.

## Advanced Placement (AP) Credit Allocation

AP Test	Score	Credits	USU Credit Awarded
Art History	3-4	6	[ARTH 2710 (BHU) (3) or ARTH 2720 (BHU) (3)] + 3 elective credits
	5	6	ARTH 2710 (BHU) (3) + ARTH 2720 (BHU) (3)
Biology	3-5	6	3 (BLS) credits + 3 elective credits
Calculus AB	3	6	3 (QL) credits + 3 elective credits
	4-5	6	MATH 1210 (QL) (4) + 2 elective credits
Calculus BC	3-4	6	MATH 1210 (QL) (4) + 2 elective credits
	5	8	MATH 1210 (QL) (4) + MATH 1220 (QL) (4)
Chemistry	3-4	6	CHEM 1210 (4) + 2 (BPS) credits* (satisfies BPS requirement)
	3-4	6	CHEM 1110 (BPS) (4) + 2 elective credits or Placement*
	5	8	CHEM 1210 (4) + CHEM 1220 (BPS) (4)
Chinese Language & Culture	3-5	10	CHIN 1010 (5) + CHIN 1020 (5)
Computer Science A	3-5	3	3 elective credits

Computer Science AB	3-5	6	CS 3410 (DSC/QI) (3) + 3 elective credits
English Language	3-5	6	3 (CL1) credits + 3 elective credits
English Literature	3-5	6	3 (BHU) credits + 3 (CL1) credits
Environmental Science	3-5	3	3 (BLS) credits
European History	3-5	6	HIST 1110 (BHU) (3) + 3 elective credits
French Language	3-5	8	FREN 1010 (4) + FREN 1020 (4)
French Literature	3-5	6	6 elective credits
German Language	3-5	8	GERM 1010 (4) + GERM 1020 (4)
Government & Politics: Comparative	3-5	3	POLS 2200 (BSS) (3)
Government & Politics: United States	3-5	3	POLS 1100 (BAI) (3)
Human Geography	3-5	3	GEOG 1400 (BSS) (3)
Italian Language & Culture	3-5	8	ITAL 1010 (4) + ITAL 1020 (4)
Japanese Language & Culture	3-5	10	JAPN 1010 (5) + JAPN 1020 (5)
Latin Literature	3-4	6	LATN 1010 (5) + 1 elective credit
	5	10	LATN 1010 (5) + LATN 1020 (5)
Latin: Vergil	3-4	6	LATN 1010 (5) + 1 elective credit
	5	10	LATN 1010 (5) + LATN 1020 (5)
Macroeconomics	3-5	3	ECN 1500 (BAI) (3)
Microeconomics	3-5	3	APEC/ECN 2010 (BSS) (3)
Music Theory	3-5	6	MUSC 1010 (BCA) (3) + 3 elective credits
Physics B	3	6	3 (BPS) credits + 3 elective credits
	4-5	6	PHYS 2110 (4)** or PHYS 2210 (QI) (4)** + 2 (BPS) credits (satisfies BPS requirement)
Physics C: Electricity & Magnetism	3	3	3 (BPS) credits
	4-5	4	PHYS 2220 (BPS/QI) (4)
Physics C: Mechanics	3-5	4	PHYS 2210 (QI) (4)
Psychology	3-5	3	PSY 1010 (BSS) (3)
Spanish Language	3-5	8	SPAN 1010 (4) + SPAN 1020 (4)
Spanish Literature	3-5	6	6 elective credits
Statistics	3-5	3	STAT 2000 (QI) (3)
Studio Art: Drawing	3-5	6	3 (BCA) credits + 3 elective credits
Studio Art: 2-D Design	3-5	6	3 (BCA) credits + 3 elective credits
Studio Art: 3-D Design	3-5	6	3 (BCA) credits + 3 elective credits
United States History	3-5	6	HIST 1700 (BAI) (3) + 3 elective credits
World History	3-5	6	HIST 1510 (BHU) (3) + 3 elective credits

\*The student/advisor may choose the CHEM 1110 or CHEM 1210 track according to what best suits the student's major.

\*\*The student/advisor may choose the PHYS 2110 or PHYS 2210 track according to what best suits the student's major.

# Credit by Examination and Advanced Coursework

## College-Level Examination Program (CLEP)

The CLEP examinations were designed for students who wish to utilize previous knowledge and experience in lieu of required coursework. CLEP is a national program of credit-by-examination, allowing students to obtain recognition for college-level achievement. This privilege is intended to measure information and training gained from practical experience that may be considered the equivalent of the experience and training received by students in an organized course given at the University.

Credits may be acquired through the CLEP examinations. These credits may be used to fill General Education Requirements and may also be accepted as equivalent to specific courses. Students interested in taking a CLEP exam should contact the University Testing Center, University Inn 115.

Individual departments and/or colleges may specify the exact courses required to fill their requirements and may require more than the minimum General Education requirements. Some departments and colleges require specific coursework for General Education, which the CLEP exams may not satisfy.

If, prior to (or after) taking a CLEP examination, a student receives credit (including AP credit) **for any coursework equivalent to the subject matter** of a CLEP examination, the credits earned for the course will be deducted from the credits awarded for the examination.

A student is *not allowed* to take and receive academic credit for a CLEP examination *after* he or she has completed an equivalent or more advanced course within that subject matter. Any exceptions *must* be approved by a student's academic college.

USU will accept a maximum of 30 total credits from CLEP, DANTES Standardized Subject Tests (DSST), and cooperative education/ internship credit combined.

Other institutions have policies differing from those of USU regarding CLEP scores and credits granted for those scores. For transfer students with less than an associate degree, CLEP credit posted to another institution's transcript is reevaluated based on USU's standard.

## CLEP Tests Taken Prior to Fall 2001

In Fall 2001, CLEP began using computer-based testing. The results of the computer-based tests are somewhat different for most of the exams. For historical data on how credits were accepted prior to Fall 2001, contact the Office of University Advising at (435) 797-9304.

## College-Level Examination Program (CLEP) Credit Allocation

CLEP Test	Min. Score	Credits	USU Credit Awarded
American Government	60	3	3 (BAI) credits
American Literature	50	3	ENGL 2160 (3)
Analyzing and Interpreting Literature	52	3	ENGL 2200 (BHU) (3)
Biology	50	3	BIOL 1010 (BLS) (3)
Calculus	50	3	3 (QL) credits

Chemistry	–	–	No credit awarded
College Algebra	50	3	3 (QL) credits
College Mathematics	–	–	No credit awarded
English Composition	50	3	3 (CL1) credits
English Literature	50	3	ENGL 2140 (3)
Financial Accounting	–	–	No credit awarded
French Language	–	–	No credit awarded
Freshman College Composition	53	3	3 (CL1) credits
German Language	–	–	No credit awarded
History of the U.S. I: Early to 1877	50	3	HIST 2700 (BAI) (3)
History of the U.S. II: 1865 to Present	50	3	HIST 2710 (BAI) (3)
Human Growth and Development	53	3	PSY 1100 (3)
Humanities	50	3	3 elective credits
Information Sys. & Computer Appl.	–	–	No credit awarded
Introduction to Educational Psychology	53	2	PSY 3660 (2)*
Introductory Business Law	62	3	MGT 2050 (3)
Introductory Psychology	55	3	PSY 1010 (BSS) (3)
Introductory Sociology	55	3	SOC 1010 (BSS) (3)
Natural Sciences	50	3	3 elective credits
Precalculus	–	–	No credit awarded
Principles of Accounting	–	–	No credit awarded
Principles of Macroeconomics	53	3	ECN 1500 (BAI) (3)
Principles of Management	–	–	No credit awarded
Principles of Marketing	62	3	MGT 3500 (3)
Principles of Microeconomics	54	3	APEC/ECN 2010 (BSS) (3)
Social Sciences and History	50	3	3 elective credits
Spanish Language	–	–	No credit awarded
Trigonometry	–	–	No credit awarded
West. Civ. I: Ancient Near East to 1648	50	3	HIST 1100 (BHU) (3)
West. Civ. II: 1648 to the Present	50	3	HIST 1110 (BHU) (3)

\*Students who plan to use PSY 3660 for teacher licensure should contact the Teacher Education, Graduation, and Educator Licensing Office in Education 103, phone (435) 797-1443, prior to making arrangements for the examination.

# Credit by Examination and Advanced Coursework

## DANTES Subject Standardized Tests (DSST)

DSSTs provide an opportunity for people to obtain college credit for what they have learned in nontraditional ways.

Designed originally for the military, DSSTs are available to civilian students and adult learners as well. The DSST program is used by colleges and universities to award college credit to those who demonstrate that they have knowledge comparable to someone who completed a classroom course in the subject.

Credits may be acquired through the DSST examinations. These credits may be used to fill General Education Requirements, and may also be accepted as equivalent to specific courses.

Individual departments and/or colleges may specify the exact courses required to fill their requirements and may require more than the minimum General Education requirements. Some departments and colleges require specific coursework for General Education, which the DSST exams may not satisfy.

If, prior to (or after) taking a DSST examination, a student receives credit (including AP credit) **for any coursework equivalent to the subject matter** of a DSST examination, the number of credits earned for the course will be deducted from the credits awarded for the examination.

USU will accept a maximum of 30 total credits from CLEP, DSST, and cooperative education/internship credit combined.

Other institutions have policies differing from those of USU regarding DSST scores and credits granted for those scores. For transfer students with less than an associate degree, DSST credit posted to another institution's transcript is reevaluated based on USU's standard.

## DANTES Subject Standardized Tests (DSST) Credit Allocation

DSST Test	Min. Score	Credits	USU Credit Awarded
Art of the Western World	48	–	No credit awarded
Astronomy	48	3	PHYS 1040 (BPS) (3)
Business Law II	–	–	No credit awarded
Business Mathematics	48	3	3 lower-division general elective credits
Civil War and Reconstruction	47	3	HIST 3750 (3)
Criminal Justice	–	–	No credit awarded
Drug and Alcohol Abuse	49	3	HEP 3000 (3)
Environment and Humanity	46	3	NR 1010 (BSS) (3)
Ethics in America	–	–	No credit awarded
Foundations of Education	–	–	No credit awarded
Fundamentals of College Algebra	47	3	3 lower-division general elective credits
Fundamentals of Counseling	45	–	No credit awarded

General Anthropology	47	–	No credit awarded
Here's to Your Health	48	2	HEP 2500 (2)
History of the Vietnam War	44	3	3 lower-division general elective credits
Human Resource Management	–	–	No credit awarded
Human/Cultural Geography	48	3	GEOG 1400 (BSS) (3)
Introduction to Business	54	3	MGT 1350 (3)
Introduction to Computing	50	3	CS 1030 (BPS) (3)
Introduction to Law Enforcement	–	–	No credit awarded
Introduction to the Modern Middle East	47	3	HIST 3410 (3)
Introduction to World Religions	48	3	3 lower-division general elective credits
Lifespan Development Psychology	51	3	PSY 1100 (3)
Management Information Systems	46	3	BUS 3100 (DSS) (3)
Money and Banking	–	–	No credit awarded
Organizational Behavior	–	–	No credit awarded
Personal Finance	59	3	FCHD 3350 (DSS) (3)
Physical Geology	–	–	No credit awarded
Principles of Finance	–	–	No credit awarded
Principles of Financial Accounting	–	–	No credit awarded
Principles of Physical Science I	47 47	3 4	PHYS 1100 (BPS) (3) or PHYS 1200 (BPS) (4)
Principles of Public Speaking	47	3	SPCH 1020 (CI) (3)
Principles of Statistics	48	3	3 lower-division general elective credits
Principles of Supervision	–	–	No credit awarded
Rise and Fall of the Soviet Union	45	3	HIST 3330 (3)
Technical Writing	46	3	3 lower-division general elective credits
Western Europe Since 1945	45	3	3 lower-division general elective credits

# Credit by Examination and Advanced Coursework

## International Baccalaureate Organization (IBO)

The IBO is a nonprofit educational foundation based in Geneva, Switzerland.

It grew out of international schools' efforts to establish a common curriculum and university entry credential. The schools were also motivated by an idealistic vision. They hoped that critical thinking and exposure to a variety of points of view would encourage intercultural understanding by young people.

They concentrated on the last two years of school before university studies in order to build a curriculum that would lead to what they called a "baccalaureate," administered in any country and recognized by universities everywhere.

USU recognizes the International Baccalaureate program. Students who enter with International Baccalaureate credit are awarded admission to the Honors Program. Students who present an International Baccalaureate diploma will be awarded a maximum of 30 credits. These credits will waive the appropriate Breadth and Communications Literacy requirements, but students will still be required to complete the Quantitative Literacy and Computer and Information Literacy requirements, unless their individual scores on IB exams waive those requirements. Each student's transcript will be evaluated individually, based on the courses he or she has completed.

Students who have not completed the International Baccalaureate diploma may receive 3 or more credits for scores of 4 to 7 on standard- or higher-level exams (as shown below), up to a maximum of 30 credits.

Individual departments and/or colleges may specify the exact courses required to fill their requirements and may require more than the minimum General Education requirements. Some departments and colleges require specific coursework for General Education, which the IBO exams may not satisfy.

If, prior to (or after) taking an IBO examination, a student receives credit (including AP credit) **for any coursework equivalent to the subject matter** of an IBO examination, the credits earned for the course will be deducted from the credits awarded for the examination.

Other institutions have policies differing from those of USU regarding IBO scores and credits granted for those scores. For transfer students with less than an associate degree, IBO credit posted to another institution's transcript is reevaluated based on USU's standard.

## International Baccalaureate Organization (IBO) Credit Allocation

IBO Test	Score <sup>1</sup>	Credits	USU Credit Awarded
Biology	4-7 SL	3	3 (BLS) credits
Biology	4-7 HL	6	3 (BLS) credits + 3 elective credits
Business & Management	4-7 SL	3	3 elective credits
Business & Management	4-7 HL	6	6 elective credits

Chemistry	4-5 HL	6	CHEM 1110 (BPS) (4) + 2 elective credits <sup>2</sup> <b>or</b> CHEM 1210 (4) + 2 (BPS) credits <sup>2</sup>
Computer Science	4-7 SL	3	CS 3410 (DSC/QI) (3)
Computer Science	4-7 HL	3	CS 3410 (DSC/QI) (3)
Economics	4-7 SL	3	ECN 1500 (BAI) (3)
Economics	4-7 HL	6	ECN 1500 (BAI) (3) + APEC/ECN 2010 (BSS) (3)
English A1	4-7 SL	3	3 (CL1) credits
English A1	4-7 HL	6	3 (CL1) credits + 3 (CL2) credits
French B	4-7 SL	8	FREN 1010 (4) + FREN 1020 (4)
French B	5-7 HL	8	FREN 2010 (4) + FREN 2020 (4)
Geography	5-7 HL	6	GEOG 1000 (BPS) (3) + GEOG 1400 (BSS) (3)
German	4-7 SL	8	GERM 1010 (4) + GERM 1020 (4)
German	5-7 HL	8	GERM 2010 (4) + GERM 2020 (4)
History—European	5-7 HL	6	3 (BHU) credits + 3 elective credits
History—Islamic	5-7 HL	6	3 (BHU) credits + 3 elective credits
History of the Americas	5-7 HL	6	3 (BHU) credits + 3 elective credits
Mathematics	4-7 HL	6	MATH 1210 (QL) (4) + 2 elective credits
Music	4-7 SL	3	MUSC 1010 (BCA) (3)
Music	4-7 HL	3	MUSC 1010 (BCA) (3)
Philosophy	4-7 SL	3	PHIL 1000 (BHU) (3)
Philosophy	4-7 HL	3	PHIL 1000 (BHU) (3)
Physics	4-7 SL	3	3 (BPS) credits
Physics	4 HL	4	PHYS 2120 (BPS) (4) <b>or</b> PHYS 2210 (QI) (4)
Physics	5-7 HL	8	PHYS 2120 (BPS) (4) + PHYS 2210 (QI) (4)
Psychology	4-7 SL	3	PSY 1010 (BSS) (3)
Psychology	4-7 HL	6	PSY 1010 (BSS) (3) + 3 elective credits

# Credit by Examination and Advanced Coursework

Social & Cultural Anthropology	4-7 SL	3	ANTH 1010 (BSS) (3)
Social & Cultural Anthropology	5-7 HL	6	ANTH 1010 (BSS) (3) + 3 elective credits
Spanish	4-7 SL	8	SPAN 1010 (4) + SPAN 1020 (4)
Spanish	5-7 HL	8	SPAN 2010 (4) + SPAN 2020 (4)
Theatre Arts	5-7 HL	6	THEA 1013 (BCA) (3) + THEA 1713 (3)
Visual Arts	4-7 SL	3	3 (BCA) credits
Visual Arts	4-7 HL	3	3 (BCA) credits

<sup>1</sup>Standard-level scores are followed by **SL**. Higher-level scores are followed by **HL**. If no standard-level score is shown for a particular test, then *no* USU credits are granted for a standard-level score in that area.

<sup>2</sup>The student or advisor may choose the CHEM 1110 or CHEM 1210 track, according to what best suits the student's major.

## Placement Tests

Following is a list of areas offering placement tests.

### English

ACT test scores may be used as a placement tool for recommending the level of courses to be taken.

An ACT English score of 29 or higher, or an SAT Verbal score of 640 or higher, will waive English 1010 and qualify a student for placement in English 2010 after the student has earned 30 credits. Students with an English ACT score of 16 or lower will be required to take English 0010.

### Mathematics and Statistics

ACT or SAT mathematics section scores obtained within the prerequisite acceptability time limit (one calendar year or three successive semesters including summer semester), along with other pertinent information (high school coursework, etc.), are used as a basis for placing incoming freshmen in proper mathematics or statistics courses. Students wanting to obtain approval for registration in the mathematics and statistics courses listed below or with questions about related issues should go to the Drop-in Advisement Office (Lund 201) in the Department of Mathematics and Statistics. Information about hours for advisement is available by phone at (435) 797-0268 or on the Department of Mathematics and Statistics undergraduate Web pages (<http://www.math.usu.edu/>).

#### Placement in Mathematics and Statistics Courses

Course	Math ACT Score	Math SAT Score
MATH 1030	23 or higher	540 or higher
MATH 1050	23 or higher	540 or higher
MATH 1060	23 or higher	540 or higher
MATH 1100	25 or higher	580 or higher
MATH 2020	25 or higher	580 or higher
MATH 1210	27 or higher	620 or higher

To qualify for **fall semester** enrollment in the above courses, students must have met a prerequisite *after August 15 of the previous year*. To qualify for **spring semester** enrollment in the above courses, students must have met a prerequisite *after January 1 of the previous year*. To qualify for **summer semester** enrollment in the above courses, students must have met a prerequisite *after June 1 of the previous year*.

Regardless of any previous record, students with an ACT mathematics score of less than 23 are required to take the Math Placement Test administered by the Department of Mathematics and Statistics. In addition, students who do not meet the prerequisite acceptability time limit requirement must take the Math Placement Test. The scores for placement in MATH 1010 and STAT 1040 should be used as an indication of where a student should be placed. The fee for taking the Math Placement Test is \$10, and students may take the test as required. The exams will be given at specified times in Geology 405 or in Geology 310. Students with special circumstances will be able to take the Math Placement Test in Lund Hall.

The Math Placement Test is administered online using an Internet browser. Students will be advised based on the results obtained on the Math Placement Test. Students may choose to enroll in a one-week math refresher course offered by the Department of Mathematics and Statistics. The fee for this course is \$100 and includes the fee for taking the Math Placement Test at the beginning of the course and again at the end of the course. Refresher courses will be offered at the beginning of fall and spring semesters, *either* during the week before the semester begins *or* during the first week of classes (based on when the semester begins).

### TOEFL

The Test of English as a Foreign Language (TOEFL) is required for international students (from countries in which English is not the official language) for admission to the University. It is not used for granting credit nor for waiver of the communications literacy requirement. International undergraduate students are required to complete the Intensive English program unless they receive a score of at least 500 paper/pencil or at least 61 iBT (Internet-based test) on the TOEFL examination, a Michigan score of 80 or higher, or a 5.0 or higher on the IELTS examination. **Note:** The minimum TOEFL and IELTS scores acceptable for undergraduate students entering USU during the 2010-2011 academic year will be raised to 525 paper/pencil, iBT 71, and IELTS 6.0 (with a minimum of 5.0 on each sub-scale).

### Languages

Where basic skills in a language have been acquired by means other than college courses, up to 16 lower-division credits may be earned by special examination.

Students with skills in a language other than those offered by the department may earn up to 16 pass/fail credits by successfully performing on a special Languages, Philosophy, and Speech Communication Department examination. However, these examinations are no longer offered at USU. Interested students must make arrangements to take one of these exams at Brigham Young University.

Students with skills in a language that is offered by the Languages, Philosophy, and Speech Communication Department may earn credit by successfully performing on an examination or by successfully completing an upper-division (3000-level or above) language course with a grade of *B* or better. Students should contact the Languages, Philosophy, and Speech Communication Department in Main 204, (435) 797-1209.

# Credit by Examination and Advanced Coursework

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## Credit by Departmental Examination

Matriculated students may challenge a course for credit by taking a departmental examination. Departments will determine if a course is appropriate for challenge; students should contact the instructor and/or department. If a challenge exam is available, the instructor should advise the student as to whether he or she has a reasonable chance of passing. The examination will survey knowledge of the course content and may include papers, projects, portfolios, etc.

Students challenging a course for which they are registered must do so within the first two weeks of the course. Students not registered will be required to pay a fee (standard recording fee and course-specific examination fee). Students who take a departmental examination will receive the exam grade posted to their transcript for that course. Credits earned through departmental examination can be used to meet the minimum USU course requirement.

## Credit by Advanced Coursework (Language Credits)

Students who are proficient in a foreign language offered by Utah State University may earn lower-division credit through successfully passing a more advanced course. Applications for these credits should be made in the Department of Languages, Philosophy, and Speech Communication. Students will be required to pay a posting fee.

Students who receive credit by advanced coursework will receive a grade posted to their transcript, with a designation that it was earned by advanced coursework. Credits earned through this option cannot be used to meet the minimum USU course requirement and are treated as transfer work.

# Financial Aid and Scholarship Information

**Director, Financial Aid Office:** Steven J. Sharp

**Location:** Taggart Student Center 106

**Phone:** (435) 797-0173

**FAX:** (435) 797-0654

**E-mail:** [finaid@cc.usu.edu](mailto:finaid@cc.usu.edu)

**WWW:** <http://www.usu.edu/finaid/>

**Associate Director:** Tamara Allen

**Assistant Director:** Sharon B. Robinette

**Assistant Director:** Todd Milovich

**Business Manager:** Karen S. Marshall

Students are assigned to a financial aid counselor based on the first letter of their last names. Following is a list of financial aid counselors, the students assigned to them, and their e-mail addresses.

**Counselor:** Marcy Skinner (A-B, X-Z), [marcy.skinner@usu.edu](mailto:marcy.skinner@usu.edu)

**Counselor:** Cedra H. Jensen (C-D), [cedra.jensen@usu.edu](mailto:cedra.jensen@usu.edu)

**Counselor:** Amanda Alles (E-HA), [amanda.alles@usu.edu](mailto:amanda.alles@usu.edu)

**Counselor:** Jacob R. Brazell (HB-K), [jacob.brazell@usu.edu](mailto:jacob.brazell@usu.edu)

**Counselor:** Raquel Friddle (L-N), [raquel.friddle@usu.edu](mailto:raquel.friddle@usu.edu)

**Counselor:** Jennifer McGaughey (O-SL),

[jennifer.mcgaughey@usu.edu](mailto:jennifer.mcgaughey@usu.edu)

**Counselor:** Sophara Tieng (SM-W), [sophara.tieng@usu.edu](mailto:sophara.tieng@usu.edu)

## **Loan and Collection Officer:**

Justin Gereau, Taggart Student Center 248, (435) 797-1057,

[justin.gereau@usu.edu](mailto:justin.gereau@usu.edu)

Application for financial aid begins in January for the following academic year. In most instances, early application benefits the applicant. Those who apply early have a greater chance of receiving more aid and of having aid available in time to meet school needs. Pell Grant and Stafford Loans are available throughout the year. Contact the Financial Aid Office for assistance. The free online application can be found at: <http://www.fafsa.ed.gov>

Scholarships are awarded to qualifying applicants who apply on or before February 1, prior to the academic year. Students should contact the Admissions Office or the department of their major for the exact deadline.

Financial aid programs, policies, and procedures described herein reflect the latest information at publication. Changes may occur in response to state and federal requirements. Appropriate notice will be made whenever possible before any change takes effect.

For further information concerning financial assistance available for graduate students, see pages 111-112 of this catalog.

## **Grants, Work-Study, and Loans**

### **Federal Pell Grant**

Available to undergraduates. Grants do not need to be repaid.

### **Federal Supplemental Educational Opportunity (FSEOG) Grant**

Available to undergraduates. Grants do not need to be repaid. The maximum award varies yearly. Awarding is based on need and funding.

### **Leveraging Educational Assistance Partnership (LEAP) Grant**

Awarded to resident undergraduates who demonstrate exceptional need. Awards are based on availability of funds.

### **Utah Centennial Grant (UCOPE)**

Available to undergraduate residents of Utah. Awards are based on availability of funds.

### **Academic Competitiveness (AC) Grant and National Science and Mathematics Access to Retain Talent (SMART) Grant**

These grants were created by the Higher Education Reconciliation Act of 2005 and signed into law February 2006. Up to \$750 will be awarded to eligible first-year AC Grant students, and up to \$1,300 to second-year AC Grant students. Up to \$4,000 will be awarded each year to eligible National SMART Grant students. Students must be U.S. citizens, must be enrolled in a four-year degree program full-time, and must be receiving Pell grants. **Note:** Beginning July 1, 2009, AC and SMART grants will be provided for part-time attendance.

### **Other Grants and Special Benefits**

Contact the Financial Aid Office for details concerning BIA or Tribal Grants.

### **Federal College Work-Study**

Provides part-time on-campus employment to enable students to earn a portion of their educational expenses during the college year. Awarding is based on need and the availability of funds.

### **Federal Perkins Loan**

Undergraduate students generally may borrow up to \$3,000 per year, to a total school amount of not more than \$15,000. Graduate students may borrow \$4,000 per year, up to \$30,000. Monthly payments and interest begin after graduation, withdrawal, or otherwise leaving school, or after dropping below 6 credits. A 5 percent simple interest rate applies. Awarding is based on need and funding.

### **Federal Stafford Loan**

Loans with a 6.0 and 6.8 percent interest rate. Students may qualify for subsidized and unsubsidized loans, depending upon need. Interest accrued prior to the beginning of repayment is paid by the federal government for "subsidized" Federal Stafford Loans. Repayment is generally required within 10 years. Starting in 2008, freshmen may apply for up to \$5,500 per regular school year; sophomores may apply for up to \$6,500 per year; juniors, seniors, and second bachelor's degree students may apply for up to \$7,500 per year; and graduates may apply for up to \$8,500 per year. Aggregate borrowing limits are \$31,500 for undergraduates and second bachelor's degree students, and \$65,500 for graduates. Monthly repayment begins after completing or leaving school, or after dropping below 6 credits. Additional unsubsidized amounts are available to students in some circumstances.

### **Federal TEACH "Grant"**

The TEACH "Grant" program provides up to \$4,000 per year in "grant" aid to undergraduate and graduate students enrolled in a teacher credential program. Students must serve as full-time teachers at specified schools and teach in a specified field for four academic years within eight years after completing the college course. TEACH "Grant" recipients who do not fulfill their teaching obligations must repay the "grant" as if it were an unsubsidized loan.

### **PLUS Loans**

PLUS loans are for parents who want to borrow for their children's education. This loan provides additional funds for educational expenses. Repayment begins within 60 days after the last loan disbursement. This loan has an interest rate of 8.5 percent. This loan is available when other awarded federal aid to the student does not fully meet the school's estimated cost of education.

# Financial Aid and Scholarship Information

## Emergency Check Loan

Ten-week loans of up to \$400 are available to enrolled students with fees paid for at least 6 credits. These loans are *not* available for tuition. Interest is assessed at 12 percent from date of issue until the date of maturity.

## Method of Awarding Financial Aid

A student's **Estimated Family Contribution (EFC)** is calculated from information provided by the student on the federal financial aid application. A student's **Financial Need** is the difference between the estimated cost of education and the EFC. Financial aid is awarded to fill this need, as much as possible, using whatever funds are available.

## Estimated Cost of Undergraduate Education for Two Semesters for 2009-2010 Academic Year

	Resident	Nonresident
Tuition and Fees	See page 64	See page 64
Room and Board	\$6,450	\$6,450
Books and Supplies	1,210	1,210
Transportation	1,520	1,520
Personal Expenses	2,210	2,210
<b>Totals</b>	<b>\$11,390</b>	<b>\$11,390</b>
	plus	plus
	Resident Tuition	Nonres. Tuition

## Repayment of Federal Funds Policy

Students who are withdrawing from the University and who have Federal Financial Aid must meet with their financial aid counselor prior to withdrawing.

Students who completely withdraw from the University during the course of a semester are required to return a percentage of their Federal Student Financial Aid. All types of Federal Financial Aid are included in the repayment, including: Pell Grants, Supplemental Grants, Perkins Loans, and Stafford Loans. The amount of repayment is based on the percentage of the semester completed. For example, if a student withdraws after completing 40% of the semester (calculated using calendar days), the student must return 60% of his or her Federal Student Aid. Students who withdraw, or cease attending, after completing 60% of the semester are not required to return aid. (However, they will still face suspension from financial aid for failing to complete the required number of credits.) If the student is eligible for a refund of tuition and fees, according to the University refund policy, the refund will be applied to the Federal Financial Aid obligation. A refund may or may not completely repay the obligation. Either way, the student will not be allowed to register for future classes, nor be eligible for future financial aid, until the debt is repaid.

For example, suppose a student has Federal Aid in the following amounts:

Pell Grant	\$1,500
Perkins Loan	1,200
Stafford Loan	2,750
<b>Total</b>	<b>\$5,450</b>

If the semester has 115 calendar days and the student completely withdraws from the University on day 20, the repayment would be calculated as follows:  $115/20 = 17\%$  of the semester completed, and 83% not completed. Therefore, 83% of the Federal Aid must be repaid (i.e.,  $\$5,450 \times 83\% = \$4,523.50$ ).

Students who receive all Fs for the semester must document participation in an academic activity (including attending class, taking exams, turning in assignments, etc.) past 60 percent of the semester or will have to repay 50% of the federal funds received.

**Note:** If a tuition refund is given by the Registration Office, the refund will reduce the amount of Federal Aid that must be repaid.

## Responsibility of Financial Aid Recipients

Undergraduate financial aid recipients are expected to maintain a USU GPA of at least 2.0. Graduate students must maintain a USU GPA of 3.0. Students must also pass 70 percent of the credits they attempt.

Students not passing the required amount of credits *or* not maintaining the required grade point average will be placed on financial aid probation for a minimum of one semester. Students not meeting the required minimums during the period of probation will be suspended from further aid. In exceptional circumstances, students may appeal to have the suspension lifted.

For additional details, visit:

<http://www.usu.edu/finaid/overview/rap.cfm>

In addition to maintaining academic progress as defined above, recipients may not owe a repayment on grants previously received, or be in default of any student loan fund at USU or any other institution.

## Scholarship Policy

Scholarships for new undergraduate students and undergraduate transfer students are awarded by the Admissions Office. Scholarships for continuing students are awarded by the various colleges and academic departments.

## Scholarships for New Undergraduate Students

To be considered for scholarships, applicants must be admitted to Utah State University, attend classes at the main Logan campus, and intend to graduate from USU. (Students majoring in programs sponsored by other academic institutions, such as the Cooperative Nursing Program with Weber State University, are *not eligible* for Utah State University sponsored scholarships.) Utah State University offers a variety of scholarships based on academic merit using the cumulative GPA (a four-point scale is used to determine cumulative GPA) and ACT or SAT score. Some other criteria may be used in determining eligibility, such as achievements, leadership, talent, family size and income, ethnicity, and first-generation college student status. The scholarship application deadline (as listed on the dual admissions and scholarship application) *is different than the admissions deadline. To be considered for scholarships, the priority deadline is December 1, and the final deadline is February 1.* For 2009, all scholarships will be awarded on a *first-come, first-served basis*. Therefore, applicants are encouraged to apply early. See pages 48-49 for information about scholarships available to new freshmen. For more information, contact the Admissions Office by phone at 1-800-488-8108 or (435) 797-1079, or by e-mail at: [admit@usu.edu](mailto:admit@usu.edu).



# Financial Aid and Scholarship Information

## Scholarships for Home Schooled Students

To be considered for scholarships, home schooled students must have a minimum ACT score of 25.

## Scholarships for Transfer Students

To be considered for scholarships, a transfer student must submit the Undergraduate Admission and Scholarship application. Official transcript(s) must accompany the application. To be considered for transfer scholarships, the priority deadline is February 1, and the final deadline is April 1. Transfer students must have earned a minimum of 24 post high school graded semester credits. See pages 49-50 for information about scholarships available to transfer students.

## Freshman Resident Scholarships

The scholarships listed below are based on the 2009-2010 applicant pool and are subject to change without notice. For the latest information on freshman scholarships, visit:

<http://www.usu.edu/admissions/scholarships>

### Presidential Scholarship

Awarded for four years, this scholarship awards full tuition and student body fees each semester for eight semesters. To be considered, applicants must have an admissions index score of 131 or higher. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 12 credits each semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

### Dean's Scholarship

Awarded for two years, this scholarship awards full tuition each semester for four semesters. To be considered, applicants must have an admissions index score of 126 or higher. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 12 credits each semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

### University Ambassador Scholarship

During eight semesters (four years), full tuition and student body fees are awarded. To be considered, applicants must have a minimum 3.4 GPA and a minimum ACT score of 23 or SAT score of 1060. In addition to a separate application, applicants must submit an extensive recruitment portfolio and two letters of recommendation. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 12 credits each semester, for a total of 24 credits per year. An application for this scholarship can be downloaded from:

<http://www.usu.edu/admissions/scholarships/Ambassador-app.pdf>

### Aggie Scholar Scholarship

During four semesters (two years), \$1,000 per semester is awarded toward tuition. To be considered, applicants must have an admissions index score of 120 or higher. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 12 credits each semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

### Merit Scholarship

During four semesters (two years), \$600 per semester is awarded toward tuition. To be considered, applicants must have an admissions index score of 116 or higher. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must

enroll for and complete at least 12 credits each semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA..

### Achievement Scholarship

During two semesters (one year), \$325 per semester is awarded toward tuition. To be considered, applicants must have an admissions index score of 112 or higher. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 12 credits each semester, for a total of 24 credits per year.

### Alumni Chapter Scholarships

To be considered for a chapter scholarship, a student must be (1) living in an area with a chartered alumni chapter, (2) be an incoming freshman or transfer student (cannot have previously attended USU), and (3) be a child or grandchild of a USU alumnus. The amount of each scholarship is based on the funds raised in each chapter. Therefore, the scholarships may be different each year. For information about these scholarships, contact the Alumni Office at (435) 797-2055, or visit <http://www.usu.edu/alumni/scholarships/>

### ROTC Scholarships

For information about these scholarships, contact the Air Force ROTC Office at (435) 797-8723 or the Army ROTC Office at (435) 797-3637. Information is available on the Web at:

<http://www.afrotc.com/scholarships> and  
<http://www.garmy.com/rotc/scholarships.jsp>

## Freshman Nonresident Scholarships

The scholarships listed below are based on the 2009-2010 applicant pool and are subject to change without notice. For the latest information on freshman scholarships, visit:

<http://www.usu.edu/admissions/scholarships>

### Presidential Nonresident Scholarship

Awarded for four years, this scholarship awards full tuition and student body fees each semester for eight semesters. Nonresident students are able to apply for Utah residency after 12 continuous months in the state, after establishing domicile, and upon providing proof of financial independence (not claimed as a dependent for tax purposes by someone living outside of Utah). Students are encouraged to gain residency during their first year at USU, as multiple-year scholarships will only cover out-of-state tuition for the first year. To be considered, applicants must have an admissions index score of at least 131. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 12 credits each semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

### Dean's Nonresident Scholarship

Awarded for two years, this scholarship awards full tuition each semester for four semesters. Nonresident students are able to apply for Utah residency after 12 continuous months in the state, after establishing domicile, and upon providing proof of financial independence (not claimed as a dependent for tax purposes by someone living outside of Utah). Students are encouraged to gain residency during their first year at USU, as multiple-year scholarships will only cover out-of-state tuition for the first year. To be considered, applicants must have an admissions index score of 126 or higher. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 12 credits each semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

# Financial Aid and Scholarship Information

## USU/ISU Scholarship

This award waives the out-of-state nonresident differential for two semesters (one year). During these two semesters, recipients will only need to pay the in-state portion of tuition. To be considered, an applicant must be a resident of Idaho and must have an admissions index score of at least 113. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 12 credits each semester, for a total of 24 credits per year.

## 100-Mile Radius Scholarship

This award is worth approximately \$8,000. During two semesters (one year), \$4,000 per semester is awarded toward the out-of-state portion of tuition. To be considered, an applicant must live within 100 miles of Utah State's Logan campus and must be admitted in good standing to the main campus in Logan.

## University Ambassador Scholarship

During the first four semesters (two years), full tuition and student body fees are awarded. To be considered, applicants must have a minimum 3.4 GPA and a minimum ACT score of 23 or SAT score of 1060. In addition to a separate application, applicants must submit an extensive recruitment portfolio and two letters of recommendation. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 12 credits each semester, for a total of 24 credits per year. An application for this scholarship can be downloaded from:

<http://www.usu.edu/admissions/scholarships/Ambassador-app.pdf>

## Aggie Scholar Scholarship

Awarded for two years during the first two semesters (one year), \$4,000 per semester is awarded toward tuition. During the second year after the student gains residency, \$1,000 per semester is awarded toward tuition. To be considered, applicants must have an admissions index score of 120 or higher. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 12 credits each semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

## Western Undergraduate Exchange

Utah State University participates in the Western Undergraduate Exchange (WUE), a program of the Western Interstate Commission for Higher Education (WICHE). Through WUE, certain students who are not residents of the State of Utah may enroll at Utah State University by paying resident tuition plus 50 percent of that amount (plus other fees that are paid by all students).

Because Utah State University participates in the WUE program, residents of Utah may enroll under the same terms in designated institutions and programs in other participating states.

Information about and applications for WUE programs available at USU may be obtained from the USU Admissions Office, 0160 Old Main Hill, Logan UT 84322-0160, tel. (435) 797-1079 or (800) 488-8108. Utah residents may obtain information about WUE programs in other states from the Certifying Officer for Utah WICHE Student Exchange Program, #3 Triad Center, Suite 550, 355 West North Temple, Salt Lake City UT 84180-1205, tel. (801) 321-7124 or from WICHE Student Exchange Program, P.O. Box 9752, Boulder CO 80301-9752, tel. (303) 541-0214 or 0210, FAX (303) 541-0291.

## Transfer Resident Scholarships

### Transfer Presidential Scholarship

Awarded for two years, this scholarship awards full tuition and student body fees each semester for four semesters. To be considered, applicants must have completed a minimum of 24 graded post-high school transferable credits with a 4.00 cumulative GPA. To remain eligible for this scholarship, a student must enroll for and complete 12 credits per semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

### Transfer Dean's Scholarship

Awarded for two years, this scholarship awards full tuition each semester for four semesters. To be considered, applicants must have completed a minimum of 24 graded post-high school transferable credits with a minimum 3.75 cumulative GPA. To remain eligible for this scholarship, a student must enroll for and complete 12 credits per semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

### Transfer Ambassador Scholarship

During four semesters (two years), this scholarship awards full tuition and student body fees. This scholarship is awarded to a select group of students who demonstrate leadership and recruiting skills through experience, activities, and involvement in both school and community. In addition to a separate application, applicants must submit an essay and two letters of recommendation. To be considered, applicants must have an associate degree and a minimum 3.2 cumulative GPA. The application deadline is February 1.

### Transfer Aggie Scholar Scholarship

During four semesters (two years), \$1,000 per semester is awarded toward tuition. To be considered, applicants must have completed a minimum of 24 graded post-high school transferable credits with a 3.50 to 3.74 cumulative GPA.

## Transfer Nonresident Scholarships

### Presidential Nonresident Transfer Scholarship

Awarded for two years, this scholarship awards full tuition and student body fees each semester for four semesters. Nonresident students are able to apply for Utah residency after 12 continuous months in the state, after establishing domicile, and upon providing proof of financial independence (not claimed as a dependent for tax purposes by someone living outside of Utah). Students are encouraged to gain residency during their first year at USU, as multiple-year scholarships will only cover out-of-state tuition for the first year. To be considered, applicants must have completed a minimum of 24 graded post-high school transferable credits with a 4.00 cumulative GPA. To remain eligible for this scholarship, a student must enroll for and complete 12 credits per semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

### Dean's Nonresident Transfer Scholarship

Awarded for two years, this scholarship awards full tuition each semester for four semesters. Nonresident students are able to apply for Utah residency after 12 continuous months in the state, after establishing domicile, and upon providing proof of financial independence (not claimed as a dependent for tax purposes by someone living outside of Utah). Students are encouraged to gain residency during their first year at USU, as multiple-year scholarships will only cover out-of-state tuition for the first year. To be considered, applicants must have completed a minimum of 24 graded post-high school transferable credits with a minimum 3.75 cumulative GPA.

# Financial Aid and Scholarship Information

To remain eligible for this scholarship, a student must enroll for and complete 12 credits per semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

## USU/ISU Scholarship

This award waives the out-of-state nonresident differential for two semesters (one year for up to \$9,000 per year). During these four semesters, recipients will only need to pay the in-state portion of tuition. To be considered, an applicant must be a resident of Idaho and must have completed a minimum of 24 graded post-high school transferable credits with a minimum 3.30 cumulative GPA.

## 100-Mile Radius Scholarship

This award is worth approximately \$8,000. During two semesters (one year), \$4,000 per semester is awarded toward the out-of-state portion of tuition. To be considered, an applicant must live within 100 miles of Utah State's Logan campus, and must have completed a minimum of 24 graded post-high school transferable credits with a minimum 2.75 cumulative GPA.

## Aggie Scholar Nonresident Transfer Scholarship

This scholarship awards \$8,000 for one year (\$4,000 per semester for two semesters) and \$2,000 for the second year (\$1,000 per semester for two semesters). To be considered, applicants must have completed a minimum of 24 graded post-high school transferable credits with a 3.50 to 3.74 cumulative GPA. To remain eligible for this scholarship, a student must enroll for and complete 12 credits per semester, for a total of 24 credits per year, and maintain a 3.5 USU cumulative GPA.

## Transfer Ambassador Scholarship

During four semesters (two years), full tuition and student body fees are awarded. This scholarship is awarded to a select group of students who demonstrate leadership and recruiting skills through experience, activities, and involvement in both school and community. In addition to a separate application, applicants must submit an essay and two letters of recommendation. To be considered, applicants must have an associate degree and a minimum 3.2 cumulative GPA. The application deadline is February 1.

## Western Undergraduate Exchange

Utah State University participates in the Western Undergraduate Exchange (WUE), a program of the Western Interstate Commission for Higher Education (WICHE). Through WUE, certain students who are not residents of the State of Utah may enroll at Utah State University by paying resident tuition plus 50 percent of that amount (plus other fees that are paid by all students). For further information, see WUE text on page 49 of this catalog.

## New Century Scholarship

The New Century Scholarship is funded by the Utah legislature to assist with the costs of postsecondary education for students who complete the equivalent of an associate degree by September 1 of the year their class graduates from high school.

The scholarship covers 75 percent of tuition costs at a Utah state-operated institution of higher education.

### Terms of the Scholarship

The scholarship may be used for two years of full-time equivalent enrollment (60 credits) or until the requirements for a baccalaureate degree have been met, whichever is shorter.

The scholarship may be used at any higher education institution in the state accredited by the Northwest Association of Schools and Colleges that offers baccalaureate programs.

Recipients have four years after graduation from high school to use the award.

### Eligibility

The New Century Scholarship is open to Utah students who have graduated from a regionally accredited high school in the year 1999 or later. The applicant must have completed the equivalent of an associate degree from Utah State University by September 1 of the year that their class graduates from high school.

At Utah State University, the equivalent of an associate degree is defined as:

1. Completion of the General Education portion of the University Studies requirements, **and**
2. Completion of 60 semester credits.

For more information contact:

Heather Thomas  
**Phone:** (435) 797-3780  
**FAX:** (435) 797-0036  
**E-mail:** [heathert@ext.usu.edu](mailto:heathert@ext.usu.edu)

For an application, contact:

New Century Scholarship  
State Board of Regents  
P.O. Box 45202  
Salt Lake City UT 84145-0202  
**Phone:** (801) 321-7221  
**FAX:** (801) 366-8470  
**E-mail:** [newcentury@utahsbr.edu](mailto:newcentury@utahsbr.edu)  
**WWW:** <http://www.utahsbr.edu>

## Centennial Scholarship

The Centennial Scholarship for Early Graduation program is a *partial* tuition program which allows for high school graduation to be flexible and appropriate to meet the needs of individual students.

### Eligibility

Any public school student who: (1) has a Student Education Occupation Plan (SEOP) on file, (2) has indicated to the secondary school principal the intent to complete early graduation, (3) has completed all required courses or demonstrated mastery of required skills and competencies, and (4) has graduated from a Utah public high school is eligible.

### Requirements

To receive scholarship funds, a student must: (1) graduate early from a Utah secondary institution, and (2) enroll within one calendar year in an eligible Utah post-secondary institution. Post-secondary institutions accredited by the Northwest Association of Schools and Colleges are eligible. A student must begin using funds as a full-time student and for *tuition only* within one calendar year of high school graduation.

### Scholarship Funds

Funds for the Centennial Scholarship will be disbursed as follows:

Junior year.....	\$1,000
First quarter of senior year .....	750
Second quarter of senior year .....	500
Third quarter of senior year .....	250
First trimester of senior year.....	666
Second trimester of senior year.....	333

# Financial Aid and Scholarship Information

## Procedures

1. In consultation with the student's parent or guardian and school advisor, the student develops a Student Education Occupation Plan (SEOP) and indicates to the secondary principal the intent to complete early graduation at the beginning of the ninth grade year or as soon thereafter as the intent is known.
2. Upon graduation, the student obtains the Centennial Scholarship for Early Graduation certificate from the high school counselor.
3. The high school principal verifies the student's early graduation and signs the certificate. The original certificate is kept by the student. Additional copies are made for school and district records.
4. The student enrolls full time in an eligible post-secondary institution and presents the certificate to the registrar.
5. The registrar verifies the student's enrollment, and completes, signs, and seals the certificate. The original copy is sent to the Utah State Office of Education (USOE).
6. USOE verifies the information, approves the funding, and issues funds. Funds are sent directly to the post-secondary institution in the student's name within 4-6 weeks.
7. Any funds remaining unused when the student leaves the post-secondary institution are returned to USOE.

## Regents' Scholarship

During 2008, the Utah State Legislature created the Regents' Scholarship. This scholarship encourages Utah high school students to prepare for college academically and financially by taking a rigorous course of study and saving for college. There are three elements to this scholarship: (1) a Base Award, (2) an Exemplary Academic Achievement Award, and (3) a Supplemental Award. All three awards can be applied toward tuition and fees at a post-secondary institution within the State of Utah.

### Eligibility and Requirements

Three different criteria apply for the three sections of the scholarship. These criteria are shown below.

**Base Award.** This award may be given to any public school student who (1) has a cumulative high school GPA of 3.0 or higher, with no individual grade lower than a C in required core courses; (2) has a reported ACT score; (3) has passed the Utah Basic Skills Competency Test (UBSCT); (4) is a U.S. citizen or an eligible noncitizen for receiving federal aid; (5) has no criminal record (with the *exception* of misdemeanor traffic citations); and (6) enrolls full time at an eligible Utah institution of higher education within 12 months of high school graduation (*unless* an approved leave of absence is obtained).

**Exemplary Academic Achievement Award.** This award may be given to any public school student who (1) qualifies for the Base Award Regents' Scholarship; (2) has a cumulative high school GPA of 3.5 or higher, with no individual grade lower than a B in required core courses; and (3) has an ACT score of 26 or higher.

**Supplemental Award.** This award may be given to any public school student who has contributed between the ages of 14-17 to their Utah Educational Savings Plan account.

## Scholarship Funds

**Base Award.** This award is worth up to \$1,000, and is awarded as a one-time payment.

**Exemplary Academic Achievement Award.** This award is equal in value to 75 percent of the cost of tuition for up to two years of full-time enrollment or until the associate or bachelor's degree requirements have been met (whichever time is shorter). To maintain the award, the student must average grades of B or better for two consecutive semesters and must make reasonable progress toward completion of an associate or bachelor's degree.

**Supplemental Award.** This award is worth \$100 per year for students who have contributed between the ages of 14-17 to their Utah Educational Savings Plan account. The maximum amount that may be awarded is \$400.

### Additional Information

The Regents' Scholarship may be used for any qualifying college-related expenses, including tuition, fees, housing, and books.

Students may use the Regents' Scholarship along with other scholarships and federal grant aid. However, a student *may not be awarded both* a Regents' Scholarship and a New Century Scholarship.

Further information about the Regents' Scholarship, as well as application information, may be found at:  
<http://www.utahsbr.edu/acad01i.html>

## University Research Fellowships

Utah State University is known nationally for its emphasis on hands-on learning in research, scholarship, and the creative arts. University Research Fellowships of \$1,000 per year (renewable) are awarded to students who successfully compete in the application and interview process. Fellows are paired with a faculty member and begin inquiry in their fields of study as freshmen, which prepares them to compete for prestigious scholarships and entry into graduate studies. Presidential and Dean's Scholars are eligible to compete for Research Fellowships.

## Continuing USU Student Scholarships

### Department Scholarships

Each department has its own scholarship application, which is available at the department's office and must be returned there by the given deadline. For most departments, the application deadline is February 1.

Tuition waivers and other forms of academic scholarships are awarded to students who are or who have been students at USU. Such applicants compete with other students within their department. Students should check with their department for application requirements and deadlines.

### Private Endowment Scholarships

Each of the seven colleges at USU awards scholarships to undergraduate and graduate students. Although most of these scholarships are awarded to students who have *already attended* USU for one or more semesters, a *few* of them are available to new freshmen who have already decided upon their major area of study. Application forms are available from the dean's office of each college. Information about private endowment scholarships, including the qualifications for receiving each of them, is provided online at:  
<http://www.usu.edu/generalcatalog/scholarships/college.cfm>

# Housing and Residence Life

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## Live and Learn

Students living on campus are at the heart of campus life. Research shows that on-campus students tend to be more involved in academic and extracurricular activities, persist and graduate on time, and enjoy their overall collegiate experience. All students living within Housing communities have access to the following services to assist in their academic success: computer labs, high-speed Internet access, educational programming, peer tutors (math and writing), academic advising and career counseling, faculty mentoring, and leadership and service opportunities. A well-trained team of professional and peer staff also provides numerous opportunities for social and educational activities, which build the community and supplement and support formal classroom experiences. Also, live-in staff members are trained to assist students with a variety of issues, such as roommate conflicts, eating disorders and other mental health issues, and personal safety.

## Theme Housing

Theme Housing is a collaborative program at Utah State that is dedicated to learning outside of the classroom. The underlying mission of theme housing is to link residence halls with academic or general interest themes, and create communities of residents with shared interests and goals. Each theme community is supported by a peer mentor who provides on-site tutoring and advising, and who plans fun social programs. Theme housing options include the following:

### Academic Lifestyles

These floors are sponsored by academic departments and colleges. Academic Lifestyles are very popular and have strong returning communities. Residents must be enrolled in the major related to their floor. The following floors are offered in South Campus: American Sign Language, World of Business, The Vector Floor (Engineering), Computer Science, Prehealth Professionals, and Natural Resources Floor.

### Community Lifestyles

Community Lifestyles provide immediate campus involvement and are focused on scholarship, diversity, service, and leadership. These communities are sponsored by student clubs and organizations. Global Village is located in the Student Living Center, and Leadership House and Honors House are located in the Living/Learning Community. **Global Village** is open to all students who want to explore the study abroad program and learn about other cultures. **Honors House** is open to students enrolled in or planning to enroll in the Honors Program. **Leadership House** is open to all students interested in student government and community service and is a great opportunity for campus involvement.

### Freshman Interest Groups (FIGs)

For making the transition to university life with all the benefits of a small college atmosphere, this is the ultimate freshman experience. Each theme-oriented FIG includes 16-18 students who live near each other, meet regularly for meals, and attend group activities. Students are assigned a peer mentor who joins them for meals, provides academic assistance, and serves as their guide to campus life. The following FIGs are currently offered: Appreciating the Arts, Elementary Education, Healthy Living, Outdoor Adventures, and Science and Society.

## Housing Communities

### Central Campus

#### **Bullen Hall, Mountain View Tower, Richards Hall, Valley View Tower**

Central Campus is a close-knit community centered on lasting friendships, fun, and student achievement. This is the home of the FIGs (Freshman Interest Groups). A high percentage of first-year students live in this area and receive intentional staff support and community development to meet their needs.

### Student Living Center

#### **Davis Hall, Jones Hall, Morgan Hall, Rich Hall, Snow Hall, San Juan Hall, Wasatch Hall**

This community is an excellent location for students who want an academic setting surrounded by abundant green space. Shuttle buses take students to the center of campus in a matter of a few minutes. This is the home of Global Village.

### South Campus

#### **Greaves Hall, Merrill Hall, Moen Hall, Reeder Hall**

The South Campus is located just steps from the Merrill-Cazier Library and key campus buildings. This is the home of the Academic Lifestyles Program, as well as the Returning Resident Community, located in the west wing of Merrill Hall. These programs are designed to meet the needs of nonfreshmen.

### Living/Learning Community

Located in the very heart of campus on the north end of Old Main Hill, this community includes a community center complete with meeting and program space, as well as clustered lounge spaces designed to take full advantage of the beautiful scenery of the campus and the valley below. The living space has been intentionally designed to provide privacy, while at the same time promoting important social interactions between roommates, between others living in the individual buildings, and throughout the community as a whole. Leadership House and Honors House are located here.

### Graduate and Upper-Division Housing

Single students desiring to live in this area must have completed at least 60 credits or must be 25 years or older, in order to qualify to live in an upper-division apartment. Students enrolled in a master's or doctorate program at Utah State qualify to live in graduate apartments. Located adjacent to the main campus, Aggie Village and Summit Hall are ideal for students seeking privacy and quiet study time. Only two students per apartment are housed in Aggie Village, and only three students per apartment are housed in Summit Hall. (Each student has a private room.) Aggie Shuttle Buses are regularly scheduled to transport students to the main campus in a matter of minutes.

## Family Student Housing

### **Aggie Village, Mobile Home Park, Townhouses, West Stadium Villa**

Family Housing communities are an ideal choice for student families seeking a productive learning and living environment. Residents enjoy the extra space, both indoors and outdoors. In the classroom located in the Community Area Office, both Housing and Utah State Extension offer numerous classes and programs for family students. Living options include spacious one-, two-, and three-bedroom apartments, as well as a mobile home park.

Each community offers slightly different opportunities and is designed with the student in mind. Quality facilities with reasonable rates, service, and convenience are provided. All prices generally include: Internet access, local phone, cable TV, and free shuttle bus service. Single Housing prices include all utilities and furniture. Family Housing units have full kitchens and are rented unfurnished. Family Housing residents are responsible for payment of electric and gas utility bills.

For further information about the current price listings, style options, and availability, visit the housing website at:

<http://www.housing.usu.edu/>, or contact the Housing Office at (435) 797-3113, toll free at (800) 863-1085, or via e-mail at: [info@housing.usu.edu](mailto:info@housing.usu.edu).

# Dining Services

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Utah State University Dining Services is committed to creating an excellent college dining experience. All of the operations are places that become a major part of the everyday experience at USU. From executive chefs, right down to almost 300 student employees, Dining Services wants to make sure that students, faculty, staff, and guests all enjoy their dining experiences on campus. For more information about dining options, call (435) 797-1701, or visit Dining Services in Taggart Student Center 232 or at <http://www.usu.edu/dining/>

## The Hub

Located on the first floor of the Taggart Student Center (the “hub” of campus), this food court offers many choices for students “on the go.” A great social spot, the Hub provides a place to meet and eat on campus. A variety of menu options from many well-known chains, such as Café Ibis, Hogi Yogi, Teriyaki Stix, and Taco Time, are offered. The Hub also proudly features many “Be Well” options to make healthy eating easy and even less expensive.

## Aggie Marketplace

Located on the second floor of the Taggart Student Center, the Aggie Marketplace is the newest residential dining facility. It offers a variety of different menu options, including Mongolian grill, pizza, pasta, salad bar, Mexican, rotisserie chicken, and much more. Daily specials at Mama Blues are prepared daily by the Executive Sous Chef. The Aggie Marketplace features all-you-care-to-eat, fresh food at one low price.

## The Skyroom

Located on the fourth floor of the Taggart Student Center, the Skyroom is USU’s only full-service restaurant. It offers a wide variety of entrees prepared daily by professional chefs. Each day features a different “all-you-care-to-eat” lunch buffet. A daily “all-you-care-to-eat” salad and soup bar is considered by many the best in Cache Valley.

## The QuickStop

This campus convenience store, located on the first floor of the Taggart Student Center, offers a wide variety of snacks, soda, and candy, as well as a variety of grab-and-go items, all in one convenient location.

## The QuadSide Café

The Quadside Café is a coffee shop and more. It features Cache Valley’s famous Café Ibis coffee, specialty drinks, pastries, sandwiches, salads, and soft drinks. The Quadside Café, conveniently located in the lobby of the Merrill-Cazier Library, is a great place to get something to eat before studying.

## The Junction

The Junction is a residential on-campus dining hall. It features a full salad and soup bar, grill, and fresh made-to-order sandwiches and entrees prepared daily by professional chefs. In order to meet individual lifestyles and budgets, the Junction provides several different meal plans.

## University Catering

University Catering offers an extensive menu and provides food for buffets, served meals, barbeques, receptions, and any other event needing catering. The professional service staff, along with an executive chef, can create the perfect event within any budget.

## Meal Plans

Block meal plans can be purchased in quantities of 25, 50, or 75 meals. By purchasing these block plans, customers enjoy a huge discount when compared to the regular cash price. Students, faculty, and staff members having block meal plans can also use their plans to purchase meals for friends and family when dining at either the Aggie Marketplace or the Junction.

Aggie Express is the most convenient way to eat at the dining operations on campus. By using this debit account, customers enjoy a 10 percent discount at all locations (excluding the QuickStop).

# New Student Orientation and University Connections

## New Student Orientation

### New Freshmen

Newly admitted first-year students must participate in a Student Orientation, Advising, and Registration (SOAR) session before being permitted to register for classes. SOAR is designed to assist students in making a successful transition to USU. In addition to registering for classes, students have the opportunity to receive individual advice about degree requirements, as well as vital information about student services, campus life, and athletics. New students should be aware that a *registration hold* is placed on their file until some form of orientation is completed. After admission to USU, students will receive information about SOAR programs.

### University Deposit

All new freshmen are required to reserve their spot at USU by paying a \$100 deposit. The \$100 will be applied toward a student's account. It will cover the cost of the SOAR option selected, and any remaining balance will go toward tuition and fees.

### Early Registration Request

Students who pay the \$100 deposit and register for SOAR prior to the posted deadline will be able to submit an Early Registration Request. The earlier students submit their deposit and register for SOAR, the more likely they are to get the classes of their choice and the orientation date of their choice. Students will *not* be allowed to modify their schedules until they participate in SOAR.

Students who miss the posted deadline must still pay the University deposit and register for SOAR. However, they will not be able to submit an Early Registration Request.

For further information or to receive more information about SOAR, call New Student Orientation at (435) 797-0283 or (800) 606-4878, or visit the SOAR website at: <http://www.usu.edu/soar>

### Mathematics Placement Test

Students who have a valid Math ACT score of less than 23, who *do not* have a valid Math ACT score, or who have *not* taken a Math course (e.g. MATH 1050 College Algebra) are required to take the Math Placement Test. The fee for this test is \$10, and students attending SOAR will be given the opportunity to take this test while attending SOAR on campus at USU. The results of this test will be used to advise new students into appropriate mathematics or statistics courses.

### Transfer Students

A student is considered to be a transfer student if he or she has completed at least 24 semester credits of post-high school work at another institution. This does not include concurrent enrollment or AP credits. This does include credits a student is currently taking at another institution.

Newly admitted transfer students are required to contact their academic advisor before registering for classes. Transfer students are not required to participate in orientation. During the summer, the SOAR office does provide a half-day nonmandatory informational session for transfer students.

### Academic Advising

Upon admission to USU, all new students are assigned to an academic advisor. During New Student Orientation, students meet with their advisors, plan their class schedules, and register for classes. Advising

is the process encompassing development and delivery of accurate and up-to-date information regarding career options, educational programs, courses of instruction, resources, policies, and procedures to aid students in pursuing their educational goals.

Each student should consult with his or her academic advisor on a regular basis, and as needed, until the student's program of study is completed. The advisor can help the student to select, plan, and complete a program of study which is consistent with the student's interests, abilities, and needs, and can assist the student in selecting appropriate courses in the proper sequence to complete all requirements for graduation.

Each student is responsible for learning and completing graduation requirements for academic programs selected. Major Requirement Sheets showing University, college, and departmental requirements for each academic program are available at:

<http://www.usu.edu/majorsheets/>

For information about the Office of University Advising, as well as details about the advising structure and contact information for each of the seven colleges, see page 12.

An *Advisor List by Major* is available on the web at: <http://www.usu.edu/advising/advisors/>.

## University Connections

University Connections is a course specifically designed to ease the transition to Utah State University and prepare students for an exciting collegiate experience. This unique course focuses on developing critical college study skills, time-management techniques, and test-taking strategies. Through this course, students are connected to the University environment, including academic expectations, policies and procedures, resources, services, and physical layout. Through a common literature experience, students are provided with an introduction to the challenging academic environment of the University. Students are also introduced to extracurricular activities designed to enrich their overall educational experience. Most importantly, Connections allows students to develop a support network of classmates, faculty, and staff to help ensure a successful beginning to their academic experience.

### Course Format

Connections classes have 25-30 participants per class. The **traditional model** (for which students earn **2 credits**) includes pre-semester sessions held the week before the semester begins, and three one-hour sessions held after the semester begins. The three semester sessions are designed to provide additional support during the student's transition to the University environment, including crucial information necessary to academic success. In the **extended model** (for which students earn **1 credit**), students meet for one hour, twice per week during the first eight weeks of the semester. This option caters to students who are unable to attend Connections during the week before school starts. This includes (but is not limited to) students participating in band and athletics, as well as international students.

### Registration

Students attending SOAR will be provided with an opportunity to register for Connections during their orientation session. Registration may also be accomplished online by logging into Banner at: <http://www.usu.edu/myusu/>

For more information about University Connections, visit: <http://www.usu.edu/connections/>



# Registration, Student Records, and Academic Standing

**Registrar:** John D. Mortensen  
**Location:** Taggart Student Center 246  
**Phone:** (435) 797-1116  
**FAX:** (435) 797-1110  
**E-mail:** john.mortensen@usu.edu  
**WWW:** <http://www.usu.edu/registrar/>

## Registration

### Registration Eligibility

Only eligible students may register for courses at the University. An eligible student is either continuing from the previous year or has been admitted or readmitted to the University.

### Classification of Students

At the beginning of each semester, undergraduate students are classified for that semester as follows:

Credit Hours Earned	Classification
0-29	Freshman
30-59	Sophomore
60-89	Junior
more than 89	Senior

### Registration Requirement

All students attending classes must be registered. Students are officially registered when all tuition and fees have been paid in full. Failure to pay tuition and fees by the published fee payment deadline may result in courses being voided (see *Registration Purge* on pages 57-58). Students are responsible for dropping courses for which they do not wish to receive a grade.

### Registration for Mathematics Courses

ACT and SAT scores for mathematics competency and passing grades in MATH 0900, 1010, 1050, and 1060 are valid for use in placement and as prerequisites for one calendar year for nonmatriculated students and three successive semesters (including summer semester) for matriculated students. (See page 44 for specific dates by which prerequisites must be completed.) **Note:** This acceptability time limit applies *only* to prerequisites for MATH 1010, 1030, 1050, 1060, 1100, 1210, 2020, and STAT 1040. The time limit *does not apply* to mathematics prerequisites for courses offered by other departments.

### Proof of Identification

Students who wish to receive University services in-person must present photo identification. Students doing business online must login using the appropriate credentials. Each admitted student who completes the registration process for a regular semester will be issued a student identification card. This photo identification card is valid for the duration of the student's enrollment at Utah State University. Photo IDs are issued throughout the semester by the Card Office, Taggart Student Center 212.

### Adding Courses

After the fifth day of classes, any additions to the original registration must: (1) be recorded on an official add form, and (2) include the instructor's signature. In addition to the Registrar's Office, add forms may be taken to an academic advisor, who may electronically authorize a student to register for a course. Deadlines as outlined on pages 6-8 must be observed.

Courses may be added for credit or audit. An instructor's signature is required beginning the second week of the semester (sixth day of classes) during fall and spring semesters, and other dates as noted on pages 6-8. Students may not add into a full class at any time without an instructor's signature. An instructor should not sign a blank Add Form, but should ensure that the proper course information (e.g., CRN, course prefix, course number, etc.) is present before signing and dating the form. The Registrar's Office will not process any Add Form that is not dated, or for which the signature date is older than three business days. Advisors who have access to authorize students into full classes will follow the same guidelines as the Registrar's Office. Specific deadlines for adding courses may be found on pages 6-8. All requests for audit registration must be approved by the instructor and must be submitted to the Office of the Registrar, Taggart Student Center 246.

### Late Registration

Following the published add deadline, a transaction fee of \$100 per course will be assessed for all undergraduate and graduate courses added. Dissertation, thesis, directed study, continuing graduate advisement, and independent study courses added for graduate work, as well as Military Science courses, are exempted from this late fee.

### Credit Limit

Students registering for **more than 18 credits** must present their advisor's signed authorization to the Registrar's Office.

### Pass (P), D+, D, F Option

Students may register for a Pass (*P*), *D+*, *D*, *F* option. The grade of Pass (*P*) indicates academic achievement of not less than *C-*. Credits for which the Pass (*P*) grade is received are not GPA hours, and are therefore not used in the calculation of a student's grade point average. At no future time may the student request a letter grade, once the *P*, *D+*, *D*, *F* option has been requested.

A student desiring a *Pass*, instead of a regular grade in a course, must request a pass/fail form from the Registrar's Office, Taggart Student Center 246. This form, which must be signed by the student's advisor and returned to the Registrar's Office by the 60 percent point of the course, may not be revised under any circumstances. (Check pages 6-8 for the exact dates.)

A grade of *P* indicates academic achievement of not less than *C-*. All students, including freshmen, may take courses on a *P/D+*, *D*, *F* basis. A minimum of 72 of the 120 credits required for the baccalaureate degree must carry the *A*, *A-*, *B+*, *B*, *B-*, *C+*, *C*, *C-*, *D+*, *D* designation, unless the major department or college changes this limitation. All CLEP, AP, and other special examination credits are considered *P* and are included in the total *P* grades permitted. The *P* shall also be used to record on the student's permanent academic record all special credit in which other grades are inappropriate. Many departments do not allow students to take required courses on a *P/D+*, *D*, *F* option, and many professional or graduate schools may not accept *P* grades. Therefore, an advisor's signature is required, *before* students may take courses under this option.

# Registration, Student Records, and Academic Standing

Some courses are *only* offered as Pass/Fail. When a course is offered only in this manner, this information must be clearly stated in the syllabus.

## Tuition, Fees, and Refunds

See *Tuition, Fees, and Refunds* section of this catalog, pages 64-66.

## Records Hold

A "Records Hold" will be placed on a student's record when an outstanding financial obligation or disciplinary action has been reported.

When a "hold" is placed on a record, the following results may occur: (1) An official and/or unofficial transcript may not be issued; (2) registration privileges may be suspended; (3) other student services may be revoked. The "hold" will remain effective until removed by the initiating office. It is the student's responsibility to clear the conditions causing the "hold."

## Full-time Status

The minimum registration load for a full-time undergraduate student is 12 credits. **Students who desire to graduate in four years (eight semesters) must average a semester load of at least 15 credits per semester.** To be eligible for student body offices, students are required to be registered for 12 or more credits. To be eligible to receive financial aid, a student is required to register for 6 or more credits. Students on scholarships must be registered for 12 or more credits, unless otherwise indicated. Veterans and students eligible for a veteran's educational allowance are required to be matriculated and registered for 12 or more credits (for undergraduate students) or 9 or more credits (for graduate students) to qualify for full educational benefits. Students registered for less than 12 credits should contact the Veterans Services Office to determine if they are eligible for partial benefits.

## Auditing Classes

Admitted students who wish to audit a class must register as auditors. Auditing is dependent on space, resource availability, and instructor approval. No credit or grade points will be granted. The regular tuition and course fees will be assessed. At no future time may students request or receive credit for the audited course by any other means than by officially registering for the course and doing the required work. Audit requests, approved by the instructor, must be submitted to the Registrar's Office and tuition and fees must be paid before class attendance is permitted. Students are not permitted to register as auditors during Early Registration.

House Bill 60 (1977) permits Utah residents 62 years of age or older to audit regular university classes offered during the day or offered through Regional Campuses and Distance Education. However, space in many university classes is limited. Classes which are full at the time of an audit request are unavailable. Credit seeking, full-tuition paying students shall have first priority in the registration process. A flat fee of \$10 per semester, **plus any course fees or special fees that may be attached to classes**, is charged for House Bill 60 (1977) registration.

## Tuition and Fee Payment Deadlines and Consequences

Fee payment deadlines for each semester are shown in the *Registration Calendar* section, pages 6-8. After the original fee payment deadline, tuition and fees are due daily. There is one fee payment deadline for summer semester, and fall and spring semesters each have five fee payment deadlines.

Students having an outstanding balance after a fee payment deadline may be dropped or "purged" from their classes. (See information shown below concerning the *Registration Purge*.)

For fall and spring semesters, the first four fee payment deadlines will be immediately followed by a registration purge. Students having an outstanding balance following the fifth fee payment deadline will not be purged, but may be assessed a \$100 late tuition payment fee, as well as ongoing charges for the unpaid balance.

## Payment Options

It is *strongly recommended* that students complete all of their tuition and fee payments online. An option is available for students to authorize other individuals, such as parents or grandparents, to create their own login credentials to view and make payments on the student's behalf. Several payment options are available.

**Web Check (no fees).** The preferred method of payment is through web check (electronic check). Through this option, no additional fees are assessed. However, standard fees may apply if there are insufficient funds in the account, or if the wrong account information is submitted.

**Payment Plan (setup fee).** When students pay their tuition and fees, they will have a choice to sign up for a payment plan. Different plans may be available. The standard Tuition Installment Plan (TIP) requires the student to make a down payment of 50 percent of the balance, plus pay a \$50 setup fee. The student will then pay 25 percent of the balance after the first month, and the remaining 25 percent of the balance after the second month.

**Credit Card (additional fees assessed).** Students may pay their tuition and fees with a credit card. USU currently accepts MasterCard and Discover, and may also accept American Express in the future. A 2.75 percent convenience fee will be assessed for payment by credit card. This equates to an additional fee of \$27.50 for every \$1,000 paid through credit card. In addition, credit card interest fees may apply for unpaid balances to the credit card company.

**Summary of Additional Fees.** Comparisons using each of the options listed above are shown below. An additional scenario is given for a student who still has an outstanding balance after the last fee payment deadline. These examples use the 2008-2009 tuition and fee amount for a full-time resident student, which was \$2,222.41.

Web Check.....	\$0
Payment Plan .....	\$50 setup fee
Credit Card .....	\$61.12 convenience fee
No Plan (Late Fee).....	\$100 late tuition payment fee

## Registration Purge

If a student has not paid tuition and fees in full, the Registrar's Office may cancel (or "purge") the student's registration for the upcoming semester, meaning the student will no longer have a seat reserved in the classes he or she has chosen. The determining factor as to whether or not a student's registration will be "purged" depends upon the balance owed. Class fees are included in the balance owed. In instances where a student has made full payment for some of his or her classes, every effort will be made to drop *only* those classes for which the tuition and fees have not been paid, in an effort to ensure that *only* the last added class or classes will be dropped.

# Registration, Student Records, and Academic Standing

The registration purge is governed by the following policies:

1. There is one purge for summer semester, and fall and spring semesters each have four purges. See pages 6-8 for dates.
2. Any student owing a balance of \$250 or greater will have his or her registration purged. Balance is defined as any amount owed, minus any financial aid authorized, paid, or memoed. Students participating in a payment plan will not have their registration purged, provided they have paid the amount due at the time of the payment deadline.
3. Beginning the first day of classes, any student who owes a balance of \$5 or more will have his or her student ID card deactivated.
4. After the sixth week of classes, a hold will be placed on the account of any student who owes more than \$50, preventing the student from registering for classes, including preregistration for the next semester, and preventing the student from receiving transcripts until he or she pays the balance owed.

Prior to each purge, students owing \$50 or more will be sent e-mails reminding them of the deadline. All students having their registration purged will receive an e-mail informing them of this action.

Faculty members and advisors having questions concerning these policies should contact Bill Jensen, Associate Registrar, (435) 797-1076, bill.jensen@usu.edu.

## Dropping Courses

If a student does not attend a class during the first week of the term or by the second class meeting, whichever comes first, the instructor may submit a request to have the student dropped from the course. (*This does not remove responsibility from the student to drop courses which he or she does not plan to attend.*) Students who are dropped from courses will be notified by the Registrar's Office through their USU e-mail account.

Students may drop courses without notation on the permanent record through the first 20 percent of the class. If a student drops a course following the first 20 percent of the class, a *W* will be permanently affixed to the student's record. After 60 percent of the class is completed, the student's academic advisor must sign any drop request, and a *W* with a grade assigned by the instructor will be entered on the student's permanent record. Under normal circumstances, a student may not drop a course after 75 percent of the class is completed. (Check pages 6-8 for exact dates.)

Students with extenuating circumstances should refer to the policy regarding *Complete Withdrawal from the University* on page 58 and the *Incomplete (I) Grade* policy on page 59.

In extenuating circumstances in which a complete withdrawal or an incomplete grade is not deemed the best action to take, a student may petition for a Late Drop up through the last day of classes. The term "extenuating" circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of two weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter course schedule to secure employment, (4) change in work schedule as required by employer, (5) judicial obligations, or (6) other emergencies deemed appropriate by the instructor. Students requesting a late drop must submit a Petition for Late Drop to the Registrar's Office. The student must attach a typed

appeal stating an explanation and justification for the desired drop(s). Supporting documentation confirming the extenuating circumstances must accompany the petition. The cost of the petition is \$20, which is a nonrefundable processing fee and does not guarantee approval.

In the event that a student registers for a course which is later cancelled, it is the responsibility of the department to officially cancel the class with the Scheduling Office, and the student's responsibility to drop the course for a full refund. It is the department's responsibility to notify students of cancelled or rescheduled classes.

A student may not drop all of his or her classes without an official withdrawal (Complete Withdrawal) from the University.

## Complete Withdrawal from the University

For most undergraduate students, a complete withdrawal is initiated at the Retention and First-Year Experience Office website for change of enrollment: <http://www.usu.edu/studemp/leaveofabsence/>. At this site, students should choose the *Complete Withdrawal* option. Undergraduate international students must file a complete withdrawal offline, and should go to the International Students and Scholars Office, Taggart Student Center 313. Matriculated graduate students who wish to completely withdraw must present their case to the School of Graduate Studies Office, Main 164. No one will be permitted to withdraw from the University once final examinations have begun. The date of the official withdrawal is the date the withdrawal form or letter is received. A student who withdraws must be accepted for readmission before he or she may enroll again.

## Leave of Absence

Undergraduate students who wish to discontinue their studies for one or more semesters (other than summer term) must file a *Leave of Absence* form online. Students may file an admission deferral, a one-semester leave, a traditional leave of absence, or a complete withdrawal online at <http://www.usu.edu/rfye/loa>. Requests may be granted in the following circumstances:

1. Leaves of absence are generally granted and reviewed on a yearly basis for reasons relating to: illness or health, military service, employment, humanitarian or church service, family responsibilities, and financial obligations.
2. **The standard leave period is one year.** Allowances will be made for military activation, church or humanitarian service, and those with extenuating circumstances.

*Students must apply for leaves of absence for a current semester by the last day of classes for that semester.*

With very few exceptions, students who are attending another institution **may not** take a leave of absence. They must completely withdraw and apply for readmission. Students are encouraged to discuss possible exceptions with the Matriculation Advisor.

A student must apply for a leave of absence for a current semester *no later than* the last day of classes for that semester. USU's dropping courses policy explains how a leave of absence will affect a student's transcript.

A student who takes a leave of absence must officially notify the Matriculation Advisor of his or her intention to return to USU from leave. This *must* occur prior to registration. **In most cases, the student will not need to apply for readmission.**

# Registration, Student Records, and Academic Standing

## No-test Days

A five-day period designated as No-test Days precedes the five days of final examinations which are normally scheduled at the close of each academic semester. During No-test Days, no major examinations, including final examinations, will be given in order that students may concentrate on classwork, the completion of special assignments, writing projects, and other preparation for duly scheduled final examinations.

## Student Records

### Grading and Grading Options

For work in graded courses, *A* shall denote exceptional performance, *B* above average performance, *C* satisfactory performance, *D* poor performance, and *F* failing performance. Letter grades may be modified by plus (+) or minus (-) symbols (no *A+* or *D-*).

Ordinarily a standard grade is given upon completion of a course, unless a grading option of "Audit" or "Pass/D+, D, F" is indicated at the time of registration, on the syllabus, or within prescribed deadlines.

### Incomplete (I) Grade

Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances. The term "extenuating" circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of two weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter course schedule to secure employment, (4) change in work schedule as required by employer, (5) judicial obligations, or (6) other emergencies deemed appropriate by the instructor. The student may petition the instructor for time beyond the end of the semester to finish the work. If the instructor agrees, two grades will be given, an "I" and a letter grade for the course computed as if the missing work were zero. An *Incomplete Grade Documentation Form* must be filed by the instructor in the department or college office. Students may not be given an incomplete grade due to poor performance or in order to retain financial aid.

The student is required to complete the work by the time agreed upon (which may not be longer than 12 months). If no change of grade is submitted by the instructor within the prescribed period, the "I" will be removed and the letter grade originally submitted with the "I" will remain as the permanent grade for the course. Arrangements to complete the missing coursework are to be made directly with the instructor awarding the "I" grade, and in accordance with departmental and other USU policies. In the absence of the original instructor, special circumstances must be handled by the department head. Documentation of the reasons for granting an "I" grade and required work to be completed in order to remove the "I" grade must be recorded on the *Incomplete Grade Documentation Form*, which must be filed with the departmental office. Resolution of the "I" grade does not involve a complete repeat of the course, only the completion of missing coursework. **A student does not reregister for the course.** All "I" grades must be changed to letter grades prior to graduation, regardless of whether or not the course is required for the degree. Dissertation, thesis, directed study, and independent study courses taken for graduate work are exempted from this policy.

A student who is on academic probation and receives an incomplete grade in one or more classes may register for classes in the subsequent semester, provided the grades received from his or her other classes are high enough to prevent the student from being placed on academic suspension. A student in this situation, prior to making up the incomplete grade, may enroll in *only one* subsequent semester. A Registrar's Office hold will then be placed on the student's record, preventing him or her from registering for a second additional semester. Additional registration holds may be placed on a student's record by an academic advisor. The Registrar's Office hold will not be removed until the incomplete grade is changed to a letter grade. If the resulting grade does not cause the student to be placed on academic suspension, the Registrar's Office hold will be removed. Other registration holds, such as an advisor hold, will need to be removed by the office placing the hold.

Exceptions to the one subsequent semester limitation may be made (1) if receiving the grade that accompanies the incomplete grade (e.g., a student who receives an *IF* grade would receive an *F* if no additional work was completed) would not cause the student to be placed on academic suspension for the semester in which the incomplete grade was originally received, or (2) by memo of justification from the course instructor who submitted the incomplete grade. Any exceptions must be requested through the Registrar's Office.

### Final Grade Reports

Final grades are available through Access. Students may login to Access at: <http://www.usu.edu/myusu/> (After logging in, click on **Student Records**, then on **Final Grades**.) Instructors should submit their final grades within four working days after the final examination.

### Change of Grades

The instructor of record of a course has the responsibility for any grade reported. Once a grade has been reported to the Office of the Registrar, it may be changed upon the signed authorization of the instructor of record who issued the original grade. In case the instructor is not available, the department head has authority to change the grade, provided the grade was assigned less than one year ago. This applies also to the grade of Incomplete (*I*). A change of grade after more than one year also requires the signature of the academic dean of the college in which the course is offered. (See USU Student Policy Handbook—Student Appeal Procedures.)

### Transcripts

Official transcripts may be obtained by submitting a signed request to the Registrar's Office, *in person* at TSC 246; *by mail* to Utah State University, 1600 Old Main Hill, Logan UT 84322-1600; or via the Internet. To request an official transcript online, students should login to Access at: <http://www.usu.edu/myusu/> (After logging in, click on **Student Records**, then on **Order Transcript**.)

### Credits Awarded for Courses

#### Traditional Courses

The standard for academic course credit, as identified by the Northwest Association of Schools and Colleges and followed by USU, is that one credit be awarded for three hours of student work per week during a 15-week semester. For traditional courses, this is interpreted as one 50-minute class period plus two hours of study per week for each credit. Note that one 50-minute period per week throughout a

# Registration, Student Records, and Academic Standing

15-week semester equals 12.5 contact hours per credit. This standard should be used in determining credits for courses which do not meet for 50-minute periods.

## Nontraditional Courses

In addition to courses taught during regular academic terms, other educational experiences (such as workshops, institutes, short courses, and conferences) are offered at USU. Because of the short time period in which they are offered, these nontraditional courses may not require extensive out-of-class work by students. When little or no out-of-class work is required, the standard for such courses is 20 contact hours per credit.

## Remedial Courses

Courses numbered 0010-0990 will not satisfy baccalaureate requirements, are not transferable, are not calculated in a student's grade point average, and do not count toward earned hours.

## GPA Hours and Quality Points

A **GPA hour** is defined as a credit which is used in calculating a student's grade point average (GPA). All graded credits, *except* for those in which the Pass (*P*) or Incomplete (*I*) grade is received, qualify as GPA hours, unless otherwise noted. **Quality points** are assigned to each letter grade earned, as follows:

A	4.00	C+	2.33	F	0.00
A-	3.67	C	2.00		
B+	3.33	C-	1.67		
B	3.00	D+	1.33		
B-	2.67	D	1.00		

**Scholastic Marks**, which do not qualify for GPA hours, are as follows:

I	Incomplete	P	Pass
W	Withdrawal	AU	Audit
SP	Satisfactory Progress	NGR	No Grade Reported

A grade of *I*, plus a companion grade, has no GPA hours or earned hours, but indicates that the student has up to one calendar year to finish the work. A grade of *W*, plus a companion grade, carries no grade point value, but indicates that the student withdrew after 60 percent of the course had been completed.

## Grade Point Average

When a student is graded, the quality points for the grade are multiplied by the GPA hours to derive the total quality points. The total quality points are then divided by the total GPA hours to determine the GPA. GPAs are truncated to the nearest hundredth of a grade point.

## Repeating Courses

Students may repeat any course at USU for which they have previously registered. They may also retake a course originally taken at an institution where USU has an articulation agreement, if the agreement identifies a specific USU course as being equivalent to the one the student desires to replace. All other decisions dealing with retaking courses, including courses taken under the quarter system, will be determined by the department in which the course is offered.

The number of times a student can take the same class is limited to a total of three times (once, plus two repeats). Beyond three attempts, the student's dean must approve additional registration for the class.

The total number of repeats allowed is limited to ten. Students who exceed this limit will have an academic hold placed on their registration. Beyond ten repeats, the student's academic dean must approve additional registration.

**This policy does not apply to courses repeatable for credit.** When a course listed in the *General Catalog* is identified with the Repeat Symbol (®), the course may be taken more than once for credit.

When a course not designated as repeatable for credit is repeated, **the most recent grade and GPA hours are used to recalculate the student's grade point average.** The previous grade and GPA hours for the same course will remain on the student's academic record, but will *not* be calculated in the grade point average or total GPA hours completed, and will be designated on the student's transcript with an *E* (exclude). A course designated as repeatable (®) may be repeated to receive a higher grade, and the most recent grade and GPA hours will be used in recalculating the student's grade point average.

## Transfer Credit

The grades which may be transferred and recorded for transfer students shall include *A, A-, B+, B, B-, C+, C, C-, D+, D, and F*, as well as *P* (Pass). Only grades earned at USU will be used in calculating USU grade point averages. Decisions concerning academic standing, once the student is admitted to USU, will be based solely on USU grades.

## Registrar's Office Forms

### Change of Address Form

It is the responsibility of the student to keep the Office of the Registrar informed of address changes by completing a Change of Address form available at the Registrar's Office (TSC 246) or by using the Access (Banner) System on the Web:

<http://www.usu.edu/registrar/access/index.cfm>

### Other Forms

The following forms are available at the Registrar's Office (TSC 246) or online at: <http://www.usu.edu/registrar/forms/>

### Change of Information

Students who wish to have their name changed (e.g., new last name, add middle name, etc.) will need to fill out a change of information form. A copy of the student's picture ID and of the student's social security card, showing the desired name, must accompany the form submitted to the Registrar's Office.

### Change of Matriculation (Major)

When a student desires to change his or her major, emphasis, or minor, he or she must fill out a change of matriculation form. This form must be signed by representatives of the appropriate departments before being submitted to the Registrar's Office.

### Privacy Hold

A student wanting to have his or her records marked as "private" can fill out a privacy hold form. After a privacy hold has been placed on a student's record, no information concerning that student can be communicated over the phone. Information can be given out *only* when the student presents his or her picture ID at the Registrar's Office.

### Release of Student Information

A release of student information form permits an appointed person to access a student's records. In order to be valid, this form must be notarized.

# Registration, Student Records, and Academic Standing

## Request for Verification

A student desiring to verify attendance and graduation information should complete a request for verification form, which should be submitted to the Registrar's Office.

## Petitions and Appeals

### Academic Appeals

When a student feels that he/she has been treated unfairly by a specific professor or existing rules or regulations, there is a sequential process which should be followed in handling the situation. (Problems in this area include disagreements regarding a course grade, intervening circumstances which prevented the student from following an assigned procedure, etc.)

When a student experiences such difficulties, he/she should first go to the specific professor or administrator and discuss the situation. It may be possible to resolve the problem at this level. Should no agreement be reached, the student may then take the situation to the department head. If no resolution is reached at that level, the student may take the problem to the dean of the college. If there is still no resolution, the matter will be forwarded to an appeals committee. As a final recourse, the student may take the problem to the Provost's Office, where a final decision will be made.

### Academic Record Adjustment

Students requesting an academic record adjustment to a prior term must submit a *Petition for Academic Record Adjustment* to the Registrar's Office. Adjustments will only be considered if extenuating circumstances exist. The term "extenuating circumstances" includes: (1) incapacitating illness which prevented a student from attending classes for a minimum period of two weeks and prevented the student from completing the desired adjustment during the term, (2) a death in the immediate family, or (3) other emergencies deemed appropriate. **A maximum of two semesters may be adjusted per each degree. Petitions must be submitted within two years of the desired adjustment.** The student must attach a typed appeal stating an explanation and justification for the desired adjustment. Supporting documentation confirming the extenuating circumstances must accompany the petition. The cost for the petition is \$20, which is a nonrefundable processing fee and does not guarantee approval. Students who wish to appeal the decision of the Registrar's Office will be directed to the Vice President for Student Services.

### Academic Renewal

Undergraduate students who have been admitted to Utah State University after an interruption in their collegiate education of five or more years may petition to have certain credits removed from the calculation of the GPA needed for credit. The renewal procedure allows the student's academic records to be reviewed for the purpose of eliminating from grade point average computation all grades of *D+* or below that were entered on the academic transcript five or more calendar years prior to admission, including transfer credit. However, upon request, selected *D+* or *D* grades may remain on the student's record. Petition forms are available in the Office of the Registrar and online. A \$25 processing fee will be assessed.

### Guidelines:

1. Academic renewal *does not* apply to graduate students nor to students pursuing a second undergraduate degree.
2. Academic renewal may be applied *only once* and is *irreversible*.

3. An absence of *five or more years* must have elapsed between admission and the last enrollment at an institution of higher education. (**Note:** Students must be currently enrolled at USU to apply for academic renewal.)
4. After admission, but before application for renewal, the student must have completed at least one of the following at Utah State University: (a) 10 semester credits with at least a 3.00 GPA; (b) 20 semester credits with at least a 2.75 GPA; (c) 30 semester credits with at least a 2.50 GPA.
5. Academic renewal applies *only* to courses having grades of *D+*, *D*, or *F* and taken prior to readmission. All such courses will remain unaltered on the transcript with the appropriate notation added to the transcript to indicate academic renewal. Courses designated in the petition will not count for computation of GPA for earned credits, nor for satisfying any graduation requirements. Courses with a grade of *C-* (or *P*) or better will be carried forward.
6. Students may apply for this renewal after they have met the guidelines listed above. They are strongly encouraged to meet with their academic advisor prior to submitting their request.
7. Academic renewal will be effective as of the date of admission following the minimum five-year absence.

## Academic Standing

### Honor Roll (Dean's List)

To qualify for the semester honor roll (Dean's List), a student must earn a 3.5 GPA in 15 or more graded credits, except for summer semester for which 12 or more graded credits are required. **Note:** Courses for which a *P* (Pass) grade is received *do not* qualify for graded credits.

### "A" Pin

Scholarship "A" pins are presented to undergraduate students who have received all *A* grades (4.0 GPA) for 15 or more graded credits each semester during two consecutive semesters in residency. **Note:** Courses for which a *P* (Pass) grade is received do not qualify for graded credits.

### Good Standing

An undergraduate student is considered by the University to be in *good standing* when his or her USU cumulative GPA is 2.0 or higher. An undergraduate student whose USU cumulative GPA is *less than* a 2.0 is placed on *academic warning* or *academic probation*, based on the student's class rank, admission status, and the USU cumulative GPA. A **freshman** with a USU cumulative GPA of *less than 2.0* is placed on *academic warning*. A **sophomore, junior, senior, or any student with a standing of provisional admission warning**, with a USU cumulative GPA of *less than 2.0* is placed on *academic probation*.

### Provisional Admission Warning

An undergraduate student who is admitted provisionally will be noted as such on his or her academic record. Provisional admission warning will carry the same weight as academic warning. At the end of the first semester, a student whose USU cumulative GPA is 2.0 or higher will be in good standing. A student admitted provisionally shall be placed on *academic probation* at the end of the semester if his or her semester GPA is below 2.0.

# Registration, Student Records, and Academic Standing

## Academic Warning

A freshman student placed on academic warning shall be notified in writing of that action by his or her college dean, advisor, or other college or departmental representative. Since this notification will typically be sent by e-mail, it is the student's responsibility to check his or her USU e-mail account (see *E-mail Communication Policy*, page 80). The notation *Academic Warning* is placed on the student's transcript. The student remains on warning status as long as his or her semester GPA is 2.0 or higher and until his or her USU cumulative GPA rises to or exceeds 2.0; the student will then be in good standing. A student on academic warning shall be placed on *academic probation* at the end of any semester in which his or her semester GPA is *less than 2.0*. When a student's class standing changes to sophomore, and his or her USU cumulative GPA is less than 2.0, the student is placed on *academic probation*. Students on academic warning will have a hold placed on their registration and must meet with their academic advisor.

## Academic Probation

An undergraduate student placed on academic probation shall be notified in writing of that action by his or her college dean, advisor, or other college or departmental representative. Since this notification will typically be sent by e-mail, it is the student's responsibility to check his or her USU e-mail account (see *E-mail Communication Policy*, page 80). The notation *Academic Probation* is placed on the student's transcript. The student is required to meet with his or her academic advisor before the end of the fifth week and to sign a statement acknowledging the terms of the probation. Signed statements shall be maintained in the academic dean's office. The student remains on probation status as long as his or her semester GPA is 2.0 or higher and until his or her USU cumulative GPA rises to or exceeds 2.0; the student will then be in *good standing*. A student on academic probation is placed on *suspension* at the end of any semester in which his or her semester GPA is *less than 2.0*.

A student who is on academic probation and receives an incomplete grade in one or more classes may register for classes in the subsequent semester, provided the grades received from his or her other classes are high enough to prevent the student from being placed on academic suspension. A student in this situation, prior to making up the incomplete grade, may enroll in *only one* subsequent semester. A Registrar's Office hold will then be placed on the student's record, preventing him or her from registering for a second additional semester. Additional registration holds may be placed on a student's record by an academic advisor. The Registrar's Office hold will not be removed until the incomplete grade is changed to a letter grade. If the resulting grade does not cause the student to be placed on academic suspension, the Registrar's Office hold will be removed. Other registration holds, such as an advisor hold, will need to be removed by the office placing the hold.

Exceptions to the one subsequent semester limitation may be made (1) if receiving the grade that accompanies the incomplete grade (e.g., a student who receives an *IF* grade would receive an *F* if no additional work was completed) would not cause the student to be placed on academic suspension for the semester in which the incomplete grade was originally received, or (2) by memo of justification from the course instructor who submitted the incomplete grade. Any exceptions must be requested through the Registrar's Office.

## Academic Standing for Student Athletics Eligibility

Student athletes are considered, for purposes of athletics eligibility and NCAA intercollegiate competition, to be in good standing if they meet the applicable NCAA grade point average rule and are able to register for classes and attend during the next subsequent regular academic semester.

## Academic Suspension

An undergraduate student placed on academic suspension shall be notified in writing of that action by the Office of Retention and First-year Experience. Since this notification will typically be sent by e-mail, it is the student's responsibility to check his or her USU e-mail account (see *E-mail Communication Policy*, page 80). The notation *academic suspension* is placed on the student's transcript. A student who is registered for classes in the semester immediately following the suspension will be dropped from those classes. Questions about the suspension should be directed to the student's advisor.

## Suspension Appeal Process

Any suspended student wishing to appeal his or her academic suspension must meet with the matriculation advisor and express a desire to make an appeal. ***Students should understand that, while they are entitled to appeal their suspension, very few appeals will be approved.***

The student must write an appeal letter and complete an appeal form. The appeal letter must include: (1) a clear explanation as to why the student believes the suspension penalties should be lifted, (2) an account of reasons why the student feels he or she didn't perform well, and (3) a description of the student's plan for improvement.

The matriculation advisor, who serves as the chair of the Suspension Appeals Committee, will submit the appeal letter (attached to the student's transcript) to the committee. The matriculation advisor will contact the student's academic advisor to solicit additional information that might be relevant to the committee's decision. Additionally, the matriculation advisor will find out if the student's department supports a suspension reversal or not.

If the committee *upholds the suspension*, the decision will be final (if endorsed by the Vice President for Student Services). The committee chair will notify the student that the appeal was *denied*. After the suspension has been satisfied, the student may apply for readmission.

If the committee *waives the suspension penalties*, the matriculation advisor will meet with the student and have him or her sign a retention contract. The student's department will provide specific contractual obligations.

If the student was not properly notified of his or her probation (as outlined in the *Academic Probation* policy on page 62), the student's appeal is likely to be granted. Students should be aware that, even if their appeal is granted, a notation of suspension will remain on their transcripts.

# Registration, Student Records, and Academic Standing

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## **Readmission Following Academic Suspension**

Students *who have been suspended once* may apply for readmission after a two-semester layout. Students *who have been suspended two times* may apply for readmission to the University following a layout of one full calendar year.

## **Academic Dismissal**

Students who become subject to suspension for a *third time* will receive notice of academic dismissal from the University and have the notation *academic dismissal* placed on their transcript. Students who have been dismissed may apply for readmission to the University following a layout of five or more calendar years.

## **Low-Scholarship Notification for Graduate Students**

The dean of the School of Graduate Studies will notify students whose GPA is below 3.0 any semester. If the GPA falls below 3.0 for two consecutive semesters, the student may be placed on probationary status and his or her graduate program may be terminated. For further information, see *Low-Scholarship Notification* (page 115).

## **Concurrent Enrollment Credit**

For purposes of academic standing, students who have taken classes through concurrent enrollment, and who otherwise qualify for good standing at USU, shall not be denied such standing based on their concurrent enrollment credit.



# Tuition, Fees, and Refunds

Tuition and fees provide an essential revenue source to Utah State University, although these comprise only 12 percent of the total budget. State appropriations provide 34 percent of the University's revenue sources. USU strives to keep the institution as cost-effective as possible, and is noted for having low-cost resident and nonresident tuition amounts.

Tuition and fee amounts can be found by clicking on one of the **Tuition & Fee tables** links at: <http://www.usu.edu/registrar/payment/>

**Registration for a semester is *not complete* until all fees have been paid in full. The University reserves the right to alter any tuition or fee charges without notice.**

**Visitor fee (audit) .....same as classes with credit** (except for persons 62 years of age or older who are permitted to audit free of charge after a recording fee of \$10 per semester has been paid)

**Late registration fee .....\$100 per course added** (Following the published add deadline, a fee of \$100 per course will be assessed for all undergraduate and graduate courses added. For more information, see page 56.)

## Continuing Graduate Advisement Courses (6990 and 7990)

There is no limit on the number of times a graduate student may register for 6990 or 7990 credit. Tuition will be charged according to the residency status of the student. Nonresident students may come to the Financial Aid Office to receive a waiver of the out-of-state portion of the Continuing Graduate Advisement tuition.

**Continuous Graduate Registration Fee.....\$100 per semester**

## Tuition Surcharge for Excessive Credits

Students who have attempted 170 credits or more will be charged out-of-state tuition according to Board of Regents Policy. In the following circumstances the surcharge may be waived: (1) the excessive credits are necessary for the student to complete the student's program of study; **and** (2) the excess credits are a result of circumstances where a substantial number of credits from a transferring institution could not be applied to the program of study; **or** (3) the excess credits are the result of a reasonable enhancement of the student's major by the addition of a minor or emphasis to the program of study; **or** (4) the excess credits are the result of a reentry into the educational system by a student who may have accumulated a large number of credits, or even completed degrees, but where employment requirements obligate his or her return to college. Credits earned through concurrent enrollment and credits received through Advanced Placement (AP) and other examinations *do not* count toward the 170 credit total.

The student may obtain a petition to waive the surcharge at: <http://www.usu.edu/registrar/forms/pdf/Surcharge.pdf>

## Seven-Year Tuition Policy

Students who initially enrolled at USU during Summer Semester 2004 or later are charged tuition using the most recent tuition scale. Students who initially enrolled at USU prior to Summer Semester 2004, who can complete their degree requirements within seven years of enrollment, and who have not had a break in their enrollment of greater than one year, are eligible to be coded under an alternate tuition scale.

Beginning Summer Semester 2009, the 2000-2002 alternate tuition table will be eliminated, and all students who enrolled prior to 2002 will be assessed tuition according to the most recent tuition table. Beginning Summer Semester 2011, the 2002-2004 alternate tuition table will be eliminated, and all students, regardless of the time of their initial enrollment, will be charged tuition according to the most current tuition scale.

Any student who is readmitted after an absence of a year or greater will be coded according to the most current tuition table.

## Tuition Refund Policy

When a student withdraws from classes before the fifteenth day of the semester, he or she is entitled to a refund of registration tuition and fees according to the following schedule:

Tuition Refund Period	Percentage of Credits for which Tuition and Fees will be Refunded
Before classes begin .....	100%
First ten days of semester .....	100%
Eleventh through fifteenth day of classes.....	50%
After fifteenth day of classes .....	0%

Refunds will be automatically processed when courses are dropped by the published refund deadlines (see page 8). **Note:** The refund policy above applies to full-semester classes *only*. For information about refund dates for classes offered during *less than a full semester*, contact the Registrar's Office, TSC 246, (435) 797-1101.

Refunds are computed as a percentage of the credits being dropped, and are *not* based solely upon the *dollar amount* paid. Published refunds will be automatically calculated.

Below are three examples of refund calculations for dropping credits during the 50 percent refund period. These examples use the 2009-2010 tuition tables for a resident undergraduate student.

Example 1:	Tuition and Fees
Registered for 9 credits .....	\$ 1,812.83
Dropping 3 credits at 50% (equals 1.5 tuition credits dropped)	
Tuition and Fees for 7.5 credits (9 minus 1.5 credits) .....	1,587.52
<b>Total Refund.....</b>	<b>\$ 225.31</b>

Example 2:	Tuition and Fees
Registered for 15 credits .....	\$ 2,413.67
Dropping 3 credits at 50% (equals 1.5 tuition credits dropped)	
Tuition and Fees for 13.5 credits (15 minus 1.5 credits) .....	2,413.67
<b>Total Refund.....</b>	<b>\$ 0</b>

**Note:** Utah State University's plateau tuition means that the tuition and fee amount for total credits between 13 and 18 credits is the same amount.

Example 3:	Tuition and Fees
Registered for 12 credits .....	\$2,263.42
Dropping 6 credits at 50% (equals 3 tuition credits dropped)	
Tuition and Fees for 9 credits (12 minus 3 credits) .....	1,812.83
<b>Total Refund.....</b>	<b>\$ 450.59</b>

For exact dollar amounts, click on one of the **Tuition & Fee tables** links at: <http://www.usu.edu/registrar/payment/>

## Fee Refunds

(1) A proportionate share of all fees paid may be refunded to any student who withdraws from school before the 15th day of classes. (2) All refunds will be mailed to the student. (3) The application and evaluation fee for an undergraduate or graduate applicant is not refundable. (4) Activity fees will be pro-rated. (5) Students with financial aid need approval from the Financial Aid Office in order to receive a refund. (6) Complete withdrawal must be approved by the Financial Aid Office (TSC 106) or by the Office of Retention and First-Year Experience (TSC 314).

## Delinquent Financial Accounts

Students with outstanding financial obligations may be refused all University services until such obligations are paid. Services which may be denied include the following: registration, transcripts, grades, transfer of credit, graduation, and activity card.

# Tuition, Fees, and Refunds

## ID Cards

An ID card is available for each registered USU student. Upon full payment of tuition and fees, students will automatically have their cards activated. A student who holds an activated card may purchase a spouse card for \$15 and pay the spouse fee of \$40 per semester at the Registrar's Office. The student activity card provides access to USU athletic events, USU computer labs, the Merrill-Cazier Library, Student Health Services, campus recreation facilities, music and theatre events, and various student activities. Once all fees are paid, student activity cards will be activated two weeks prior to the first day of the semester. Provided there is no outstanding balance in the student's account, the student's activity card will continue to be valid for two weeks following the last day of final exams for spring and summer semesters, and for three weeks following the last day of final exams for fall semester.

## Tuition Installment Plan (TIP)

The Tuition Installment Plan (TIP) allows students to defer a portion of their tuition until later in the semester. Students who are approved for participation in TIP must pay 50 percent of their tuition, plus a \$50 nonrefundable service charge, by the tuition and fee payment deadline. A second installment, for 25 percent of tuition (plus interest), is due on the 30th day of the semester; and the remaining 25 percent (plus interest) is due on the 60th day of the semester. Since deferred payments are loans, students will be considered to be in default if their deferred payments are not received by the due dates. Students who drop classes after the 100 percent refund period has passed will *still* be obligated to pay the TIP in full. Withdrawal or dropping classes *does not* cancel these loans. If the loan amount is *not paid in full by the due date*, students must pay interest in the amount of 12 percent per annum from the date issued on any portion that is unpaid.

To apply for the TIP, print the application accessed from the TIP link at: <http://www.usu.edu/registrar/payment/>, and complete the information as directed on the form. Because this is a promissory note, all signatures must be signed in front of a Registrar's Office representative in the Registrar's Office, Taggart Student Center 246.

## Miscellaneous Payments

If any payment made to the University is unauthorized, incomplete, or received after the due date, registration fees will be considered as **unpaid**, and the student will not be officially registered.

## Personal Checks

Personal checks returned by the bank to the University *for any reason* are automatically sent to a collection agency and will be subject to a service charge. At the discretion of the Controller's Office, this may result in the withholding of registration credit or immediate cancellation of the student's classes. USU reserves the right to refuse personal checks for any transaction. Check cashing privileges and use of other University services using personal checks may be suspended for any individual who has a check returned to the University.

## Delinquent Financial Accounts

All tuition and fees should be paid in full by the posted due dates. Any unpaid tuition and fees may be assessed a late fee of \$20 per month or 1 percent per month (12 percent per annum), whichever is greater. Students with an outstanding balance may be subject to removal from classes for nonpayment.

In the event collection efforts become necessary, USU may refer a past due account to an outside collection agency. All referred accounts are subject to a collection fee, not to exceed 50 percent of the amount owed, plus all court costs and reasonable attorney fees. The collection agency and/or USU may report delinquent accounts to a credit reporting agency.

Students with outstanding financial obligations may be refused all University services until such obligations are paid. Services which may be denied include the following: registration, transcripts, grades, transfer of credit, graduation, and activity card benefits.

## Sponsored Payments

Students whose tuition and fees are paid by a sponsor may contact the Cashiers Office (Taggart Student Center 246) for authorization to complete registration. International students with a sponsor should also contact the Cashiers Office.

## Computer and Information Literacy Examination

All students working toward a bachelor's degree must pass this examination as part of the University Studies requirements. A \$30 fee is associated with this exam. For additional information, see page 67. Further details are shown at: <http://www.cil.usu.edu/>

## Special Fees

Special fees, charged in addition to tuition and registration fees, are assessed on the Registration/Billing Statement. These fees may be found in the online course schedules at: <http://www.usu.edu/registrar/catalogpdf/>

## Parking Permits

Parking permits are *required* Monday through Friday during the hours posted in each parking area. Each motor vehicle parked in a designated parking area on University property must be registered or pay a daily fee. Possessing a permit for a designated area does not necessarily ensure the availability of a parking space. The permit extends the right to park in a specified area when space is available until the permit and/or time expires.

## Student Permits

Students living off campus who wish to park a vehicle on campus have three permit options:

1. Purchase a **Student Blue permit**, which allows parking in the central campus area.
2. Purchase a **Yellow permit**, which allows parking at the Stadium and below Old Main Hill.
3. Purchase an **Aggie Terrace permit**, which allows parking in the Aggie Terrace.

## Student Housing

Students living in campus residence halls are required to purchase a permit to park in the area adjacent to their respective residences. These permits are valid for the residence area specified, as well as all Economy parking areas.

Permit price information is available at <http://www.usu.edu/parking>. The parking staff is available to provide assistance at the Parking Office, Monday through Friday from 7:30 a.m. to 5:00 p.m. For general information, call (435) 797-3414 or visit the Parking Office at 840 East 1250 North (north of the softball diamond).

## Student Orientation, Advising, and Registration (SOAR) Fee

This fee, assessed to all incoming first-year students, covers the cost of student enrollment materials, including the *General Catalog*, voucher for the first Student ID Card (\$15 value), and the *Source* student handbook, and either the amenities and staff support received at an on-campus orientation session or the postage to mail the orientation materials to the student.

# Tuition, Fees, and Refunds

Two-day and four-day orientation sessions are also available. Fees for these orientation sessions cover all of the aforementioned orientation materials, plus lodging, food, and activities provided at the sessions.

A parent orientation fee is assessed for parents who choose to attend an on-campus orientation session. The fee covers the costs of the parent orientation, including lunch, refreshments, and a packet complete with materials specific to parents of Utah State University students.

Current orientation fees are posted at <http://www.usu.edu/soar>

## Math Placement Test Fee

Each time a student takes the Math Placement Test a fee of \$10 will be assessed.

## Math Refresher Course Fee

Students who enroll in a math skills refresher course will be assessed a \$100 fee for the course. This fee includes the fee for taking the Math Placement Test at the beginning of the course and again at the end of the course.

## Music

Fees are charged for piano practice and private instruction. For information on amounts, contact the Music Department.

## Health and Accident Insurance

Health and Accident Insurance is available to all students for nominal costs at the time of registration. Additional insurance may be purchased for spouse and children. Students are encouraged to provide themselves with adequate protection in case of illness or serious injury. Further information can be found at:

<http://www.usu.edu/health/insurance.htm>

## Insurance Information/International Students

Insurance coverage is *mandatory* for international students. All international students attending Utah State University are *required* to purchase one of the student health insurance plans offered at the University for themselves and accompanying dependents. Insurance coverage is *required* each semester.

International students are cautioned to purchase only temporary travel insurance to cover travel to the U.S.

## Admission Application and Evaluation Fee (nonrefundable):

U.S. Residents (undergraduate).....\$40  
International Students (undergraduate).....\$50

## Special Examination Fee

\$10 per course plus \$5 per credit hour up to a maximum of \$50 including the \$10 examination fee. Fees for some of the special examinations offered by the Languages, Philosophy, and Speech Communication Department are higher; call (435) 797-1209 for specific fees.

## Graduation Fees

One-year Certificate .....\$10\*  
Two-year Diploma.....\$10\*  
Associate of Applied Science Degree.....\$10\*  
Bachelor's Degree.....\$10\*  
Graduate, PhD Degree.....\$15

\*The \$10 application fee applies *only* if the application is submitted *prior* to the deadline. After the deadline, a \$50 fee will be assessed. (See page 78 for more information.)

## Cap and Gown Sales

Graduation regalia can be purchased at the Graduation Fair prior to commencement. Those unable to attend the Graduation Fair may have a friend or colleague pick up their regalia, or can place their order by calling (800) 662-3950. All phone orders will be mailed and assessed a shipping and handling charge. Please contact the USU Bookstore for current pricing or with any questions or concerns.

## Teacher Placement Registration .....\$10

## Transcript of Credits

For transcript requests processed by the USU Registrar's Office, the following information is needed: (1) student's full name (including any previous names), (2) student ID number, (3) date of birth, (4) last date of attendance, (5) where the transcript is to be sent, and (6) student's signature. The transcript fee is \$2 per transcript. The fee is to be paid in the Office of the Registrar, Taggart Student Center 246.

For a fee of \$5 per location, transcripts may be faxed. (**Note:** Faxed transcripts may be considered *unofficial copies* by some receiving parties.)

Official transcripts may be obtained by submitting a signed request to the Registrar's Office, *in person* at TSC 246; *by mail* to Utah State University, 1600 Old Main Hill, Logan UT 84322-1600; or via the Internet. To request an official transcript online, students should login to Access at: <http://www.usu.edu/myusu/> (After logging in, click on **Student Records**, then on **Order Transcript**.)

## Scholarships, Fellowships, and Assistantships

Information can be found in the *Financial Aid and Scholarship Information* section of this catalog (pages 46-51).

## Housing Fees

Write for a Housing Bulletin; send request to the Office of Housing and Dining Services, Utah State University, 8600 Old Main Hill, Logan UT 84322-8600.

## Estimated Cost of Undergraduate Education for Two Semesters for 2009-2010 Academic Year

	Resident	Nonresident
Tuition and Fees	See page 64	See page 64
Room and Board	\$6,450	\$6,450
Books and Supplies	1,210	1,210
Personal Expenses	2,210	2,210
<b>Totals</b>	<b>\$9,870</b>	<b>\$9,870</b>
	plus	plus
	Resident Tuition	Nonres. Tuition

**Note:** Costs for room and board may vary, depending upon the housing and meal plan selected. Also, costs for books, supplies, and personal expenses may vary, depending upon a student's chosen program of study and lifestyle. Students who choose to have a car will need to plan for transportation expenses. However, owning a car is *not necessarily essential*, since USU, Logan, and Cache Valley have free bus systems.

## Tuition and Cost Disclosure

Full-time undergraduate resident students at Utah State University paying a semester tuition and fee amount of \$1,836.01 contribute an estimated 35 percent to the full cost of instruction per full-time student of \$5,308.16. The remaining support for the full cost of instruction is provided by \$3,472.15 of state tax funds and no other institutional revenue sources.

# General Education Requirements

The General Education program, along with study in the major, is designed to assist students in achieving the Citizen Scholar Objectives (see page 70).

## Transfer Students

Students who have received an AA or AS degree at any institution within the Utah System of Higher Education, or at another institution with which USU has an articulation agreement, will be considered to have fulfilled the General Education Requirements, but must still complete the University Studies Depth Education Requirements.

Students who transfer to Utah State University with less than an Associate Degree (and have not completed General Education requirements) or with an Associate of Applied Science Degree will have their General Education courses evaluated on a course-by-course basis and may be required to take any additional courses necessary to satisfy the General Education requirements at Utah State University. However, if these students have taken equivalent General Education courses at the sending institution, these courses will be accepted toward satisfying General Education requirements at Utah State University.

Courses approved as fulfilling General Education requirements at a Utah System of Higher Education (USHE) institution will be acceptable to Utah State University as satisfying comparable General Education requirements. Coursework acceptability at other institutions will be determined by the student's major department at Utah State University.

## General Education Requirements (30-34 credits)

USU's General Education program consists of two sets of requirements: Competency and Breadth.

### Competency Requirements (9-10 credits)

The Citizen Scholar Objectives (see page 70) propose that students should be able to communicate effectively, utilize quantitative methods, make appropriate use of technology, and function effectively in groups. The competency requirements are structured to develop these skills.

#### Communications Literacy (CL1 and CL2) (6 credits)

**ENGL 1010 (CL1)** Introduction to Writing: Academic Prose ..... 3

##### Or one of the following exams:

ACT English Test: Score of 29 or higher  
SAT Verbal Test: Score of 640 or higher  
AP English Language Test: Score of 3 or higher  
CLEP English Composition Test: Score of 50 or higher  
CLEP Freshman College Composition Test: Score of 53 or higher  
IBO English A1 Test: Standard-level Score of 4-7

##### And

**ENGL 2010 (CL2)** Intermediate Writing: Research Writing in a Persuasive Mode..... 3

##### Or the following exam:

IBO English A1 Test: Higher-level Score of 4-7 (satisfies both CL1 and CL2)

### Quantitative Literacy (QL) (3-4 credits)

##### One of the following courses:

**MATH 1030 (QL)** Quantitative Reasoning..... 3  
**MATH 1050 (QL)** College Algebra..... 4  
**STAT 1040 (QL)** Introduction to Statistics ..... 3

##### Or

One Mathematics or Statistics course requiring MATH 1050 as a prerequisite, such as MATH 1100, 1210, 1220; or STAT 2300

##### Or one of the following exams:

ACT Math Test: Score of 25 or higher  
SAT Math Test: Score of 580 or higher  
AP Calculus AB Test: Score of 3 or higher  
AP Calculus BC Test: Score of 3 or higher  
CLEP Calculus Test: Score of 50 or higher  
CLEP College Algebra Test: Score of 50 or higher  
IBO Mathematics Test: Higher-level Score of 4-7

### Computer and Information Literacy (CIL) (0 credits)

Students must pass competency exams in computer and information literacy. Communications Literacy, Quantitative Literacy, and Breadth courses associated with General Education are intended to further develop these skills.

The Computer and Information Literacy requirement includes six exams:

1. Information Law and Ethics
2. Information Resources
3. Document Processing
4. Computer Systems
5. Spreadsheets
6. Electronic Presentations

Students must score 70 percent or higher on each exam to pass. A student has met the requirement only after he or she has passed all six examinations. There is no college credit associated with this requirement. While some college credit classes teach the required skills for the CIL exams, simply passing any class does not meet the requirement. Only by passing all of the six CIL tests is the CIL requirement met. Students should complete the CIL requirement during their freshman year, as many upper-division classes build on the skills covered in CIL. It is also a prerequisite for several majors.

There is a \$30 fee associated with this requirement. There is no limit to the number of times a student can take each test. Once a test is passed, a student may not retake that test. After all tests are passed and the fee is paid, the CIL requirement will be posted to the student's transcript.

To learn more about the CIL requirement, visit the following website: <http://cil.usu.edu>

### Breadth Requirements (18-20 credits)

General Education breadth requirements are intended to introduce students to the nature, history, and methods of different disciplines; and to help students understand the cultural, historical, and natural contexts shaping the human experience. Breadth courses also focus on the important cultural, socio-economic, scientific, and technological issues of today's global community.

# General Education Requirements

Students must take a minimum of 18 total credits, including at least one course from each of the six categories shown below.

**At least two of the six breadth courses must be University Studies courses (USU 1300, 1320, 1330, 1340, 1350, and 1360).** Students enrolled in the Honors Program may substitute HONR 1300, 1320, 1330, 1340, 1350, and 1360 for USU 1300, 1320, 1330, 1340, 1350, and 1360.

**Prerequisites are required for breadth courses having titles followed by (prereq.). For details, see course listings in the Course Descriptions section of this catalog.**

## Breadth American Institutions (BAI) (3 credits)

One of the following courses:

USU 1300 (BAI) U.S. Institutions .....	3
ECN 1500 (BAI) Introduction to Economic Institutions, History, and Principles .....	3
HIST 1700 (BAI) American Civilization .....	3
HIST 2700 (BAI) United States to 1877 .....	3
HIST 2710 (BAI) United States 1877-Present .....	3
HONR 1300H (BAI) U.S. Institutions .....	3
POLS 1100 (BAI) United States Government and Politics .....	3

Or one of the following exams:

AP Macroeconomics Test: Score of 3 or higher
AP U.S. Government and Politics Test: Score of 3 or higher
AP U.S. History Test: Score of 3 or higher
CLEP American Government Test: Score of 60 or higher
CLEP History of the U.S. I: Early to 1877 Test: Score of 50 or higher
CLEP History of the U.S. II: 1865 to Present Test: Score of 50 or higher
CLEP Principles of Macroeconomics Test: Score of 53 or higher
IBO Economics Test: Standard- or Higher-level Score of 4-7

## Breadth Creative Arts (BCA) (3 credits)

One of the following courses:

USU 1330 (BCA) Civilization: Creative Arts .....	3
ART 1010 (BCA) Exploring Art .....	3
HONR 1330H (BCA) Civilization: Creative Arts .....	3
ID 1750 (BCA) Design in Everyday Living .....	3
ID 1790 (BCA) Interior Design Theory .....	3
LAEP 1030 (BCA) Introduction to Landscape Architecture .....	3
MUSC 1010 (BCA) Introduction to Music .....	3
MUSC 1100 (BCA) Fundamentals of Music .....	3
THEA 1013 (BCA) Understanding Theatre .....	3
THEA 1023 (BCA) Introduction to Film .....	3

Or one of the following exams:

AP Music Theory Test: Score of 3 or higher
AP Studio Art: Drawing: Score of 3 or higher
AP Studio Art: 2-D Design: Score of 3 or higher
AP Studio Art: 3-D Design: Score of 3 or higher
IBO Music Test: Standard- or Higher-level Score of 4-7
IBO Theatre Arts Test: Higher-level Score of 5-7
IBO Visual Arts Test: Standard- or Higher-level Score of 4-7

## Breadth Humanities (BHU) (3 credits)

One of the following courses:

USU 1320 (BHU) Civilization: Humanities .....	3
ANTH 2210 (BHU) Introduction to Folklore .....	3
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval .....	3
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern .....	3
ENGL 2200 (BHU) Understanding Literature .....	3
ENGL 2210 (BHU) Introduction to Folklore .....	3
ENGL 2300 (BHU) Introduction to Shakespeare .....	3
ENGL 2630 (BHU) Survey of American Culture .....	3
HIST 1060 (BHU) Introduction to Islamic Civilization .....	3
HIST 1100 (BHU) Foundations of Western Civilization: Ancient and Medieval .....	3
HIST 1110 (BHU) Foundations of Western Civilization: Modern .....	3
HIST 1500 (BHU) Cultural and Economic Exchange in the Pre-Nineteenth Century World .....	3
HIST 1510 (BHU) The Modern World .....	3
HIST 2210 (BHU) Introduction to Folklore .....	3
HONR 1320H (BHU) Civilization: Humanities .....	3
PHIL 1000 (BHU) Introduction to Philosophy .....	3
PHIL 1120 (BHU) Social Ethics .....	3
PHIL 1200 (BHU) Practical Logic .....	3
PHIL 2400 (BHU) Ethics .....	3
THEA 1030 (BHU) Exploring Performance Through Aesthetic Texts .....	3

Or one of the following exams:

AP Art History Test: Score of 3 or higher
AP English Literature Test: Score of 3 or higher
AP European History Test: Score of 3 or higher
AP World History Test: Score of 3 or higher
CLEP Analyzing and Interpreting Literature Test: Score of 52 or higher
CLEP Western Civilization I: Ancient to 1648 Test: Score of 50 or higher
CLEP Western Civilization II: 1648 to Present Test: Score of 50 or higher
IBO History—European Test: Higher-level Score of 5-7
IBO History of the Americas Test: Higher-level Score of 5-7
IBO History—Islamic Test: Higher-level Score of 5-7
IBO Philosophy Test: Standard- or Higher-level Score of 4-7

## Breadth Life Sciences (BLS) (3-4 credits)

One of the following courses:

USU 1350 (BLS) Integrated Life Science .....	3
ANTH 1020 (BLS) Biological Anthropology .....	3
BIOL 1010 (BLS) Biology and the Citizen .....	3
BIOL 1300 (BLS) Of Maggots, Mites, and Men .....	3
BIOL 1610 (BLS) Biology I (4 cr) and BIOL 3300 (BLS) General Microbiology (prereq.) (4 cr) .....	8
<i>(Both BIOL 1610 and 3300 must be taken. This option is available only to students majoring in Biological Engineering or Environmental Engineering.)</i>	
BIOL 1610 (BLS) Biology I (4 cr) and BIOL 3060 (BLS/QI) Principles of Genetics (prereq.) (4 cr) .....	8
<i>(Both BIOL 1610 and 3060 must be taken. This option is available only to students in the Bioinformatics Emphasis of the Computer Science Major.)</i>	
BIOL 1620 (BLS) Biology II (prereq.) .....	4
HONR 1350 (BLS) Integrated Life Science .....	3
NFS 1020 (BLS) Science and Application of Human Nutrition .....	3
PLSC 2100 (BLS) Introduction to Horticulture .....	3

# General Education Requirements

WATS 1200 (BLS) Biodiversity and Sustainability .....	3
WILD 2200 (BLS) Ecology of Our Changing World .....	3

**Or one of the following exams:**

- AP Biology Test: Score of 3 or higher
- AP Environmental Science Test: Score of 3 or higher
- CLEP Biology Test: Score of 50 or higher
- IBO Biology Test: Standard- or Higher-level Score of 4-7

**Breadth Physical Sciences (BPS)  
(3-4 credits)**

**One of the following courses:**

USU 1360 (BPS) Integrated Physical Science .....	3
CHEM 1010 (BPS) Introduction to Chemistry .....	3
CHEM 1110 (BPS) General Chemistry I.....	4
CHEM 1120 (BPS) General Chemistry II (prereq.).....	4
CHEM 1220 (BPS) Principles of Chemistry II (prereq.).....	4
CLIM 2000 (BPS) The Atmosphere and Weather .....	3
CS 1030 (BPS) Foundations of Computer Science .....	3
CS 1060 (BPS) Cyber Security: Threats, Analysis, and Defense .....	3
GEO 1010 (BPS) Introduction to Geology:	
Geology of National Parks.....	3
GEO 1060 (BPS) Introduction to Environmental Geoscience .....	3
GEO 1110 (BPS) The Dynamic Earth: Physical Geology.....	4
GEOG 1000 (BPS) Physical Geography.....	3
HONR 1360H (BPS) Integrated Physical Science .....	3
PHYS 1020 (BPS) Energy.....	3
PHYS 1040 (BPS) Introductory Astronomy .....	3
PHYS 1080 (BPS) Intelligent Life in the Universe.....	3
PHYS 1100 (BPS) Great Ideas in Physics .....	3
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration ...	4
PHYS 1800 (BPS) Physics of Technology (prereq.).....	4
PHYS 2120 (BPS) The Physics of Living Systems II (prereq.) .....	4
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II ...	4
SOIL 2000 (BPS) Soils, Waters, and the Environment .....	3

**Or one of the following exams:**

- AP Chemistry Test: Score of 3 or higher
- AP Physics B Test: Score of 3 or higher
- AP Physics C: Electricity and Magnetism Test: Score of 3 or higher
- DSST Astronomy Test: Score of 48 or higher
- DSST Introduction to Computing Test: Score of 50 or higher
- DSST Principles of Physical Science I Test: Score of 47 or higher
- IBO Chemistry Test: Higher-level Score of 4-7
- IBO Geography Test: Higher-level Score of 5-7
- IBO Physics Test: Standard- or Higher-level Score of 4-7

**Breadth Social Sciences (BSS)  
(3 credits)**

**One of the following courses:**

USU 1340 (BSS) Social Systems and Issues .....	3
ANTH 1010 (BSS) Cultural Anthropology .....	3
ANTH 1030 (BSS) World Archaeology .....	3
ANTH 2010 (BSS) Peoples of the Contemporary World.....	3
APEC 2010 (BSS) Introduction to Microeconomics (prereq.) .....	3
ASTE 2900 (BSS) Humanity in the Food Web.....	3
ECN 2010 (BSS) Introduction to Microeconomics (prereq.).....	3
ENVS 2340 (BSS) Natural Resources and Society .....	3
FCHD 1010 (BSS) Balancing Work and Family .....	3

FCHD 1500 (BSS) Human Development Across the Lifespan.....	3
FCHD 2400 (BSS) Marriage and Family Relationships .....	3
FCHD 2450 (BSS) The Consumer and the Market .....	3
GEOG 1300 (BSS) World Regional Geography.....	3
GEOG 1400 (BSS) Human Geography.....	3
HONR 1340H (BSS) Social Systems and Issues.....	3
JCOM 1500 (BSS) Introduction to Mass Communication .....	3
JCOM 2010 (BSS) Media Smarts: Making Sense of the Information Age .....	3
MSL 2110 (BSS) Foundations of Leadership.....	3
NR 1010 (BSS) Humans and the Changing Global Environment .....	3
POLS 2200 (BSS) Comparative Politics .....	3
PSY 1010 (BSS) General Psychology .....	3
REH 1010 (BSS) Society and Disability.....	3
SOC 1010 (BSS) Introductory Sociology .....	3
SPED 1010 (BSS) Society and Disability.....	3
WGS 1010 (BSS) Introduction to Women and Gender Studies.....	3

**Or one of the following exams:**

- AP Government and Politics: Comparative Test: Score of 3 or higher
- AP Human Geography Test: Score of 3 or higher
- AP Microeconomics Test: Score of 3 or higher
- AP Psychology Test: Score of 3 or higher
- CLEP Introductory Psychology Test: Score of 55 or higher
- CLEP Introductory Sociology Test: Score of 55 or higher
- DSST Environment and Humanity Test: Score of 46 or higher
- DSST Human/Cultural Geography Test: Score of 48 or higher
- IBO Economics Test: Higher-level Score of 4-7
- IBO Geography Test: Higher-level Score of 5-7
- IBO Psychology Test: Standard- or Higher-level Score of 4-7
- IBO Social and Cultural Anthropology Test:  
Standard- or Higher-level Score of 4-7

**Exploration Requirement  
(3-4 credits)**

Choose an additional class from one of the following General Education categories: QL, BAI, BCA, BHU, BLS, BPS, or BSS. (Note: This additional class is required *only* for students whose first semester enrolled at USU is Summer Semester 2008 or thereafter.)

**Designation of Courses that Satisfy  
General Education Requirements**

All courses approved for the General Education Requirements are clearly designated in this catalog. The designations used for General Education courses are as follows:

**Competency Courses**

- Communications Literacy, CL1 and CL2
- Quantitative Literacy, QL

**Breadth Courses**

- American Institutions, BAI
- Creative Arts, BCA
- Humanities, BHU
- Life Sciences, BLS
- Physical Sciences, BPS
- Social Sciences, BSS

# University Studies Depth Education Requirements

## University Studies Objectives: The Citizen Scholar

The mission of undergraduate education at Utah State University is to help students develop intellectually, personally, and culturally, so that they may serve the people of Utah, the nation, and the world. USU prepares citizen-scholars who participate and lead in local, regional, national, and global communities. University Studies is an integral part of every student's experience—in both lower-division and upper-division courses. A solid University Studies foundation, combined with concentrated study in a major discipline and interdisciplinary studies, provides the breadth and depth of knowledge qualifying USU graduates as educated citizens.

The University Studies program is intended to help students learn how to learn—not just for the present, but also for the future. No individual can master all, or even a small portion, of society's knowledge, but students can learn the basic patterns used to obtain and organize information, enabling them to discover or recover knowledge. University Studies involves a series of interrelated educational experiences which stimulate and assist students in becoming self-reliant scholars and individuals. The ultimate objective is for general and discipline-specific education to complement each other in helping students to:

1. understand processes of acquiring knowledge and information;
2. reason logically, critically, creatively, and independently, and be able to address problems in a broad context;
3. recognize different ways of thinking, creating, expressing, and communicating through a variety of media;
4. understand diversity in value systems and cultures in an interdependent world; and
5. develop a capacity for self-assessment and lifelong learning.

By introducing ideas and issues in human thought and experience, University Studies courses help students achieve the intellectual integration and awareness needed to meet the challenges they will face in their personal, social, and professional lives. University Studies courses emphasize how knowledge is achieved and applied in different domains. Collectively, they provide a foundation and perspective for:

1. understanding the nature, history, and methods of the arts and humanities, as well as the natural and physical sciences;
2. understanding the cultural, historical, and natural contexts shaping the human experience; and
3. interpreting the important cultural, socio-economic, scientific, and technological issues of the diverse global community in which we live.

A university education prepares students to work and live meaningfully in today's rapidly changing global society. Together, general and discipline-specific education help students master the essential competencies making this goal possible. These competencies include:

1. reading, listening, and viewing for comprehension;
2. communicating effectively for various purposes and audiences;
3. understanding and applying mathematics and other quantitative reasoning techniques;

4. using various technologies competently; and
5. working effectively, both collaboratively and individually.

## University Studies Components

The University Studies program, along with study in the major, is designed to assist students in achieving the Citizen Scholar Objectives. The program consists of two sets of requirements: General Education Requirements and Depth Education Requirements.

## University Studies Depth Education Requirements

Beyond the General Education requirements, all students who receive a bachelor's degree must complete two Communications Intensive, one Quantitative Intensive, and 2 credits minimum in *each* of two of the three depth categories.

### Communications Intensive (CI) (2 courses)

For most students, courses taken for the major will meet this requirement.

<b>ADVS 4200 (CI)</b> Physiology of Reproduction and Lactation .....	4
<b>ADVS 4920 (CI)</b> Undergraduate Seminar .....	2
<b>ADVS 5700 (CI)</b> General Animal Pathobiology .....	3
<b>ANTH 3130 (CI)</b> Peoples of Latin America .....	3
<b>ANTH 3200 (CI/DSS)</b> Perspectives on Race .....	3
<b>ANTH 3310 (CI)</b> Introduction to Museum Studies .....	3
<b>ANTH 4120 (CI/DSS)</b> Anthropology of Childhood .....	3
<b>ARTH 3110 (CI/DHA)</b> Ancient Near East .....	3
<b>ARTH 4610 (CI)</b> Greek and Roman Art .....	3
<b>ARTH 4720 (CI)</b> Renaissance Art .....	3
<b>ASTE 3050 (CI)</b> Technical and Professional Communication Principles in Agriculture .....	3
<b>ASTE 3240 (CI)</b> Teaching in Laboratory Settings .....	3
<b>ASTE 4150 (CI)</b> Methods of Teaching Agriculture .....	3
<b>ASTE 5260 (CI)</b> Environmental Impacts of Agricultural Systems .....	3
<b>AV 4610 (CI)</b> AeroTechnology Design II .....	3
<b>AV 4620 (CI)</b> AeroTechnology Design III .....	3
<b>AV 4660 (CI)</b> Flight Senior Project .....	3
<b>BIE 4880 (CI)</b> Biological Engineering Design II .....	3
<b>BIE 4890 (CI)</b> Biological Engineering Design III .....	3
<b>BIOL 3010 (CI/DSC)</b> Evolution .....	3
<b>BIOL 3100 (CI)</b> Bioethics .....	3
<b>BIOL 4060 (CI)</b> Exploring Animal Behavior .....	3
<b>BIOL 5250 (CI)</b> Evolutionary Biology .....	3
<b>BIOL 5420 (CI)</b> Forest and Shade Tree Pathology .....	3
<b>BUS 4880 (CI)</b> Business Strategy .....	3
<b>CEE 3870 (CI)</b> Professional/Technical Writing in Civil and Environmental Engineering .....	2
<b>CEE 4790 (CI)</b> Environmental Engineering Design II .....	2
<b>CEE 4870 (CI)</b> Civil Engineering Design II .....	2
<b>CEE 4880 (CI)</b> Civil Engineering Design III .....	2
<b>CEE 4890 (CI)</b> Environmental Engineering Design III .....	2
<b>CHEM 3080 (CI)</b> Physical Chemistry Laboratory I .....	1
<b>CHEM 3090 (CI)</b> Physical Chemistry Laboratory II .....	1
<b>CHEM 4800 (CI)</b> Research Problems .....	1-3
<b>CHEM 4890 (CI)</b> Undergraduate Biochemistry Seminar I .....	1
<b>CHEM 4891 (CI)</b> Undergraduate Biochemistry Seminar II .....	1
<b>CHEM 4990 (CI)</b> Undergraduate Seminar .....	2

# University Studies Depth Education Requirements

COMD 2910 (CI) Sign Language I .....	4	HIST 3850 (CI/DHA) History of Utah .....	3
COMD 3650 (CI) Clinical Processes and Behavior .....	2	HIST 3950 (CI/DHA) Environmental History .....	3
COMD 4100 (CI) Clinical Practicum in Speech-Language Pathology .....	1-2	HIST 4230 (CI/DHA) The History of Christianity in the West .....	3
COMD 4910 (CI) Sign Language III .....	4	HIST 4550 (CI/DHA) Women and Gender in America .....	3
CS 2450 (CI) Introduction to Software Engineering I .....	3	HIST 4600 (CI/DHA) The History of the American West .....	3
CS 3010 (CI/QI/DSC) Information Acquisition, Analysis, and Presentation .....	3	HIST 4620 (CI) Advanced Seminar in American Studies .....	3
ECE 4840 (CI) Design II .....	3	HIST 4640 (CI) Studies in the American West .....	3
ECE 4850 (CI) Design III .....	2	HIST 4720 (CI/DHA) The Civil Rights Movement .....	3
ECN 5950 (CI) Senior Project .....	3	HIST 4730 (CI) History of Black America .....	3
ELED 3000 (CI) Historical, Social, and Cultural Foundations of Education and School Practicum .....	4-6	HIST 4830 (CI/DHA) Structure of Engineering Revolutions .....	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III .....	3	HIST 4990 (CI) Special Topics in History .....	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III .....	3	HIST 5690 (CI) American Studies Capstone Seminar .....	3
ENGL 3080 (CI) Introduction to Technical Communication .....	3	ID 4740 (CI) Business and Professional Practices in Interior Design .....	3
ENGL 3400 (CI) Professional Writing (for English majors <i>only</i> ) .....	3	JCOM 2160 (CI) Introduction to Online Journalism .....	3
ENGL 3700 (CI) Regional Folklore .....	3	JCOM 2170 (CI) Reporting Public Affairs .....	3
ENGL 3710 (CI) Folklore Colloquium .....	3	JCOM 2310 (CI) Writing for Public Relations .....	3
ENGL 4400 (CI) Professional Editing (for English majors <i>only</i> ) .....	3	JCOM 3110 (CI) Beyond the Inverted Pyramid .....	3
ENGL 4420 (CI) Advanced Fiction Writing .....	3	JCOM 3120 (CI) Copy Editing and Publication Design .....	3
ENGL 4430 (CI) Advanced Poetry Writing .....	3	JCOM 4110 (CI) Computer-Assisted Reporting .....	3
ENGL 4440 (CI) Advanced Nonfiction Writing .....	3	JCOM 4120 (CI) Sports Writing .....	3
ENGL 4500 (CI) Teaching Writing .....	3	JCOM 4210 (CI) Newscast I .....	4
ENGL 4510 (CI) Teaching Literature .....	3	JCOM 4220 (CI) Newscast II .....	4
ENGL 4620 (CI) Advanced Seminar in American Studies .....	3	JCOM 5110 (CI) Literary Journalism .....	3
ENGL 4640 (CI) Studies in the American West .....	3	JCOM 5300 (CI) Case Studies in Public Relations .....	3
ENGL 5300 (CI) Literature and Gender .....	3	LAEP 2700 (CI) Site Analysis: Social, Behavioral, and Biophysical Dimensions .....	5
ENGL 5320 (CI) Literature and Cultural Difference .....	3	LAEP 4920 (CI) Professional Practice II .....	1
ENGL 5340 (CI) Studies in Literary and Cultural Theory .....	3	MAE 4400 (CI) Fluids/Thermal Laboratory .....	2
ENGL 5430 (CI) Professional Writing Capstone (for English majors <i>only</i> ) .....	3	MAE 4800 (CI) Design II .....	3
ENGL 5690 (CI) American Studies Capstone Seminar .....	3	MATH 4200 (CI) Foundations of Analysis .....	3
ENGL 5910 (CI) Senior Honors Thesis .....	1-6	MATH 4310 (CI) Introduction to Algebraic Structures .....	3
ENVS 4500 (CI) Wildland Recreation Behavior .....	3	MATH 5580 (CI) Actuarial Math II .....	3
ETE 4710 (CI) Electronics/Computer Design II .....	3	MGT 4070 (CI) Retail Management .....	3
ETE 5220 (CI) Program and Course Development .....	3	MGT 4880 (CI) Business Strategy in an Entrepreneurial Context .....	3
FCHD 3210 (CI) Families and Cultural Diversity (for FCHD majors <i>only</i> ) .....	3	MGT 4890 (CI) Business Strategy in a Global Context .....	3
FCHD 4900 (CI) Pre-Practicum Skills .....	3	MIS 2200 (CI) Business Communication .....	3
FCSE 3060 (CI/DSS) Human Behavior Related to Dress .....	3	MIS 4550 (CI) Principles of International Business Communications .....	3
FREN 3060 (CI) French Conversation .....	3	MUSC 1460 (CI) Organ Literature I .....	3
FREN 3090 (CI) French Intermediate Written Communication .....	3	MUSC 1470 (CI) Organ Literature II .....	3
FREN 3510 (CI) Business French .....	3	MUSC 3190 (CI) Music History III: Music of the Twentieth Century .....	3
FREN 4060 (CI) Advanced French Conversation .....	3	MUSC 3620 (CI) Vocal Repertory II .....	2
FREN 4090 (CI) Advanced Written Communication .....	3	MUSC 4320 (CI) Psychology of Music II .....	2
GEO 3550 (CI) Sedimentation and Stratigraphy .....	4	MUSC 4730 (CI) Directed Project in Instrumental Pedagogy .....	2
GEO 4700 (CI) Geologic Field Methods .....	3	NFS 4050 (CI) Education and Counseling Methods in Dietetics I .....	2
GEO 5440 (CI) Paleocology .....	2	NFS 4060 (CI) Education and Counseling Methods in Dietetics II .....	2
GEO 5520 (CI) Techniques of Groundwater Investigations .....	3	NFS 4560 (CI) Clinical Nutrition II .....	4
GEOG 4200 (CI) Regional Geography .....	3	NFS 4660 (CI) Medical Dietetics .....	12
GERM 3040 (CI) Advanced German Grammar and Composition .....	3	NFS 4780 (CI) Maternal and Child Nutrition .....	3-4
GERM 3050 (CI) Advanced German Grammar and Composition .....	3	NFS 5110 (CI) Food Microbiology .....	4
GERM 3510 (CI) Business German .....	3	NFS 5920 (CI) Food Product Development .....	3
GERM 3540 (CI) Techniques in Translating German Texts .....	3	OSS 1550 (CI) Business Correspondence .....	3
HEP 3600 (CI) Introduction to Community Health .....	3	PEP 3200 (CI) Motor Learning and Technology in Skill Analysis .....	3
HEP 5000 (CI) Race, Culture, Class, and Gender Issues in Health .....	3	PEP 4100 (CI) Exercise Physiology .....	4
HEP 5100 (CI) Cultural and Complementary Medicine .....	3	PEP 4900 (CI) Methods of Physical Education .....	3
HIST 3110 (CI/DHA) Ancient Near East .....	3	PEP 5430 (CI) The History and Philosophy of Physical Education .....	3
HIST 3130 (CI/DHA) Greek History .....	3	PHIL 3100 (CI) Ancient Philosophy .....	3
HIST 3150 (CI) Roman History .....	3	PHIL 3120 (CI) Early Modern Philosophy .....	3
HIST 3220 (CI/DHA) Medieval European Civilization, 500-1500 .....	3	PHIL 3150 (CI) Kant and His Successors .....	3
HIST 3250 (CI/DHA) Renaissance Europe 1300 to 1520 .....	3	PHIL 3160 (CI) Contemporary Philosophy .....	3
HIST 3700 (CI) Regional Folklore .....	3	PHIL 3180 (CI) Contemporary European Philosophy .....	3
HIST 3710 (CI) Folklore Colloquium .....	3	PHIL 3730 (CI) Philosophy of the New Testament .....	3
HIST 3760 (CI/DHA) The United States, 1900-1945 .....	3	PHYS 3870 (CI) Intermediate Laboratory I .....	2
		PHYS 3880 (CI) Intermediate Laboratory II .....	2
		PHYS 4250 (CI) Cooperative Work Experience .....	1-6
		PHYS 4900 (CI) Research in Physics .....	1-3
		PHYS 5870 (CI) Advanced Laboratory .....	3



# University Studies Depth Education Requirements

PLSC 5420 (CI) Forest and Shade Tree Pathology	3
POLS 4220 (CI) Ethnic Conflict and Cooperation	3
POLS 4310 (CI) History of Political Thought I	3
POLS 4450 (CI) United States and Latin America	3
POLS 4990 (CI) Senior Research Seminar	3
PORT 3040 (CI) Advanced Portuguese Grammar and Composition	3
PRP 4100 (CI) History of Leisure	3
PRP 4725 (CI) Senior Seminar	3
PSC 3890 (CI) Preparation for Careers in Plants, Soils, and/or Climate	1
PSC 4890 (CI) Senior Seminar	1
PSY 3500 (CI/DSS) Scientific Thinking and Methods in Psychology	3
PSY 4510 (CI) Effective Social Skills Interventions	3
PSY 4950 (CI) Undergraduate Apprenticeship	3
PSY 4960 (CI) Advanced Undergraduate Apprenticeship	3
PSY 5200 (CI) Introduction to Interviewing and Counseling	3
PUBH 3870 (CI) Professional/Technical Writing in Civil and Environmental Engineering	2
PUBH 5500 (CI) Public Health Management	2
RELS 3710 (CI) Folklore Colloquium	3
RUSS 3510 (CI) Business Russian	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
SCED 4200 (CI) Reading, Writing, and Technology	3
SOC 3110 (CI) Methods of Social Research	3
SOC 4420 (CI) Criminal Law and Justice	3
SPAN 3060 (CI) Advanced Spanish Conversation and Composition	3
SPCH 1020 (CI) Public Speaking	3
SPCH 2110 (CI) Interpersonal Communication	3
SPCH 3250 (CI) Organizational Communication	3
SPCH 3400 (CI) Persuasion	3
SPCH 5100 (CI) Theories of Speech Communication	3
SPED 5200 (CI) Student Teaching in Special Education	3-15
SPED 5210 (CI) Student Teaching in Special Education: Dual Majors	3-15
STAT 5100 (CI/QI) Linear Regression and Time Series	3
STAT 5600 (CI) Applied Multivariate Statistics	3
STAT 5890 (CI) Problem Solving in Statistics	3
SW 5350 (CI) Social Welfare Policy	3
THEA 3230 (CI/DHA) Survey of Western Theatre	3
THEA 5240 (CI/DHA) Contemporary Theatre	3
WATS 3100 (CI/DSC) Fish Diversity and Conservation	3
WATS 3700 (CI) Fundamentals of Watershed Science	3
WGS 4550 (CI/DHA) Women and Gender in America	3
WILD 3300 (CI) Management Aspects of Wildlife Behavior	3
WILD 4750 (CI) Monitoring and Assessment in Natural Resource and Environmental Management	3
WILD 5420 (CI) Forest and Shade Tree Pathology	3

## Or the following exam:

DSST Principles of Public Speaking Test: Score of 47 or higher

## Quantitative Intensive (QI) (1 course)

For most students, a course taken for the major will meet this requirement.

ADVS 1250 (QI) Applied Agricultural Computations	2
ADVS 3510 (QI) Applied Animal Nutrition	3
ADVS 4560 (QI) Principles of Animal Breeding	3
ANTH 5250 (QI) Problems in Bioarchaeology	3
APEC 5010 (QI) Firm Marketing and Price Analysis	3
APEC 5330 (QI) Applied Econometrics	3
ASTE 3040 (QI) Fabrication Practices in Agricultural Buildings	2
ASTE 3600 (QI) Management of Agricultural Machinery Systems	3
BIOL 3060 (QI) Principles of Genetics	4
BIOL 3220 (QI) Field Ecology	2

BIOL 4230 (QI) Applied Mathematics in Biology	3
BIOL 4400 (QI) Plant Physiology	4
BIOL 5020 (QI) Modeling Biological Systems	3
BIOL 5300 (QI) Microbial Physiology	4
BIOL 5610 (QI) Animal Physiology Laboratory	2
BUS 3400 (QI) Finance Fundamentals	3
CHEM 3000 (QI) Quantitative Analysis	3
CHEM 3060 (QI) Physical Chemistry	3
CHEM 3070 (QI) Physical Chemistry	3
CLIM 3820 (QI/DSC) Climate Change	3
CS 1410 (QI) Introduction to Computer Science—CS 2	3
CS 2420 (QI) Algorithms and Data Structures—CS 3	3
CS 3010 (QI/CI/DSC) Information Acquisition, Analysis, and Presentation	3
CS 3410 (QI/DSC) Computational Science: JAVA/Internet	3
CS 3420 (QI/DSC) Computational Science: C# and .NET	3
CS 3430 (QI/DSC) Computational Science: Python and Perl Programming	3
ECN 4310 (QI) Mathematical Methods in Economics and Finance I	3
ECN 5310 (QI) Mathematical Methods in Economics and Finance II	3
ECN 5330 (QI) Applied Econometrics	3
ENVS 3500 (QI) Quantitative Assessment of Environmental and Natural Resource Problems	3
ETE 2300 (QI) Electronic Fundamentals	4
FCHD 3130 (QI) Research Methods	3
FCSE 3030 (QI/DSC) Textile Science	4
FIN 3400 (QI) Corporate Finance	3
GEO 5510 (QI) Groundwater Geology	3
GEO 5530 (QI) Petroleum Systems: Principles of Exploration and Development	3
GEO 5540 (QI) Quantitative Methods in Geology	3
GEO 5620 (QI) Global Geophysics	3
HEP 4200 (QI) Planning and Evaluation for Health Education	3
ID 3730 (QI) Interior Materials and Construction	3
LAEP 2600 (QI) Landscape Construction I	4
MAE 3440 (QI) Heat and Mass Transfer	3
MATH 2020 (QI) Introduction to Logic and Geometry	3
MATH 2210 (QI) Multivariable Calculus	3
MATH 2250 (QI) Linear Algebra and Differential Equations	4
MATH 2270 (QI) Linear Algebra	3
MATH 2280 (QI) Ordinary Differential Equations	3
MATH 4230 (QI) Applied Mathematics in Biology	3
MGT 3080 (QI) Operations Research	3
NFS 3100 (QI) Sensory Evaluation of Food	3
NFS 4420 (QI) Nutrition Research Methodology	2
NFS 4440 (QI) Fundamentals of Food Engineering	4
NFS 4720 (QI) Food Service Organization and Management	2
NFS 5500 (QI) Food Analysis	4
PEP 4200 (QI) Biomechanics	4
PEP 4400 (QI) Evaluation in Physical Education	3
PHIL 2200 (QI) Deductive Logic	3
PHYS 2210 (QI) General Physics—Science and Engineering I	4
PHYS 2220 (QI/BPS) General Physics—Science and Engineering II	4
PHYS 3010 (QI/DSC) Space Exploration from Earth to the Solar System	3
PHYS 3030 (QI/DSC) The Universe	3
PHYS 3040 (QI) Space Weather—Dangers to the High-Tech World	3
PHYS 4010 (QI/DSC) Chaos Under Control	3
PHYS 4020 (QI/DSC) Science, Art, and Music	3
PLSC 4600 (QI/DSC) Cereal Science	3
POLS 3000 (QI) Introduction to Political Research	3
PSY 2800 (QI) Psychological Statistics	3
PUBH 5330 (QI) Industrial Hygiene Chemical Hazard Control	3
SOC 3120 (QI) Social Statistics I	3

# University Studies Depth Education Requirements

<b>SOIL 5550 (QI)</b> Soils and Plant Nutrient Bioavailability.....	3
<b>SPED 5010 (QI)</b> Applied Behavioral Analysis 1: Principles, Assessment, and Analysis .....	3
<b>STAT 2000 (QI)</b> Statistical Methods .....	3
<b>STAT 3000 (QI)</b> Statistics for Scientists .....	3
<b>STAT 5100 (QI/CI)</b> Linear Regression and Time Series.....	3
<b>STAT 5300 (QI)</b> Statistical Process Control .....	3
<b>WATS 3820 (QI/DSC)</b> Climate Change.....	3

**Or one of the following exams:**

- AP Physics C: Electricity and Magnetism: Score of 4 or higher
- AP Physics C: Mechanics: Score of 3 or higher
- AP Statistics: Score of 3 or higher
- IBO Computer Science Test: Standard- or Higher-level Score of 4-7
- IBO Physics Test: Higher-level Score of 4-7

## Depth Course Requirements (4 credits minimum completed in two or more courses)

Students are required to take *at least two* upper-division courses outside of their major.

Approved 3000-level or above courses must be taken from two of the following three categories: **Depth Humanities and Creative Arts (DHA)**, **Depth Life and Physical Sciences (DSC)**, and **Depth Social Sciences (DSS)**. Each student must select *at least one* course from each of the two categories which *do not* include his or her major (e.g., Sociology majors would select one or more 3000-level or above course(s) from the Depth Humanities and Creative Arts and one or more 3000-level or above course(s) from the Depth Life and Physical Sciences). **Prerequisites are required for depth courses having titles followed by (prereq.). For details, see course listings in the Course Descriptions section of this catalog.**

### Depth Humanities and Creative Arts (DHA)

A minimum of 2 credits is required for all students whose major is **not** categorized as Humanities (HU) or Creative Arts (CA).

<b>USU 3330 (DHA)</b> Arts Symposium (prereq.).....	1-2
(Two credits of USU 3330 are needed to fulfill DHA requirement.)	
<b>ANTH 3550 (DHA)</b> Culture of East Asia.....	3
<b>ARTH 3110 (DHA/CI)</b> Ancient Near East (prereq.).....	3
<b>ARTH 4510 (DHA)</b> Islamic Visual Cultures.....	3
<b>ARTH 4620 (DHA)</b> Byzantine Art.....	3
<b>ARTH 4630 (DHA)</b> Medieval Art.....	3
<b>CHIN 3100 (DHA)</b> Readings in Contemporary Chinese Culture (prereq.).....	3
<b>ENGL 3020 (DHA)</b> Perspectives in Linguistics .....	3
<b>ENGL 3030 (DHA)</b> Perspectives in Literature.....	3
<b>ENGL 3040 (DHA)</b> Perspectives in Writing and Rhetoric .....	3
<b>ENGL 3050 (DHA)</b> Masterpieces of World Literature .....	3
<b>ENGL 3060 (DHA)</b> British and Commonwealth Cultures.....	3
<b>ENGL 3070 (DHA)</b> Perspectives in Folklore .....	3
<b>FCSE 3080 (DHA)</b> Dress and Humanity (prereq.).....	3
<b>FREN 3500 (DHA)</b> Topics in French Literature in Translation.....	3
<b>FREN 3550 (DHA)</b> French Civilization.....	3
<b>FREN 4610 (DHA)</b> Period Studies in French Literature (prereq.).....	3
<b>FREN 4620 (DHA)</b> Genre Studies in French Literature (prereq.).....	3
<b>GERM 3000 (DHA)</b> Introduction to German Studies (prereq.).....	3
<b>GERM 3300 (DHA)</b> Contemporary German Speaking Cultures (prereq.).....	3
<b>GERM 3550 (DHA)</b> Cultural History of German Speaking Peoples (prereq.).....	3
<b>GERM 3600 (DHA)</b> Survey of German Literature I (prereq.).....	3

<b>GERM 3610 (DHA)</b> Survey of German Literature II (prereq.).....	3
<b>GERM 4650 (DHA)</b> Trends in Modern German Literature .....	3
<b>HIST 3070 (DHA)</b> Perspectives in Folklore.....	3
<b>HIST 3110 (DHA/CI)</b> Ancient Near East (prereq.).....	3
<b>HIST 3130 (DHA/CI)</b> Greek History (prereq.).....	3
<b>HIST 3220 (DHA/CI)</b> Medieval European Civilization, 500-1500 (prereq.).....	3
<b>HIST 3250 (DHA/CI)</b> Renaissance Europe 1300 to 1520 .....	3
<b>HIST 3550 (DHA)</b> Culture of East Asia.....	3
<b>HIST 3760 (DHA/CI)</b> The United States, 1900-1945 (prereq.).....	3
<b>HIST 3850 (DHA/CI)</b> History of Utah (prereq.).....	3
<b>HIST 3950 (DHA/CI)</b> Environmental History .....	3
<b>HIST 4230 (DHA/CI)</b> The History of Christianity in the West .....	3
<b>HIST 4320 (DHA)</b> History of Scientific Thought .....	3
<b>HIST 4400 (DHA)</b> History of Aviation and Aeronautics.....	3
<b>HIST 4550 (DHA/CI)</b> Women and Gender in America .....	3
<b>HIST 4600 (DHA/CI)</b> The History of the American West.....	3
<b>HIST 4720 (DHA/CI)</b> The Civil Rights Movement (prereq.).....	3
<b>HIST 4780 (DHA)</b> American Financial History.....	3
<b>HIST 4821 (DHA)</b> World War II in Asia.....	3
<b>HIST 4830 (DHA/CI)</b> Structure of Engineering Revolutions.....	3
<b>HIST 4890 (DHA)</b> Cold War in Asia.....	3
<b>HIST 4891 (DHA)</b> Cold War: Vietnam and Afghanistan .....	3
<b>HONR 3020H (DHA)</b> Special Topics: Humanities/Creative Arts.....	3
<b>LANG 3550 (DHA)</b> Culture of East Asia.....	3
<b>MSL 4610 (DHA)</b> Military History Seminar.....	1-3
<b>MUSC 3010 (DHA)</b> Masterpieces of Music.....	3
<b>MUSC 3020 (DHA)</b> History of Jazz.....	3
<b>MUSC 3500 (DHA)</b> Symphony Orchestra.....	1
<b>MUSC 3790 (DHA)</b> Symphonic Band.....	1
<b>MUSC 4600 (DHA)</b> University Chorale .....	1
<b>MUSC 4650 (DHA)</b> Chamber Singers.....	1
<b>MUSC 4700 (DHA)</b> Wind Orchestra.....	1
<b>PHIL 3510 (DHA)</b> Environmental Ethics .....	3
<b>PHIL 3520 (DHA)</b> Business Ethics.....	3
<b>PHIL 3700 (DHA)</b> Philosophy of Religion.....	3
<b>PHIL 3800 (DHA)</b> Philosophy in Literature.....	3
<b>PHIL 3810 (DHA)</b> Aesthetics.....	3
<b>PHIL 4310 (DHA)</b> Philosophy of Science.....	3
<b>PHIL 4320 (DHA)</b> History of Scientific Thought .....	3
<b>PHIL 4540 (DHA)</b> Human Values and Information Technology.....	3
<b>PHIL 4610 (DHA)</b> Social and Political Philosophy .....	3
<b>PORT 3570 (DHA)</b> Brazilian Culture and Civilization (prereq.).....	3
<b>PORT 3630 (DHA)</b> Survey of Brazilian Literature (prereq.).....	3
<b>RUSS 3300 (DHA)</b> Contemporary Russian Language and Culture (prereq.).....	3
<b>SPAN 3550 (DHA)</b> Spanish Culture and Civilization (prereq.).....	3
<b>SPAN 3570 (DHA)</b> Latin American Culture and Civilization (prereq.)...3	
<b>SPAN 3600 (DHA)</b> Survey of Spanish Literature I (prereq.).....	3
<b>SPAN 3610 (DHA)</b> Survey of Spanish Literature II (prereq.).....	3
<b>SPAN 3620 (DHA)</b> Survey of Latin American Literature I (prereq.).....	3
<b>SPAN 3630 (DHA)</b> Survey of Latin American Literature II (prereq.).....	3
<b>THEA 3050 (DHA)</b> Period Styles/Historic Interiors .....	3
<b>THEA 3230 (DHA/CI)</b> Survey of Western Theatre .....	3
<b>THEA 3450 (DHA)</b> Dialects (prereq.).....	3
<b>THEA 3570 (DHA)</b> Historic Clothing .....	3
<b>THEA 4030 (DHA)</b> Storytelling.....	3
<b>THEA 5240 (DHA/CI)</b> Contemporary Theatre (prereq.).....	3
<b>THEA 5270 (DHA)</b> Performance Theory and Criticism.....	3
<b>WGS 4550 (DHA/CI)</b> Women and Gender in America.....	3

# University Studies Depth Education Requirements

## Depth Life and Physical Sciences (DSC)

A minimum of 2 credits is required for all students whose major is not categorized as Life Sciences (LS) or Physical Sciences (PS).

<b>ADVS 3200 (DSC)</b> Ethical Issues in Genetic Engineering and Biotechnology	3
<b>ASTE 3440 (DSC)</b> Science, Technology, and Modern Society	3
<b>BIOL 3000 (DSC)</b> Discovering Utah's Biodiversity (prereq.)	3
<b>BIOL 3010 (DSC/CI)</b> Evolution	3
<b>BIOL 3030 (DSC)</b> Genetics and Society (prereq.)	3
<b>BIOL 3040 (DSC)</b> Plants and Civilization (prereq.)	3
<b>BIOL 3500 (DSC)</b> Plagues, Pests, and People (prereq.)	3
<b>CHEM 3650 (DSC)</b> Environmental Chemistry (prereq.)	3
<b>CLIM 3820 (DSC/QI)</b> Climate Change (prereq.)	3
<b>CS 3010 (DSC/CI/QI)</b> Information Acquisition, Analysis, and Presentation (prereq.)	3
<b>CS 3410 (DSC/QI)</b> Computational Science: JAVA/Internet (prereq.)	3
<b>CS 3420 (DSC/QI)</b> Computational Science: C# and .NET (prereq.)	3
<b>CS 3430 (DSC/QI)</b> Computational Science: Python and Perl Programming (prereq.)	3
<b>ENVS 3600 (DSC)</b> Living with Wildlife	3
<b>ETE 3440 (DSC)</b> Science, Technology, and Modern Society	3
<b>FCSE 3030 (DSC/QI)</b> Textile Science	4
<b>GEO 3100 (DSC)</b> Natural Disasters (prereq.)	3
<b>GEO 3200 (DSC)</b> The Earth Through Time (prereq.)	4
<b>GEO 3300 (DSC)</b> Geology of the World's Oceans (prereq.)	3
<b>HIST 3900 (DSC)</b> Science and Technology in World History (prereq.)	3
<b>HONR 3010H (DSC)</b> Special Topics: Life and Physical Sciences	3
<b>NFS 3110 (DSC)</b> Food, Technology, and Health (prereq.)	3
<b>PHIL 4530 (DSC)</b> Ethics and Biotechnology	3
<b>PHYS 3010 (DSC/QI)</b> Space Exploration from Earth to the Solar System (prereq.)	3
<b>PHYS 3020 (DSC)</b> Great Scientists (prereq.)	3
<b>PHYS 3030 (DSC/QI)</b> The Universe (prereq.)	3
<b>PHYS 4010 (DSC/QI)</b> Chaos Under Control (prereq.)	3
<b>PHYS 4020 (DSC/QI)</b> Science, Art, and Music (prereq.)	3
<b>PLSC 4600 (DSC/QI)</b> Cereal Science (prereq.)	3
<b>SOIL 3100 (DSC)</b> Soils and Civilization	3
<b>SOIL 3200 (DSC)</b> Microbes in Environmental Action (prereq.)	3
<b>WATS 3000 (DSC)</b> Oceanography	3
<b>WATS 3100 (DSC/CI)</b> Fish Diversity and Conservation (prereq.)	3
<b>WATS 3820 (DSC/QI)</b> Climate Change (prereq.)	3

### Or the following exam:

IBO Computer Science Test: Standard- or Higher-level Score of 4-7

## Depth Social Sciences (DSS)

A minimum of 2 credits is required for all students whose major is not categorized as Social Sciences (SS).

<b>ANTH 3160 (DSS)</b> Anthropology of Religion	3
<b>ANTH 3200 (DSS/CI)</b> Perspectives on Race	3
<b>ANTH 3300 (DSS)</b> Archaeology in North America	3
<b>ANTH 3350 (DSS)</b> Archaeology of Ancient Civilizations	3
<b>ANTH 4110 (DSS)</b> Southwest Indian Cultures, Past and Present	3
<b>ANTH 4120 (DSS/CI)</b> Anthropology of Childhood	3
<b>ANTH 4230 (DSS)</b> Medical Anthropology: Matter, Culture, Spirit, and Health	3
<b>ANTH 5100 (DSS)</b> Anthropology of Sex and Gender	3
<b>ANTH 5650 (DSS)</b> Developing Societies	3
<b>BUS 3100 (DSS)</b> Survey of Management Information Systems	3
<b>BUS 3110 (DSS)</b> Management Fundamentals (prereq.)	3
<b>ECN 3010 (DSS)</b> Managerial Economics	3
<b>ECN 3400 (DSS)</b> International Economics for Business (prereq.)	3

<b>ECN 5110 (DSS)</b> Economic History of the United States (prereq.)	3
<b>ECN 5150 (DSS)</b> Comparative Economic Systems (prereq.)	3
<b>ENVS 4000 (DSS)</b> Human Dimensions of Natural Resource Management	3
<b>FCHD 3350 (DSS)</b> Family Finance	3
<b>FCSE 3060 (DSS/CI)</b> Human Behavior Related to Dress (prereq.)	3
<b>GEOG 5650 (DSS)</b> Developing Societies	3
<b>HONR 3030H (DSS)</b> Special Topics: Social Sciences	3
<b>JCOM 3140 (DSS)</b> Opinion Writing	3
<b>JCOM 3300 (DSS)</b> Strategic Research Methods in Public Relations (prereq.)	3
<b>JCOM 3410 (DSS)</b> Film as Cultural Communication	3
<b>JCOM 4010 (DSS)</b> Mass Communication Ethics	3
<b>JCOM 4020 (DSS)</b> Mass Media and Society	3
<b>JCOM 4030 (DSS)</b> Mass Media Law	3
<b>MGT 3110 (DSS)</b> Managing Organizations and People	3
<b>MGT 3720 (DSS)</b> Leading Organization Change (prereq.)	3
<b>MGT 3810 (DSS)</b> Employment Law and Policy Development (prereq.)	3
<b>MGT 3820 (DSS)</b> International Management	3
<b>MIS 5700 (DSS)</b> Internet Management and Electronic Commerce (prereq.)	3
<b>POLS 3110 (DSS)</b> Parties and Elections	3
<b>POLS 3120 (DSS)</b> Law and Politics	3
<b>POLS 3130 (DSS)</b> United States Legislative Politics	3
<b>POLS 3140 (DSS)</b> The Presidency	3
<b>POLS 3190 (DSS)</b> Gender, Power, and Politics	3
<b>POLS 3210 (DSS)</b> Western European Government and Politics	3
<b>POLS 3220 (DSS)</b> Russian and East European Government and Politics	3
<b>POLS 3250 (DSS)</b> Chinese Government and Politics	3
<b>POLS 3270 (DSS)</b> Latin American Government and Politics	3
<b>POLS 3310 (DSS)</b> American Political Thought	3
<b>POLS 3400 (DSS)</b> United States Foreign Policy	3
<b>POLS 3810 (DSS)</b> Introduction to Public Policy	3
<b>POLS 4320 (DSS)</b> History of Political Thought II	3
<b>POLS 4820 (DSS)</b> Natural Resources and Environmental Policy	3
<b>POLS 5350 (DSS)</b> Evolution, Conflict, and Cooperation	3
<b>POLS 5440 (DSS)</b> Gender and World Politics	3
<b>PSY 3120 (DSS)</b> Abuse, Neglect, and the Psychological Dimensions of Intimate Violence (prereq.)	3
<b>PSY 3210 (DSS)</b> Abnormal Psychology (prereq.)	3
<b>PSY 3400 (DSS)</b> Analysis of Behavior: Advanced (prereq.)	4
<b>PSY 3500 (DSS/CI)</b> Scientific Thinking and Methods in Psychology (prereq.)	3
<b>PSY 3510 (DSS)</b> Social Psychology (prereq.)	3
<b>PSY 4210 (DSS)</b> Personality Theory (prereq.)	3
<b>PSY 4230 (DSS)</b> Psychology of Gender	3
<b>PSY 4240 (DSS)</b> Multicultural Psychology (prereq.)	3
<b>PSY 4420 (DSS)</b> Cognitive Psychology (prereq.)	3
<b>SCED 3210 (DSS/CI)</b> Educational and Multicultural Foundations	3
<b>SOC 3200 (DSS)</b> Population and Society	3
<b>SOC 3610 (DSS)</b> Rural Sociology	3
<b>SOC 4620 (DSS)</b> Sociology of the Environment and Natural Resources	3
<b>SOC 5650 (DSS)</b> Developing Societies	3
<b>SPCH 3050 (DSS)</b> Technical and Professional Communication	3
<b>SPCH 3330 (DSS)</b> Intercultural Communication	3

### Or one of the following exams:

DSST Management Information Systems Test: Score of 46 or higher  
DSST Personal Finance Test: Score of 59 or higher

# University Studies Depth Education Requirements

## Categorization of Majors

The courses that must be taken to satisfy University Studies Depth requirements depend on the classification of the student's major. For example, Music is classified in the Creative Arts. Thus, a music major would not need to take a depth course in the Humanities and Creative Arts.

Following is the categorization of majors used for University Studies. These abbreviations are used: **CA—Creative Arts, HU—Humanities, LS—Life Sciences, PS—Physical Sciences, and SS—Social Sciences.**

### College of Agriculture

Agricultural Economics, **SS**  
Family and Consumer Sciences Education, **SS**  
Environmental Soil/Water Science, **PS**  
All other majors, **LS**

### Jon M. Huntsman School of Business

All majors, **SS**

### Emma Eccles Jones

#### College of Education and Human Services

Communicative Disorders and Deaf Education, **SS**  
Early Childhood Education, (category same as area of emphasis)  
Elementary Education, (category same as area of emphasis)  
Family and Consumer Sciences, **SS**  
Family, Consumer, and Human Development, **SS**  
Health Education Specialist, **LS**  
Instructional Technology and Learning Sciences,  
(no undergraduate degree)  
Parks and Recreation, **SS**  
Physical Education, **LS**  
Psychology, **SS**  
Secondary Education, (category same as teaching major category)  
Social Studies Composite Teaching, **SS**  
Special Education, (may use any category)

### College of Engineering

All majors, **PS**

### College of Humanities, Arts, and Social Sciences

Agricultural Communication and Journalism, **LS**  
American Studies, **HU**  
Anthropology, **SS**  
Art, **CA**  
Asian Studies, **HU**  
English, **HU**  
French, **HU**  
German, **HU**

History, **HU**  
Interior Design, **CA**  
International Studies, (category same as area of emphasis)  
Journalism, **SS**  
Landscape Architecture, **CA**  
Law and Constitutional Studies, **SS**  
Liberal Arts, **HU**  
Music, **CA**  
Music Therapy, **CA**  
Philosophy, **HU**  
Political Science, **SS**  
Religious Studies, **HU**  
Social Work, **SS**  
Sociology, **SS**  
Spanish, **HU**  
Speech, **HU**  
Theatre Arts, **CA**

### College of Natural Resources

Environmental Studies, **SS**  
Geography, **SS**  
Recreation Resource Management, **SS**  
Watershed and Earth Systems, **PS**  
All other majors, **LS**

### College of Science

Biology, **LS**  
All other majors, **PS**

## Designation of Courses that Satisfy University Studies Depth Education Requirements

All courses approved for the University Studies Depth Education Requirements are clearly designated in this catalog. The designations used for University Studies Depth Education courses are as follows:

### Intensive Courses

Communications Intensive, **CI**  
Quantitative Intensive, **QI**

### Depth Courses

Humanities and Creative Arts, **DHA**  
Life and Physical Sciences, **DSC**  
Social Sciences, **DSS**

## Course Descriptions

University Studies (USU), pages 674-675

# Undergraduate Graduation Requirements

At the undergraduate level, the University offers Associate of Science and Associate of Applied Science degrees, the degrees of Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Interior Design, Bachelor of Landscape Architecture, Bachelor of Music, and Bachelor of Science, and provides coursework which will satisfy requirements for all professional certificates issued by the State Board of Public Instruction. Certificates are offered for one-year programs in certain departments.

For information about graduate degrees and majors offered by USU, see pages 110-111 of this catalog.

## Certificates and Associate of Applied Science Degrees

Certificates and Associate of Applied Science degrees are awarded for completion of less-than-baccalaureate programs at Utah State University. An Associate of Science degree is offered through USU Regional Campuses and Distance Education. As defined by the Utah State Board of Regents, a certificate is awarded upon the successful completion of a program directly oriented toward job entry when the program is of a duration of 18 months or less (1-48 semester credit hours). The Regents define an Associate of Applied Science or Associate of Science program as one directly oriented toward job entry when the program is of a duration of 19-36 months (49-96 semester credit hours).

The College of Agriculture offers one- and two-year programs leading to certificates and Associate of Applied Science degrees. One-year certificate programs are available in agricultural machinery technology, dairy herdsman (vocational technology), and ornamental horticulture. Associate of Applied Science degrees include agricultural machinery technology and ornamental horticulture. An Associate of Applied Science degree in Office Systems Support is offered *only* through Regional Campuses and Distance Education.

In most cases, the courses in the Associate of Applied Science programs are arranged so that, at a later date, the four-year baccalaureate program can be completed with a minimum loss of time.

## Associate of Applied Science Degree

A minimum of 60 credit hours is required for an Associate of Applied Science (AAS) degree. Requirements include coursework in the following areas: primary area of study, related area, general education, and electives. Candidates for an AAS degree must complete at least 20 USU credits at USU's Logan campus or designated centers, or through classes offered by Regional Campuses and Distance Education through USU.

See department offerings for specific requirements. AAS degrees are offered in the following areas: agricultural machinery technology, ornamental horticulture, and office systems support. (**Note:** The office systems support AAS degree is offered *only* through Regional Campuses and Distance Education.)

## Associate of Science Degree

The Associate of Science (AS) degree in general studies is offered through Regional Campuses and Distance Education. A minimum of 60 credits is required for an AS degree. This degree is available at Distance Education campuses and centers, as well as online, and is also delivered to several international locations. Requirements include

coursework in general education, a primary or related area of study, and electives. Candidates for an AS degree must complete at least 20 USU credits at Utah State University.

## Bachelor's Degrees

The University confers the baccalaureate degree upon students who meet the specified requirements of any of the seven resident colleges.

Graduates of the Colleges of Engineering and Natural Resources are eligible to receive the Bachelor of Science degree. The Bachelor of Arts degree is not offered in these colleges, with the exception of the Department of Environment and Society where Bachelor of Science and Bachelor of Arts degrees are offered in Geography.

Graduates of the College of Agriculture, the Jon M. Huntsman School of Business, the Emma Eccles Jones College of Education and Human Services, and the College of Science may be awarded the Bachelor of Science degree or the Bachelor of Arts degree as recommended by the student's individual department and approved by the dean of the college.

Graduates of the College of Humanities, Arts, and Social Sciences may be awarded the Bachelor of Science Degree, the Bachelor of Arts degree, the Bachelor of Fine Arts degree, the Bachelor of Interior Design degree, the Bachelor of Landscape Architecture degree, or the Bachelor of Music degree as recommended by the student's individual department and approved by the dean of the college.

All graduates, regardless of the type of degree, must satisfy University Studies general education and depth education requirements.

Students who simultaneously complete all of the requirements for more than one bachelor's degree program shall be awarded a separate diploma for each degree.

## Bachelor of Arts Degree

A Bachelor of Arts (BA) degree signifies proficiency in one or more foreign languages. Specifically, the BA requirement may be completed in one of the following ways:

1. Demonstration of proficiency in *one* foreign language by successful completion of one course at the 2020-level or higher (or its equivalent).  
**Or**
2. Demonstration of proficiency in American Sign Language by successful completion of American Sign Language IV (COMD 4920) and Socio-Cultural Aspects of Deafness (COMD 4780), and by passing an exit interview.  
**Or**
3. Demonstration of proficiency in *two* foreign languages by successful completion of the 1020 course level in one language **and** the 2010 course level in the second language (or its equivalent).  
**Or**
4. Completion of an upper-division (3000-level or higher) foreign language grammar or literature course requiring the 2020 course level (or its equivalent) as a prerequisite. Conversation courses *cannot* be considered for satisfying this requirement.

# Undergraduate Graduation Requirements

For nonnative English-speaking students *only*, the following options are available:

1. Successful completion of the Intensive English Language Institute (IELI) program for international students.
- Or**
2. TOEFL, Michigan, or IELI placement scores high enough to meet the University admission criteria.

## Bachelor's Degree Requirements

### Academic Program Requirement

All graduates are required to complete an approved academic program in one of the seven resident colleges.

### American Institutions

All graduates are required to have an understanding of the fundamentals of the history, principles, form of government, and economic system of the United States. Students may meet this requirement in any one of the following ways: (a) receiving a passing grade on a special examination; (b) receiving a grade of three or better on the Advanced Placement Examination in American History; (c) satisfactory completion of: USU 1300 or HONR 1300; ECN 1500; HIST 1700, 2700, or 2710; or POLS 1100; or (d) satisfactory completion of a transfer course equivalent to one of the courses in (c).

### University Studies

Completion of the University Studies general education and depth education requirements. (See pages 67-75.)

### Upper-Division Credits

Completion of a minimum of 40 credits numbered 3000 or above.

### Total Credits

A minimum of 120 credits of acceptable collegiate work and a minimum of 100 credits with a grade of C- or better.

### GPA

In order to graduate, students must meet all GPA requirements for their major. These requirements can be found in the *Instructional Units and Programs* section of this catalog. USU credits *only* are used in computing the GPA. The University requires a minimum GPA of 2.0 to be considered for good standing and for graduation, although the majority of degree programs require a higher GPA.

### Major

Each student must complete all requirements for an approved program of study. This program is comprised of up to 80 credits, which include the major, licensure requirements, and all other required major coursework. The program of study for each major is described in the appropriate departmental section of this catalog and on the major requirement sheets, which can be obtained online at: <http://www.usu.edu/majorsheets/>

Students should select a major subject upon entering the University or early the first year, but not later than entrance into the upper division. As soon as the major subject has been selected, the student should contact the department in which he or she has decided to major. A *Change of Program* form must be filed with the University Registrar. The head of the department will assign an advisor. Registration in succeeding semesters should be carefully checked and approved

by the advisor to assure proper selection of courses for satisfying institutional and departmental requirements. If more than one major is being pursued concurrently, departmental and college authorization must be obtained.

Students who have completed at least 60 credits (not including AP, CLEP, and concurrent enrollment) and one USU semester must be accepted into a department or be admitted to Provisional Admission Warning before they are allowed to register for additional work. To enforce this policy, a hold will be placed on the student's registration.

The selection of a major(s), the fulfillment of requirements, and a choice of a career or vocation are the responsibility of the student. The University does not assume responsibility for these choices nor for successful employment upon completion of University programs. However, to aid in these choices, the University provides advising, counseling, and testing services for self-evaluation and information about careers and employment opportunities. Career Services assists students in all aspects of their career search.

Students are encouraged to meet regularly with their advisor to establish a plan of study and confirm a graduation date as early as possible.

### Changing a Program

When a change of degree, catalog year, major, minor, and/or emphasis is desired, a student must go to the department office in which he or she is presently enrolled to initiate the proper paperwork. If he or she is changing to a program within the same department, the department office may complete the required form, have it signed, and have it received by the Registrar's Office. When a student is changing departments, signatures of both department heads are required on the form. After the form is received by the Registrar's Office, the program is changed and the information becomes part of the student's file.

### Minor

USU does not require that all students complete a minor. However, some departments and/or programs do require completion of a minor, which is described in the catalog statement of the department or program.

### USU Courses

Candidates for a bachelor's degree must complete at least 30 credits at USU's Logan campus or designated centers, or through classes offered by Regional Campuses and Distance Education through USU. A minimum of 20 of these credits must be completed in upper-division courses, of which at least 10 credits must be completed in courses required by the student's major.

Candidates for an associate degree must complete at least 20 credits at USU's Logan campus or designated centers, or through classes offered by Regional Campuses and Distance Education through USU.

### Credit by Examination

Some noncollegiate experiences may permit credit through challenge and foreign language examinations. For further information, see pages 40-45.

### Remedial Courses

Remedial courses (numbered below 1000), cannot be used to satisfy baccalaureate requirements. These credits do not count toward GPA or Earned Hours.

# Undergraduate Graduation Requirements

## Latin Scholastic Distinctions

To qualify for Latin Scholastic Distinctions at graduation, a student must have completed a minimum of 40 USU semester credits. USU designated Latin Scholastic Distinctions at graduation are:

Summa Cum Laude	3.950 to 4.000 GPA
Magna Cum Laude	3.800 to 3.949 GPA
Cum Laude	3.500 to 3.799 GPA

These grade point averages are USU cumulative GPAs. Transfer credits are not considered in determining eligibility for these distinctions.

## Honors Degrees

In addition to Latin Scholastic Distinctions at graduation, USU offers honors degrees designed to fill a variety of student needs. Honors Program members may work toward one of three degree options: (1) Departmental Honors, (2) Departmental Honors with Honors in University Studies, or (3) University Honors. For further information, see page 310.

## General Information

### Regional Campuses and Distance Education

Applicants for degrees who have taken courses for credit through Regional Campuses and Distance Education (including Independent Study courses) are subject to regular University admission requirements and must file transcripts of all university credit with the Admissions Office.

### Financial Obligations

Students are reminded that nonpayment of fees owed to the University may result in withholding of diplomas or certificates.

### Independent Study

Grades for Independent Study courses must be completed and on file in the Registrar's Office by the last day of classes (excluding finals) of the semester of intended graduation.

### Incomplete Grades

Incomplete grades must be made up and on file in the Registrar's Office no later than the last day of classes during the semester for which the candidate has applied for graduation.

### Changes in Graduation Requirements

Students are expected to familiarize themselves with the rules and regulations of both the University and their specific major. Detailed information concerning graduation requirements is available in this catalog as part of the departmental descriptions. Responsibility for satisfying all graduation requirements rests upon the student. Utah State University reserves the right to change graduation requirements at any time.

### Seven-Year Graduation Requirements Policy

Students who can complete a baccalaureate degree within seven years of enrollment at USU can qualify for graduation by meeting (1) the General Education or University Studies requirements in effect when they initially enrolled and (2) the major requirements in effect when they officially declared their major, even though there may have been changes in General Education, University Studies, and major requirements since that time. Students who have not completed

the baccalaureate requirements within seven years of their initial enrollment at USU must have their General Education (or University Studies) and major requirements evaluated and approved by their department head and dean. Exceptions to this seven-year graduation requirements policy may be necessary for mandated changes in degree requirements.

### Intent to Transfer Graduation Requirements

Students who did not initially enroll at USU, but have completed the Intent to Transfer process, will be obligated by the Seven-Year Policy for both the General Education (or University Studies) and major requirements in effect when their Intent to Transfer Education Plan was signed by representatives at both USU and the sending institution. Signatures from both institutions must be obtained during the same semester.

### Applying for Graduation

Undergraduate candidates for graduation must have completed the application process by having an application on file and fees paid to the Registrar's Office, Taggart Student Center 246. The application deadlines are: December 5 for spring semester graduates, April 25 for summer semester graduates, and August 5 for fall semester graduates. Students who complete the application process prior to the deadlines will be assessed a \$10 application fee. However, a \$50 fee will be required for students who complete the process after the appropriate deadlines.

The application process is as follows: (1) Request an application from the Registrar's Office; (2) Return with picture ID to the Registrar's Office on the specified date and pick up the application for candidacy for graduation packet; (3) Carefully review the graduation application instructions; (4) Submit the application to departmental advisor and college dean for review and signatures (dual majors must have the appropriate signatures for each major); (5) Complete the graduating student survey; and (6) Submit the graduation packet to the Registrar's Office (Taggart Student Center 246) and pay the application fee. *Approximately six weeks is needed to complete the application process.*

Students should contact the Registrar's Office at the e-mail address listed below for the college in which they plan to graduate.

College of Agriculture, grad.ag@usu.edu  
Jon M. Huntsman School of Business, grad.bu@usu.edu  
Emma Eccles Jones College of Education and Human Services,  
grad.ed@usu.edu  
College of Engineering, grad.en@usu.edu  
College of Humanities, Arts, and Social Sciences, grad.hu@usu.edu  
College of Natural Resources, grad.nr@usu.edu  
College of Science, grad.sc@usu.edu  
Regional Campuses and Distance Education, grad.de@usu.edu

### Names of the candidates will appear on the graduation lists and diplomas as they appear on the student's transcript.

To change the name appearing on the transcript, the student must fill out the appropriate form in the Registrar's Office and provide a social security card with the new name, plus a photo ID card.

# Undergraduate Graduation Requirements

## Commencement

Candidates will attend commencement exercises at the end of the semester during which they complete their requirements (fall or spring). Those candidates completing requirements at the end of summer semester may choose to attend *either* the preceding spring or the following fall commencement exercises. Students must notify the Registrar's Office of the address to which the diploma is to be sent. All graduates will receive their diplomas through the mail. Participation in commencement exercises does not ensure that the candidate has satisfied graduation requirements.

## Second Bachelor's Degree

Applicants for a second bachelor's degree must file an application with the Admissions Office and obtain the recommendation of their academic dean prior to being admitted. A second bachelor's degree is available only to those on whom a first bachelor's degree has been conferred by a regionally-accredited institution. Students must complete a minimum of 30 USU credits beyond those applied toward the first bachelor's degree, 18 of which must be earned in department-approved upper-division courses related to the major. USU credits may be earned in courses completed at USU's Logan campus or at designated centers, or through classes offered by Regional Campuses and Distance Education through USU.

Candidates for a second bachelor's degree must have met the American Institutions requirement in the first bachelor's degree, or complete the requirement before receiving the second bachelor's degree.

**Note:** The first bachelor's degree must have been awarded by a regionally-accredited college or university.

## Split Form

Courses numbered 0010 through 4990 will be posted to an undergraduate transcript. Courses numbered 6000 through 7990 will be posted to a graduate transcript. Courses numbered 5000 through 5990 will be posted to *either* an undergraduate *or* graduate transcript, based on the primary program level of the student. In cases where an undergraduate has taken one or more graduate-level courses required for program completion, a form will need to be submitted to the Registrar's Office, requesting that the course(s) be posted to the undergraduate transcript. Students should contact their undergraduate advisor for help with filing the appropriate form. In cases where a

graduate student has taken one or more undergraduate-level courses as part of the approved program of study, a form will need to be submitted to the Registrar's Office, requesting that the course(s) be posted to the graduate transcript. Students should contact their graduate advisor for help with filing the appropriate form.

## Letter of Completion

Students who have completed the General Education portion of the University Studies Requirements at Utah State University, and who transfer to another institution, may receive a Letter of Completion from USU. If a student does not intend to return to USU for a bachelor's degree, the requirement of two USU breadth courses may be waived, since the USU course requirement is unique to USU. Students are still required to complete *at least one* breadth course in each of the six breadth areas, as well as the Communications Literacy (CL1 and CL2), Quantitative Literacy (QL), and Computer and Information Literacy (CIL) requirements.

It is the student's responsibility to initiate a request for this letter. The student's advisor will determine whether or not the student has indeed satisfied all of the requirements. If so, the advisor may go to <http://www.usu.edu/advising/forms/> and select the Letter of Completion Form. The advisor should complete the form, indicating how the student has met the requirements. The advisor should also indicate where the letter should be sent. Letters are typically sent to the Admissions Office at the transfer institution. After the advisor has completed the form, he or she should send the form to the Registrar's Office. The Registrar's Office will then generate an official letter and send the letter to the transfer institution.

On occasion, there may be circumstances in which a student has completed *most* of the General Education requirements at Utah State University, transferred to another institution where he or she has completed the last of the courses needed to complete the USU General Education requirements, and then requested a Letter of Completion from USU. Since the coursework was not completed at USU, USU *may not* submit a Letter of Completion, *unless* the coursework is posted to a USU transcript. To have this coursework posted to a USU transcript, a student should submit his or her transcript and a \$15 posting fee to the Registrar's Office, 1600 Old Main Hill, Logan UT 84322-1600. The Registrar's Office will then post and evaluate the credit. If all requirements have been satisfied, the Letter of Completion will be generated.



# USU Academic Policies

## Academic Honesty

The University expects that students and faculty alike maintain the highest standards of academic honesty. For the benefit of students who may not be aware of specific standards of the University concerning academic honesty, the following information is quoted from *The Code of Policies and Procedures for Students at Utah State University* (revised April 2002), Article V, Section 3:

### Section 3. University Standards

#### A. Academic Integrity—"The Honor System"

Each student has the right and duty to pursue his or her academic experience free of dishonesty. The Honor System is designed to establish the higher level of conduct expected and required of all Utah State University students.

**The Honor Pledge**—To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge:

"I pledge, on my honor, to conduct myself with the foremost level of academic integrity."

Acts of academic dishonesty include but are not limited to:

1. **Cheating:** (1) using or attempting to use or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity, including working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done "individually"; (2) depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (3) substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work; (4) acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission; (5) continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity; (6) submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or (7) engaging in any form of research fraud.
2. **Falsification:** altering or fabricating any information or citation in an academic exercise or activity.
3. **Plagiarism:** representing, by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes using materials prepared by another person or by an agency engaged in the sale of term papers or other academic materials.

Violations of the above policy will subject the offender to the University discipline procedures as outlined in Article VI, Section 1 (paragraphs A, E, F, G, and H) of the *Code*.

#### A. Academic Dishonesty—"The Honor System"

An instructor has full autonomy to evaluate a student's academic performance in a course. If a student violates the Honor System, the instructor may sanction the student as part of the course evaluation. Such sanctions may include: (1) verbally warning the student; (2) giving the student a written reprimand; (3) requiring the student to rewrite a paper/assignment or to retake a test/examination; (4) adjusting the student's grade—for either an assignment/test or the course; or (5) giving the student a failing grade for the course. A sanction by the instructor is not a disciplinary penalty. If the instructor believes that, in addition to any sanction, the student should be disciplined and a penalty imposed, the instructor shall refer the student for disciplinary proceedings.

The penalties which the University may impose on a student for an Honor System violation are:

1. **Probation:** continued participation in an academic program predicated upon the student satisfying certain requirements as specified in a written notice of probation. Probation is for a designated period of time and includes the probability of more severe disciplinary penalties if the student does not comply with the specified requirements or is found to be violating the Honor System during the probationary period. The student must request termination of the probation in writing.
2. **Suspension:** temporary dismissal from an academic program or from the University for a specified time, after which the student is eligible to continue the program or return to the University. Conditions for continuance or readmission may be specified.
3. **Expulsion:** permanent dismissal either from an academic program or from the University.
4. Assigning a designation with a course grade indicating an Honor System violation involving academic dishonesty. Conditions for removal may be specified, but the designation remains on the student's transcript for a minimum of one year; provided however, that once the student's degree is posted to the transcript, the designation may not be removed thereafter.
5. Denial or revocation of degrees.
6. Performance of community service.

- E. More than one of the penalties may be imposed for any single violation. Reference to "penalty" includes multiple penalties.
- F. Imposition of the penalty of suspension or expulsion from the University must be approved by the president of the University. The president's approval shall be given either at the conclusion of the 10-day appeal period if no appeal is filed, or as part of the president's final decision if an appeal is filed.
- G. When a student is suspended or expelled from the University, tuition and fees that have been paid for the semester during which the suspension or expulsion occurs are refundable in accordance with the standard refund policy as stated in the semester *Schedule of Classes*.
- H. A hold on a student's admission, registration, or financial aid is not an independent penalty, but may be utilized by the University for various purposes, including either to (1) direct a student's attention to, and subsequent participation in, a pending disciplinary grievance proceeding or (2) to obtain the student's compliance with a penalty which has been imposed or other action which has been taken under the *Student Code*.

The complete *Code of Policies and Procedures for Students at Utah State University* can be viewed at:

<http://www.usu.edu/student-services/studentcode/>

## Assumption of Risk

All classes, programs, and extracurricular activities within the University involve some risk, and certain ones involve travel. The University provides opportunities to participate in these programs on a voluntary basis. Therefore, students should not participate in them if they do not care to assume the risks. Students can ask the respective program leaders/sponsors about the possible risks a program may generate, and if students are not willing to assume the risks, they should not select that program. By voluntarily participating in classes, programs, and extracurricular activities, a student does so at his or her own risk. General information about University Risk Management policies, insurance coverage, vehicle use policies, and risk management forms can be found at: <http://www.usu.edu/riskmg/>

## E-mail Communication Policy

All students enrolled at USU are provided with a University e-mail account. University officials, including advisors, professors, administrators, and various office personnel, use a student's e-mail account as an *official* means of communication.

It is the responsibility of *all* students to check their e-mail accounts on a *regular basis*. Students will be held accountable as being *officially notified* when any correspondence is sent by University representatives to their e-mail accounts. For verification and security reasons, once a student is enrolled at USU, *only* the USU e-mail account will be used for official communications.

Prior to students' enrollment at USU, University officials may correspond with them electronically via other e-mail providers.

## Equal Opportunity/Affirmative Action

Utah State University is an affirmative action employer and is committed to providing equal educational and employment opportunity regardless of race, color, religion, sex (including sexual harassment and pregnancy), national origin, age, disability, or veteran status. In addition, discrimination based on sexual orientation is prohibited in the hiring of employees or in evaluating employee or student performance. Equal opportunity applies to all aspects of employment, such as recruitment, hiring, promotion, training, benefits, and salary. Equal educational opportunities include, but are not limited to, admissions, access to course offerings, financial assistance, housing, and extracurricular activities. The AA/EO Director serves as the Title IX and Section 504 Coordinator for the University. For additional AA/EO-related information and specific contact information, see: <http://www.usu.edu/aaeo>

## Notification of Rights Under Family Educational Rights and Privacy Act (FERPA)

Student records at Utah State University are governed by the Family Educational Rights and Privacy Act (FERPA). The following is a description of the rights of students under these regulations.

### Definitions

A **student** is defined as any individual who is attending or has attended Utah State University.

An **educational record** is any record maintained by Utah State University which is directly related to the student. An educational record does *not* include: (1) a personal record kept by a staff member, if it is kept in the sole possession of the maker of the record and is not accessible to or revealed to any other person, except a temporary substitute for the maker of the record; (2) records created and maintained by the Utah State University Police Department for law enforcement purposes; (3) an employment record of an individual whose employment is not contingent on the fact that he or she is a student, provided the record is used only in relation to the individual's employment; (4) records made or maintained by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional, if the records are used *only* for treatment of a student and made available *only* to those persons providing the treatment; or (5) alumni records which contain information about a student after he or she is no longer in attendance at the University and which do not relate to the person as a student.

### Student Rights under FERPA

FERPA affords students certain rights with respect to their educational records. These rights include: (1) the right to inspect and review information contained in their educational records; (2) the right to request to amend their educational records; (3) the right to consent to disclosure, with certain exceptions specified in the Act, of personally identifiable information from educational records; and (4) the right to file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA.

#### 1. The right to inspect and review information contained in their educational records.

This right should be granted within 45 days of the day the University receives a request for access.

Students requesting access to their records must present proper identification and a signed, formal written request to the registrar, dean, head of the academic department, or other appropriate official. The request should identify the record(s) the student wishes to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

Students may request a copy of their educational records. The cost of each copy is \$2.00 for an official transcript and \$.50 per page for other records.

There may be occasions when a record may not be copied, especially if doing so may compromise another student's or faculty member's privacy. The University may deny access to the following records:

(a) parents' financial statements; (b) letters of recommendation, if the student has waived his or her right of access; (c) records filed before January 1, 1975; (d) records connected with denied applications to attend Utah State University; or (e) records not included in the FERPA definition of educational records.

Utah State University reserves the right to deny copies of records, including transcripts, in any of the following situations:

(a) the student has an unpaid financial obligation to the University; (b) there is an unresolved disciplinary action against the student; or (c) the educational record requested is an exam or set of standardized test questions.

#### 2. The right to request the amendment of their educational records.

Students may exercise this right when they believe their records are inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA.

A student desiring to ask the University to amend a record should write to the University official responsible for the record, clearly identify the part of the record the student wants changed, and specify why it should be changed. If the University decides not to amend the record as requested, the University will notify the student in writing of the decision and of the student's right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when he or she is notified of the right to a hearing.

#### 3. The right to consent to disclosure, with certain exceptions specified in the Act, of personally identifiable information from educational records.

##### Permission to Release Student Information

With the exception of directory information, Utah State University must receive written consent from students before disclosing any personally identifiable information from their educational records. Students may give the University their consent by completing a *Release of Student Information* form. This form can be found at:

<http://www.usu.edu/registrar/forms/pdf/info-release.pdf>

The written consent must: (a) specify the records to be released, (b) state the purpose of the disclosure, (c) identify the party or class of parties to whom disclosure may be made, and (d) be signed and dated by the student.

##### Exceptions

Utah State University may release personally identifiable information from a student's educational record without first obtaining the student's written permission when the disclosure is to:

1. University officials who have a legitimate educational interest in the records. A University official is:
  - a. a person employed by the University in an administrative, academic, research, or support staff position, whether full- or part-time.
  - b. a person appointed by the Utah State Board of Regents or the USU Board of Trustees.
  - c. a person employed by, under contract to, or assigned to the University to perform a special task for the benefit of the University, such as an attorney or auditor.

# USU Academic Policies

- d. a person who is employed by the Utah State University Police Department.
- e. a person serving on an official disciplinary, grievance, or appeals committee.

A University Official has a legitimate educational interest if the official is:

- a. performing a task that is specified in his or her position description or performing a task that is related to his or her contract agreement or appointment.
  - b. performing a task related to a student's education.
  - c. performing a task related to the discipline of or grievance by a student.
  - d. providing a service or benefit relating to the student or student's family, such as health care, counseling, job placement, or financial aid.
  - e. maintaining the safety and security of the campus and/or investigating violations of the law that affect the University.
2. certain officials of the U.S. Department of Education, the Comptroller General, the Attorney General, and state and local educational authorities, in connection with audit or evaluation of certain state or federally supported educational programs.
  3. state and local officials to whom disclosure is specifically required by state statute adopted prior to November 19, 1974.
  4. Veterans Administration Officials.
  5. officials of other institutions in which a student seeks or intends to enroll.
  6. persons (other than parents) or organizations providing financial aid to students, or determining financial aid decisions on the condition that the information is necessary to: (a) determine eligibility for the aid, (b) determine the amount of the aid, (c) determine the conditions for the aid, or (d) enforce the terms and conditions of the aid.
  7. organizations conducting studies for, or on behalf of, educational agencies or institutions to develop, validate, and administer predictive tests, to administer student aid programs, or to improve instruction.
  8. accrediting organizations carrying out their accrediting functions.
  9. parents of a student who is claimed as a dependent on a parent's most recent tax statement, as evidenced by a notarized *Parent Declaration of Student Dependency* form, stating that the student is dependent for income tax purposes. This form is available at: <http://www.usu.edu/registrar/forms/pdf/parent.pdf>
  10. persons in compliance with a judicial order or a lawfully issued subpoena, provided that the University makes a reasonable attempt to notify the student in advance of the compliance.  
**Note:** The University is not required to, and should not, notify the student if a federal grand jury subpoena, or any other subpoena issued for a law enforcement purpose, orders the University not to disclose the existence or contents of the subpoena.

11. defend USU in a legal action. Utah State University is not required to obtain a subpoena to produce educational records of a student if the University is sued by the student or takes legal action against a student. The records produced must be needed by the University to proceed with legal action as plaintiff or to defend itself.

12. the Attorney General of the United States or his designee in response to an ex parte order in connection with the investigation or prosecution of terrorism crimes.

13. persons in an emergency, if the knowledge of the information is, in fact, necessary to protect the health or safety of students or other persons.

14. a victim of an alleged perpetrator of a crime of violence or a nonforcible sex offense, subject to the *Definition of Terms*. The disclosure may *only* include the final results of the disciplinary proceeding conducted by the University with respect to that alleged crime or offense. The University may disclose the final results of the disciplinary proceeding, regardless of whether or not the University concluded a violation was committed.

15. interested individuals (the public), subject to the requirements in Section 99.39, in connection with the final results of a University disciplinary proceeding.

The University must not disclose the final results of the disciplinary proceeding *unless* it has determined that: (a) the student is an alleged perpetrator of a crime of violence or nonforcible sex offense, and (b) with respect to the allegation made against him or her, the student has committed a violation of the University's rules or policies.

The final results must include *only*: (a) the name of the student, (b) the violation committed, and (c) any sanction imposed by the University against the student.

The University may not disclose the name of any other student, including a victim or witness, without prior written consent of the other student.

16. parents regarding the student's violation of any federal, state, or local law, or of any institutional policy or rule, governing the use of alcohol or a controlled substance if: (a) the University has determined that the student has committed a disciplinary violation with respect to that use or possession, and (b) the student is under the age of 21 at the time of the disclosure to the parent. This item does not supercede any state law prohibiting the University from disclosing this information.

#### **4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA.**

The name and address of the office that administers FERPA is:

**Family Policy Compliance Office  
U.S. Department of Education  
400 Maryland Avenue, SW  
Washington DC 20202-5901**

## Release of Directory (Public) Information

At its discretion, Utah State University may provide *Directory Information* in accordance with the provisions of FERPA. Types of information considered as *Directory Information* are listed below.

### Directory (Public) Information at Utah State University

Name  
User ID (A-Number)  
Local and permanent address  
Electronic mail address  
Telephone number  
Date of birth  
Residency status  
Degrees and awards received  
Most recent institution attended by the student  
Academic level  
Major field of study  
Department or college  
Enrollment status (undergraduate or graduate, full-time or part-time)  
Participation in officially recognized activities/sports  
Dates of attendance and graduation  
Weight/height of members of athletic teams  
Photographs

Directory information is considered public information. However, the University *does not* release lists of students or name-and-address labels to businesses or agencies outside the University. Likewise, the University *does not* release information regarding applicants to outside agencies.

## Privacy of Directory (Public) Information

### Blocking the Release of Directory (Public) Information

By default, Utah State University may release a student's directory information. Students may prohibit (or block) the public disclosure of directory information by completing a *Privacy of Directory (Public) Information* form. This form is available at:

<http://www.usu.edu/registrar/forms/pdf/privacy.pdf>

Students should consider *very carefully* the consequences of a decision to withhold directory information. A privacy block will call for Utah State University to not release this *directory information*. Therefore, any future requests for such information from noninstitutional persons or organizations will be refused.

Although Utah State University will honor a student's request to withhold directory information, USU *cannot assume responsibility* to contact the student for subsequent permission to release this information. Regardless of the effect upon the student, Utah State University assumes no liability as a result of honoring a student's instructions to withhold such information.

## Allowing the Release of Directory Information After it Has Been Previously Blocked

Although the initial request may be filed at any time, requests for a privacy block will be honored by the University until removed through another submission of the *Privacy of Directory (Public) Information* form by the student. The form provides two options for students: (1) block the release of information, and (2) allow the release after it has already been blocked.

### Exceptions: One-time Release of Directory (Public) Information

A student who has his or her directory information blocked may want to make a one-time exception, while still keeping his or her directory information blocked. For example, a college may want to list all of the students who made the Honor Roll (Dean's List). The names of students who have their directory information blocked will be omitted from this listing. A student who wishes to keep his or her directory information blocked may complete a *One-time Release of Directory (Public) Information* form. This form is available at:

<http://www.usu.edu/registrar/forms/pdf/privacyexception.pdf>

Utah State University cannot assume responsibility to contact students for subsequent permission to release this information. It is the sole responsibility of the student to initiate the release of blocked information.

## Student Right-to-Know and Campus Security Act

This act (Public Law 101-542), signed into law in November 1990 by the U.S. Department of Education, applies to institutions of higher education receiving federal financial assistance. Under this policy, current and prospective students must be informed of completion or graduation rates of students seeking certificates or degrees. The act also requires reporting of security policies and crime statistics to students, employees, and the U.S. Department of Education.

Current information, reports, and statistics are available at:

<http://www.usu.edu/righttoknow>

## Additional Policies

Policies relating to registration, student records, and academic standing may be found in the *Registration, Student Records, and Academic Standing* section of this catalog on pages 56-63.

The complete *USU Academic Policies and Procedures Manual*, which includes additional policies, as well as policies shown in this catalog, is available online at: <http://www.usu.edu/policies/>

# Academic Support Programs and Services

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## Academic Resource Center

The Academic Resource Center (ARC) provides services and programs that enhance students' learning skills, study strategies, and academic behaviors. Classes such as PSY 1730 help students develop critical thinking and college-level study strategies. "Drop-in" mathematics and statistics tutoring, as well as the Supplemental Instruction (SI) program, provide additional academic support. Individual consultations assist students with gaining course-specific learning strategies.

## Courses

**PSY 1730, Strategies for Academic Success (1-3 credits)**, involves practice and application of important learning strategies and study skills. Topics include test preparation, note-taking, textbook reading, test-taking, etc.

**MGT 2160, Student Applied Leadership Training (2 credits)**, is designed to develop the skills of students working as tutors. This class meets the standards of the CRLA National Tutoring Certification Program.

## Individual Assistance

Staff members provide individual consultation for students needing help with specific learning strategies in one or more of their courses.

## Workshops

Workshops are offered on a variety of learning topics for classes or student, faculty, and staff groups. To arrange for a workshop, call (435) 797-1128.

## Supplemental Instruction

A program of Supplemental Instruction (SI) for selected University Studies Breadth classes is sponsored by the center. A qualified student who has completed the specific course is hired by the center to attend all class sessions, conduct review sessions, and demonstrate effective study strategies. SI classes are identified in the Class Schedule on Banner and on the Web:

[http://www.usu.edu/arc/supplemental\\_instruction/](http://www.usu.edu/arc/supplemental_instruction/)

## Tutoring Programs

### Drop-In Math and Statistics Tutoring

Free tutoring is provided by trained, certified tutors in the Tutoring Center, Taggart Student Center 225. Schedules can be picked up in Taggart Student Center 305 each semester or can be found on the Web-based Tutor Directory.

### Tutor Advertiser

Students can hire a qualified tutor or list themselves as private tutors through the Web-based *Tutor Advertiser*. These tutors must be paid by the student receiving the tutoring.

### Tutor Directory

The center publishes a directory of all on-campus free tutoring. The directory is available through the center's Web page:

<http://www.usu.edu/arc/>

## Idea Sheets

Free Idea Sheets on a variety of study strategies are available in the center and through the center's Web page: <http://www.usu.edu/arc/>

## Video Viewing Library

The center has a collection of study strategy videos, which students may view in the Merrill-Cazier Library.

## Referral Resources

The center provides students with referral information for a variety of on-campus and off-campus services and agencies.

For more information, contact the Academic Resource Center, Taggart Student Center 305, (435) 797-1128.

## Cooperative Education Internship Program

The Cooperative Education Internship Program offers both undergraduate and graduate students a unique opportunity to integrate career, social, and personal development into the educational process. The program is designed to allow students to alternate classroom study with a series of paid preprofessional work experiences related to their field of study. These experiences increase in complexity as the student's background in a given field increases.

The program offers several specific benefits to students. It provides those students who have decided on an academic major an opportunity to obtain pregraduation work experience in their chosen career. The program provides those students who are unsure of their academic major an opportunity to explore several career possibilities. It provides them a chance to earn money for their education and credit toward their degree. Finally, it substantially improves the students' opportunities for employment after graduation.

The Cooperative Education Internship Program option is available in all departments on the Utah State University campus. Generally speaking, students begin their work experiences in their sophomore or junior year, although seniors can take advantage of program benefits. Students can undertake either part- or full-time work experiences. Work experiences are available both during the academic year and during the summer. These work experiences may be with a single employer or with different employers; increasing complexity is the critical principle. Salaries vary with the field of work and the complexity of the job.

The amount of academic credit awarded for a given work experience varies, and depends upon the amount of work completed and upon the career-related nature of the experience. The decision regarding credit and the amount to be granted rests with the academic department, and specifically the faculty co-op coordinators. Students must make the credit arrangement with their faculty co-op coordinators prior to their work experience.

Students interested in entering or learning more about the program should contact their academic department; or visit Career Services, located in University Inn 102, ground level, tel. (435) 797-7777.

Additional information can also be found online at:

<http://www.usu.edu/career/internships/>

# Academic Support Programs and Services

## Cultural Exchange Program

Approximately 1,000 students and scholars from 79 countries are currently enrolled at Utah State University. Many of these students are in great demand by the community to visit various school, church, and civic functions. Students often bring from their countries videos, slides, photographs, artifacts, maps, music, and costumes which they share with the community. Other students are requested by various organizations to display their talents in song, dance, cooking, fashion shows, martial arts, and many other crafts and skills.

These outreach programs benefit the community, enhance the University, and also provide excellent opportunities for USU international students to learn how the community operates. It also gives internationals the occasion to develop friendships with Americans. The sometimes long-lasting and far-reaching friendships are valuable to developing peace and friendship across the globe. Also, these students further develop their talents and skills in communication and become familiar and comfortable with the American culture.

Those needing help in arranging programs with international students may call the Office of International Students and Scholars at (435) 797-1124.

## Disability Resource Center

The mission of the Disability Resource Center is to provide supportive services to qualified individuals with disabilities, so they may participate equally in academic, employment, social, and cultural opportunities available at Utah State University.

Services offered by the Disability Resource Center include:

1. Campus orientation, architectural access, and modification.
2. Registration assistance, including interpreters, advisors, and escorts.
3. Equipment loan and Assistive Technology Laboratory, including FM amplification systems, tape recorders, aids for students with vision impairments, and adapted computer hardware and software.
4. Referral information regarding campus and community services, including a referral registry for nonacademic interpreters, readers, personal care attendants, and escorts.
5. Alternate-format textbooks and class materials for qualifying students.
6. Counseling for academic and personal needs.
7. Support service coordination with the Division of Vocational Rehabilitation.

The Disability Resource Center is located in University Inn 101 and can be reached by telephone by calling (435) 797-2444 or (800) 259-2966 (voice) or (435) 797-0740 (TTY).

## Mathematics and Statistics Drop-in Advisement

The Department of Mathematics and Statistics maintains a Drop-in Advisement Office in Lund 201. Students in need of information about and advisement related to placement in courses are welcome to stop by the Drop-in Advisement Office during office hours. Hours for this office can be found on the Department of Mathematics and Statistics website (<http://www.math.usu.edu/>) or may be obtained by phone at (435) 797-0268.

## Study Abroad Program

### Overview

The USU Study Abroad Office provides information on a wide range of affordable programs providing USU students with opportunities for study throughout the world. Through exchange partner institutions or consortiums, students can study at more than 100 universities in more than 40 countries worldwide during a semester, academic year, or summer program. Exchange program costs are based on tuition and fees at USU. Students can earn credit toward their degree at USU while studying abroad. In many countries, even when the native language is not English, students can study in English, or have the opportunity to build language skills. Full immersion options are also available at selected sites, based on student language ability.

### Exchange Programs

Students can study in Spanish or the Spanish language at all levels at Monterrey Tec University in Mexico. Students may choose one of nine different campuses. Students may also study many subjects taught in Spanish at the University of Costa Rica, San Jose, Costa Rica; the University of Guadalajara Mexico; the University de La Rioja in beautiful Logroño in Northern Spain; and at the Pontificia Universidad Católica de Valparaíso, in Valparaíso, Chile, a UNESCO world heritage city. Pontificia Universidade Católica in Rio de Janeiro, Brazil offers students the opportunity to study regular coursework in Portuguese or study the language. London Metropolitan University offers a wide variety of subjects, with students housed near historic Hyde Park. In addition, students can study at Leicester University in Leicester, England, as well as at University of Northampton in Northampton, England, both located just over an hour north of London. Other study abroad programs in English include: study in landscape architecture at University of Ljubljana, Slovenia; American Studies at Innsbruck University in Austria; music at Corinthian State Conservatory of Music, Austria; and study in fine arts at Southern Cross University, Australia. New partners, University of Copenhagen, Denmark; University of Groningen, Netherlands; and University Viadrina, Germany; offer a variety of courses in English. Jonkoping University, Sweden; Western Sydney, Australia; West England; and Hanze University, Netherlands offer courses in English specifically for study in business. At Kansai Gaidai, Kobe, Gifu, and Yokohama National universities in Japan, all levels of Japanese are taught. Students may also earn credits in subjects taught in English at Kansai Gaidai or Yokohama. Keimyung University in Daegu, Korea, as well as USU's partners, Korea and Sungkyunkwan universities in Seoul, provide classes taught in English and the Korean language. Hongik University in Korea is a great choice for art and sculpture study. Students may study economics, business, and Thai studies courses taught in English, at Thammasat University in Bangkok, Thailand, including Thai language and culture. Jon M. Huntsman School of Business students may participate in business exchange programs in Australia, the Netherlands, Sweden, and the United Kingdom. For graduate-level study in economics, exchanges

# Academic Support Programs and Services

are available in the United Kingdom, Spain, Portugal, Greece, France, or Germany. Students can also study Russian language and culture at St. Petersburg State University and Kazan State University in Russia, at all levels. Students can study Chinese language with Feng Chia University, Taiwan.

The International Student Exchange Program (ISEP) is one of the most varied study abroad exchange consortium opportunities at USU. Most program fees are based on USU tuition, housing, and food costs. Through ISEP, students may study in Africa, Asia, Australia, Canada, Europe, and Latin America. ISEP offers traditional European study abroad opportunities at some of the leading institutions in Austria, France, Germany, Hungary, Italy, Finland, the Netherlands, Sweden, and the United Kingdom. Other opportunities for study include such countries as Argentina, Bulgaria, the Czech Republic, Latvia, Poland, Iceland, Ghana, and South Africa. There are more than 100 universities to choose from in all. As ISEP participants, students matriculate directly into a host institution abroad. Direct matriculation means students register as regular students at their host institution, take the same courses, have the same assignments, and participate in the same activities as all other students at that institution. At many locations, coursework taught in English is available for semester, academic year, and summer study.

## Affiliated Programs

Further expansion of short-term, summer, or semester-long study opportunities is possible with the addition of the following USU-affiliated program providers: AsiaLearn, AustraLearn, EuroLearn, Council on International Educational Exchange (CIEE), International Studies Abroad (ISA), Middlesex University (England), School for International Training (SIT), and Study Abroad Italy (SAI).

## Short-Term Programs

Students can participate in a variety of short-term programs. These programs vary in length from two to six weeks. With USU's partner, Pontificia Universidad Católica de Valparaíso, students with little or no Spanish language experience have the opportunity to study beginning Spanish in Chile during January, May, or June, live with a local family, and participate in an excellent program offering language instruction and local excursions of interest. The Jon M. Huntsman School of Business has summer programs in Latin America and Asia, as well as internship or short-term study abroad programs during the fall or spring semesters. Summer options are available with ISEP in such locations as France, Korea, the Netherlands, and Thailand, or with other partner institutions, such as University of Northampton, England; and Korea University, Seoul, Korea.

## USU Faculty-Led Study Abroad Summer/Short-Term Programs

Faculty at USU take students to varied destinations every year for coursework taught in English, while students earn USU credit for the experience. A sampling of current programs taught abroad by USU faculty include acting in England; anthropology in Peru; family, consumer, and human development in Germany; graphic design in Switzerland; humanities in England and Italy; interior design in England, France, and Italy; international business in Latin America (Brazil, Chile, and Peru) and Asia (China, Korea, and Vietnam—including a service learning option); photography in Scotland; and student teaching in New Zealand or the Philippines.

Summer faculty-led language programs include: intermediate and advanced study in Spanish in Logroño, Spain; French language at all levels with home-stay in Annecy, France; and intensive German at all levels at the Goethe Institute in Freiburg, Germany.

## Volunteer English Teaching Opportunities

USU offers students a volunteer option to teach English in Chile for a ten-week period of time during the summer. Room and board is provided with a family, and teacher volunteers assist in English classrooms. This option may soon be available for credit. For further details, contact the Study Abroad Office. Other English teaching opportunities include Japan, China, and Thailand.

For additional information about these and other programs, contact the Study Abroad Office, Taggart Student Center 311, by phone at (435) 797-0601 or (435) 797-1253; or by e-mail at: [studyabroad@usu.edu](mailto:studyabroad@usu.edu). Detailed information is available on the following website: <http://www.usu.edu/studyabroad/>

## Student Support Services

Student Support Services is a special program financed through a federal grant and Utah State University with the purpose of providing additional support to students who meet particular qualifications. The Student Support Services Program seeks to prepare and support students for the challenges of higher education by offering assistance in:

1. academic advising and guidance,
2. tutoring on an individual basis,
3. course selection,
4. faculty/peer mentoring,
5. reading and study skills enrichment (PSY 1750, 1730),
6. mathematics and statistics instruction (MATH 0900, 1010, 1050; and STAT 1040),
7. financial aid planning, and
8. early registration.

To qualify for these services, a student must be an American citizen or permanent resident of the United States, must be registered at Utah State University, must demonstrate academic need for services as defined by the institution, and must meet one of the following U.S. Department of Education criteria:

1. low income, as established by the U.S. Commission of Higher Education;
2. disabled, including physical disabilities and learning disabilities; or
3. first-generation college student, meaning that neither of the student's parents have graduated from a four-year institution of higher education.

For more information, contact Student Support Services, University Inn 103, (435) 797-3372.

## Academic Resource Center

Taggart Student Center 305, (435) 797-1128  
<http://www.usu.edu/arc>

For information about the programs available through the Academic Resource Center, see page 84.

## Advising, Office of University

Taggart Student Center 304, (435) 797-3373  
<http://www.usu.edu/advising/>

The Office of University Advising (UA) provides advising referrals and information regarding University requirements, academic policies and procedures, academic program planning, University Studies requirements, services, and resources of the University. UA also facilitates the Peer Advising program. Students who are designated as Undeclared, Undeclared Business, Undeclared Science, or Provisional Admission Warning are advised by UA advisors.

### Undeclared Program

The chief function of the Undeclared program is the advisement of students who have not yet decided upon a major or area of specialization. Students in the Undeclared program typically work on their University Studies requirements while exploring major options. This allows them to make progress toward overall degree requirements and provides them with extra time to make wise, informed decisions. Undeclared students are advised by UA until they choose a major.

Students who are enrolled in another department, but feel they have chosen their major unwisely, may transfer to the Undeclared program upon receiving permission from an advisor in UA.

No degree is offered through the Undeclared program. Most Undeclared students are freshmen or sophomores. Prior to the junior year, students should select a major and be taking major courses. Students should not remain in the Undeclared program beyond 60 credits or past the end of the sophomore year.

### Provisional Admission Warning Program

Provisional Admission Warning is the designation used to identify students who do not meet the admissions requirements of the seven academic colleges. By state policy, admission of students to this category is limited.

The primary function of the program is to assist and encourage students in the improvement of their academic status, so they may transfer to the major of their choice. To accomplish this purpose, participants are urged to limit their course loads each semester, satisfy remedial requirements when indicated, and meet frequently with an advisor. Students admitted provisionally are encouraged to take General Education and exploratory classes. Resources in the Academic Resource Center, the University Counseling Center, the Testing Center, and Career Services are available to assist such students with career, aptitude, life skills, and study skills counseling.

When a student has demonstrated an ability to maintain a GPA appropriate for the intended major, the student may submit a Change of Matriculation form through the Registrar's Office. **It is the student's responsibility, in consultation with an advisor, to complete all necessary paperwork.**

## Bookstore

Taggart Student Center 123, (435) 797-1666  
<http://www.bookstore.usu.edu>

The USU Bookstore has been serving USU students, faculty, staff, alumni, and the community since 1904.

As the official location for all USU coursework needs, the Bookstore stocks textbooks; school supplies; art materials; computer systems, software, and accessories; general reading books; and a huge selection of Aggie clothing.

A myriad of services are also provided by the Bookstore, including textbook buyback, educational discounts, book-it textbook reservations, scholarships, Aggie Reader's Club, special orders, gift wrapping, engraving, parking validations, gift cards, and more.

## Campus Recreation

Health, Physical Education and Recreation 126, (435) 797-7529  
<http://www.usu.edu/camprec>

Campus Recreation houses and advises six major recreation and conservation programs: Intramurals, Outdoor Recreation Center, Utah Conservation Corps, Informal Recreation, Club Sports, and Recreation Instruction Program. These programs are run by professionals, students and volunteers. Campus Recreation sponsors numerous events, activities, and volunteer service projects throughout the year, including the following:

### Intramurals

Intramural sports include basketball, racquetball, table tennis, badminton, soccer, volleyball, softball, and many more. The rejuvenation resulting from participating in intramurals is a crucial part of the college experience.

### Outdoor Recreation Center (ORC)

The ORC is one of the nation's premier university outdoor education and leadership programs serving students and the public through diverse educational programs and comprehensive rental services. The ORC provides rigorous experiential learning experiences fostering independent problem solving, leadership, and communication skills. It also promotes academic excellence, physical and personal development, and responsible involvement and service in the outdoors.

### Utah Conservation Corps (UCC)

The UCC is dedicated to improving the quality of public natural resources and the community through partnership projects, community service-learning volunteer efforts, disaster relief, and environmental and outreach education.

### Informal Recreation

The HPER and Fieldhouse facilities, including pools, weight rooms, track, and fitness center, are areas where participants can engage in self-directed exercise.

### Club Sports

Club sports are for students who wish to play in a competitive team environment at a high level. Some clubs are well-established and require tryouts. There are 16 club sports to choose from, including (but not limited to) ballroom dance, soccer, ultimate frisbee, rodeo, and lacrosse.



# Other Student Resources

## Recreation Instruction Program (RIP)

The RIP program offers various instructional programs fostering awareness of different cultures and their lifestyles. A few examples of Campus Recreation's classes are yoga, aikido, and karate.

## Card Office/Customer Service Center

USU ID Cards, Debit and Dining Accounts,  
Information, and Ticket Sales  
Taggart Student Center 212, (435) 797-3852  
<http://usucard.usu.edu/>

The Card Office/Customer Service Center is the location where students receive their USU ID Card. The USU ID Card allows students access to many campus resources and events. In addition, it provides access to an Aggie Express debit account, print account, and meal plans. For further information, see *ID Cards* text on page 65, within the *Tuition, Fees, and Refunds* section of this catalog.

The Card Office/Customer Service Center staff can answer general questions about the University and provide student information. The center offers assistance, information, maps, and problem-solving assistance for students, staff, and visitors. The center also handles Lost and Found items for the Taggart Student Center.

There is an outlet for the USU Ticket Office at the center. Tickets are available for performing arts, theatre productions, STAB events, and athletic events.

## Career Services

University Inn 102, ground level, (435) 797-7777  
<http://www.usu.edu/career>

Career Services is the link between students and successful career employment. A dedicated group of career coaches is ready to help by offering expertise in four broad areas related to career paths. These four areas are briefly outlined below.

### Career Exploration

A variety of exploratory activities and assessments are available to help students develop self-awareness in selecting a major and focusing on career choices suiting their needs, interests, and abilities. In addition, PSY 1220 (3 credits), a Career and Life Planning course, is taught to help students more fully explore career options.

### Co-op/Internships

Students who participate in this program can graduate with the experience employers are looking for. Students can receive pay *and* academic credit for one or more relevant work experiences in their field of study.

### Graduate School Preparation and Testing

Students planning to attend graduate school can receive help in the preparation of their graduate school applications and personal essays. Tests are also available for undergraduate and graduate schools, credit by examination (CLEP), and admissions tests. Tests available include: ACT, TOEFL, GRE, LSAT (Law), MCAT (medical), and the Miller Analogies Test. Test times can be scheduled directly by calling (435) 797-1004.

### Career Employment

From on-campus recruiting to fairs, expos, and forums, a wide variety of services are offered to assist students in obtaining employment upon graduation. Students can meet their career coach one-on-one

to discuss resume/cover letter preparation, networking contacts (both employer and alumni), and personal career search strategies.

Whether students are sure of what they want to do after leaving Utah State University or are just beginning to think about their career options, their career coach can help. By visiting Career Services *early* and often, students can take control of their future.

## Children's House

862 East 900 North, (435) 797-3657  
<http://www.childrenshouse.usu.edu>

Student parents attending the University may enroll their children at the Children's House, an accredited quality early care and education program. Preschool and kindergarten age children (3-6 years) may be enrolled during fall and spring semesters, and children preschool through second grade (3-8 years) may be enrolled during summer semester. Professional staff provide a healthy, safe, and nurturing learning environment for children by promoting their physical, social, emotional, and intellectual development. There are several flexible full-day and part-day enrollment options from which parents can choose, as space is available.

## Computer and Information Literacy (CIL)

Eccles Science Learning Center 131, (435) 797-2405  
<http://cil.usu.edu>

As part of the University Studies Requirements, all students receiving a bachelor's degree from USU must score 70 percent or higher on each of the following six computer and information literacy examinations: (1) Information Law and Ethics, (2) Information Resources, (3) Document Processing, (4) Operating Systems, (5) Spreadsheets, and (6) Electronic Presentations.

There is a \$30 fee associated with this exam. There is no limit to the number of times a student can take each test. Once a test is passed, a student may not retake that test. After all tests are passed and the fee is paid, the CIL requirement will be posted to the student's transcript.

Students should complete the CIL requirement *as early as possible* during their academic experience at USU. Some courses require as a prerequisite the completion of the CIL requirement.

## Counseling Center

Taggart Student Center 306, (435) 797-1012  
<http://www.usu.edu/counseling/>

The Counseling Center assists students with personal growth and adjustment, mental health concerns, relationship issues, problem-solving, and career/academic adjustment. Services include individual, couples/relationship, and group therapy; outreach programs; problem-solving consultations; and psycho-educational assessments.

Common problems for which students may seek help include: symptoms of depression and anxiety, adjustment challenges, stress, eating and body image concerns, problems managing emotional reactions, social/interpersonal conflicts, trauma/grief, behavioral addictions, identity issues, and loneliness. Services are confidential and free for students enrolled in 6 or more credits on campus. (There is a nominal fee for psycho-educational assessment.)

For an appointment, call (435) 797-1012 or come to Taggart Student Center 306.

## Disability Resource Center

University Inn 101, (435) 797-2444 or (800) 259-2966 Voice or (435) 797-0740 TTY  
<http://www.usu.edu/drc>

Information about the services offered by the Disability Resource Center is shown on page 85.

## Financial Aid

Taggart Student Center 106, (435) 797-0173  
<http://www.usu.edu/finaid>

For information about assistance available through the Financial Aid Office, see the *Financial Aid and Scholarship Information* section of this catalog on pages 46-51.

## GLBTA Services

Taggart Student Center 316A, (435) 797-4297  
[maure.smith@usu.edu](mailto:maure.smith@usu.edu)  
<http://www.usu.edu/glbta/>

The GLBTA Services Office provides support to Gay, Lesbian, Bisexual, Transgender, and Allied (GLBTA) students, faculty, and staff; promotes the understanding and acceptance of diversity through education and campus outreach; and operates a resource and lending library that is open to anyone interested in learning more about GLBTA related issues.

## Honors Program

Main 15, (435) 797-2715  
<http://honors.usu.edu/>

Information about application to and participation in the Honors Program, as well as details about honors degrees offered by USU, is shown in the *Honors Program* section of this catalog, page 310.

## Housing and Residence Life

1295 East 1000 North, (435) 797-3113 or (800) 863-1085  
<http://www.housing.usu.edu>

Housing options available at USU are explained on pages 52-53 of this catalog.

## Independent and Distance Education

Eccles Conference Center 102D, (435) 797-2137 or (800) 233-2137 (toll free)  
<http://distance.usu.edu/>

Information about independent and distance learning opportunities at USU is included in the *Regional Campuses and Distance Education (RCDE)* section of this catalog, pages 103-105.

## Information Technology

Janet Quinney Lawson Building (North End), (435) 797-HELP (4357)  
<http://it.usu.edu>

Information Technology (IT) provides computing and networking facilities and services for instructional, research, and administrative functions. A current description of these facilities, as well as the access procedures for students and staff, may be found on the IT website. Further information about the administration and services of the Information Technology Office is shown on pages 97-98 of this catalog.

## International Students and Scholars

Taggart Student Center 313, (435) 797-1124  
<http://www.usu.edu/oiss/>

The Office of International Students and Scholars (OISS) is committed to providing the necessary tools for students to succeed, both academically and personally. It provides the support to enhance the academic, social, and personal interactions of international students and scholars while at USU and in the Logan community. It serves as the primary link between the students and local and government agencies. The OISS staff is eager to assist with advising on immigration and other matters, such as personal and social adjustments. A main goal is to create a warm and inclusive environment in which all students can learn and interact in a cross-cultural environment. Throughout the year, OISS and the International Student Council (ISC) offer cultural and educational programs to enhance intercultural competencies and communication skills.

Information about international student admission and programs is shown on pages 38-39.

## Multicultural Student Services

Taggart Student Center 309, (435) 797-1733  
<http://www.usu.edu/multiculture/>

The Multicultural Student Services (MSS) Office provides support for student success, as well as direction for campus multicultural relations. MSS achieves its mission through collaborative work in the Division of Student Services and with academic departments. The MSS Office strives to offer quality services for all students, while providing targeted support to first-generation and historically underserved African-American, Asian-American, Native American, Pacific Island, and Latino students. Programs are designed to promote student recruitment, retention, leadership development, cultural understanding, inclusion, and a positive relational climate on campus.

Services offered through the MSS Office include:

1. Personal leadership development through clubs and organizations
2. Educational events and cultural celebrations involving the campus and community at-large
3. Peer mentoring, personal and social support
4. Active recruitment efforts and outreach programs serving core constituents
5. Community and campus service opportunities
6. Involvement within and support of ASUSU programs
7. Academic support
8. Life skills/multicultural leadership courses
9. Networking and referral to University departments

# Other Student Resources

## Parking and Transportation Services

840 East 1250 North, (435) 797-3414  
<http://parking.usu.edu/>

Students who are unfamiliar with the campus should contact this office for directions and parking instructions. Also available are faculty, staff, student, and visitor parking permits. This office also provides shuttle services from key perimeter parking areas to key central campus locations.

## Reentry/Nontraditional Student Center

Taggart Student Center 315, (435) 797-1728  
<http://www.usu.edu/reentrystudent/>

The Reentry/Nontraditional Student Center provides information, financial assistance, and referrals to the resources available on campus and in the community to women and men who are returning to school with a gap in their education after being in the workforce or in the home. Anyone who considers herself or himself to be a nontraditional student is welcome to utilize the resources of the center. The center serves as an informal gathering place for reentry students and facilitates their transition to university life through orientations, workshops, leadership opportunities, scholarships, and programs.

## Residency Office

(Admissions Office)  
Taggart Student Center 102, (435) 797-8144  
<http://www.usu.edu/admissions/information/residency.cfm>

Nonresident students who feel they have met the requirements for instate resident student status must file an official residency application with the Residency Office **no later than 10 calendar days from the first class day**. Those missing the application deadline will have residency considered for the next semester, provided that the next appropriate deadline is met with adequate updated documentation.

If an application is denied by the Residency Officer, the student may appeal to the Residency Appeals Committee no later than the 14th calendar day of the semester. Appeals cannot be considered after this deadline.

Information on residency requirements can be obtained from this office. Further information about USU's residency policy is shown on page 35.

## Retention and First-Year Experience Office

Taggart Student Center 314, (435) 797-1132  
<http://www.usu.edu/fyi/>

The Office of Retention and First-Year Experience is a dynamic office with a core mission of student success and retention. Through a variety of programs and services, the office is poised to have an impact on students at the time of entrance to the University, throughout the first year, and beyond. Services include information on research, development, design, and implementation of programs and initiatives that directly target the enhancement of retention efforts. Programs include:

**Connections.** Connections is an academic course designed to ease students transition to Utah State University and to prepare them for their college experience. A description of the Connections course is shown on page 55.

**First-Year Experience.** The First-Year Experience Program will improve student retention by assisting first-year students with the transition to the academic and social environment of the University. (First-year students are defined as any students attending classes on the Utah State University campus for the first time, which includes freshmen and transfer students.)

**Parent and Family Programs.** These programs are designed to keep parents and family members informed about happenings at USU; provide valuable information, events, and support for parents; and provide an opportunity for parents to communicate with USU. For further information, see: <http://www.usu.edu/parents/>

**SOAR.** Retention and First-Year Experience provides orientation services to new first-year and transfer students, information concerning USU programs, and information about available services at the University. More information is available on page 55.

**Matriculation Advising.** USU's Matriculation Advisor facilitates the retention effort through managing the Leave of Absence Process. As part of this process, students who need to leave USU are "recruited" back through targeted e-mails, letters, and personal phone calls. Additionally, the Matriculation Advisor oversees the readmission process for students who are not in academic good standing at USU, by guiding students to good standing through readmission contracts and work with each student's academic advisor. For further information about *Leave of Absence* and *Complete Withdrawal*, see page 58.

## Sexual Assault and Anti-Violence Information (SAAVI)

Student Health and Wellness Center 119D  
(435) 797-1510 (General Information)  
(435) 797-RAPE (7273) (Crisis Hotline)  
<http://www.usu.edu/saavi/>

The USU Sexual Assault and Anti-Violence Information (SAAVI) Office was created to promote an atmosphere of sexual and physical safety for all female and male students, faculty, and staff at Utah State University. SAAVI works to accomplish this task through an environment of education, as well as sensitive, competent response to those who have experienced violence or hurtful relationships.

SAAVI provides **crisis help** (i.e., support; assistance obtaining medical, counseling, academic, and legal aid in the aftermath of sexual assault or dating/domestic violence; etc); **education** (e.g., presentations to groups, clubs, classes, etc); and **awareness events** (e.g., Red Zone Day, Domestic Violence Awareness Month activities, Walk-a-Mile-in-Her-Shoes, etc). SAAVI services are available to USU **students, faculty, and staff**; both **women and men**; both **primary survivors** (those who experience violence) and **secondary survivors** (friends/loved ones of those who experience violence).

The SAAVI Office is located in the Student Health and Wellness Center (north of Romney Football Stadium). For help, general information, questions, or to request a presentation, call (435) 797-1510. The SAAVI Office also maintains a crisis hotline: (435) 797-RAPE (7273) (available 24 hours per day, 7 days per week, 365 days per year). During nights, weekends, and holidays, the crisis line is answered by CAPSA (Community Abuse Prevention Services Agency), which is a SAAVI community partner.

## Student Employment

(Financial Aid Office)

Taggart Student Center 106, (435) 797-0184

<http://www.usu.edu/studemp>

The Student Employment Office develops and posts on-campus part-time and off-campus full-time and part-time openings daily on the Job Board in the hallway outside the Financial Aid Office in the Taggart Student Center, as well as online at the address listed above. Summer openings representing camps, resorts, ranches, government, and private industry across the United States are featured from January through May on display boards at the entrance to the Financial Aid Office. Additional information and assistance may be obtained at the Student Employment counter in the Financial Aid Office.

## Student Health and Wellness Center

850 East 1200 North, (435) 797-1660

<http://www.usu.edu/health/>

The Student Health and Wellness Center provides students with healthcare for illness and minor injuries, as well as with health and wellness information on a variety of concerns. Just like any comprehensive medical clinic, the services of physicians, nurses, and pharmacists, as well as laboratory, physical therapy, prevention, and dietitian services, are available onsite. The center specializes in the medical needs of students, including sports injury evaluation and rehabilitation, minor emergencies, skin conditions, gynecology concerns, and mental health conditions. Special services include physical exams for pilots, teachers, or missionaries. Pharmacy, X-ray, and laboratory services are available inside the Health and Wellness Center.

Help and information on topics such as depression, nutrition, time and stress management, healthy relationships, and prevention of sexual assault and date rape, as well as assessment, education, and referral for substance abuse, are available from a variety of specialists serving on the staff. Peer educators, as well as office staff, are available to answer questions and provide support or information on health-related topics. Students gain leadership skills while involved in peer educator teams offering prevention activities and promoting healthy lifestyles. Prevention programs, research surveys, and educational classes are also available through this office. Educational presentations on health-related topics, which are excellent supplements to academic course material, can be scheduled by faculty members for inclusion in their classes.

Most of the costs for services of the Student Health and Wellness Center are covered by the Student Health Fee, paid at the time students register, but some supplies, procedures, or classes may require a nominal fee. Although the Student Health and Wellness Center provides administrative oversight of the Student Health Insurance Plan, health insurance is not required to use the Student Health and Wellness Center.

## Student Involvement and Leadership Center

Taggart Student Center 326, (435) 797-2912

<http://www.usu.edu/asusu/involvement/>

The Student Involvement and Leadership Center strives to provide opportunities for students to receive life, leadership, and interpersonal skills by sponsoring events and activities. These events and activities complement students' academic curriculum and enhance their overall educational experience through the development of a wide range of leadership development opportunities, programs, and activities. These events strive to promote diversity, cultural appreciation, social interaction, community service, and effective student government representation.

The Student Involvement and Leadership Center includes the following: student government (ASUSU), fraternities and sororities, Leadership House, Aggie B.L.U.E. Fall Leadership, Mortar Board, Spirit Squad, and the Val R. Christensen Service Center.

Students who are interested in getting involved should go to Taggart Student Center 326 or visit: <http://www.usu.edu/asusu/>.

## Student Support Services

University Inn 103, (435) 797-3372

<http://www.usu.edu/sss/>

Students meeting the low-income criteria established by the U.S. Commission of Higher Education and/or first-generation college students or disabled students may receive special assistance through the Student Support Services Office. Further information concerning qualification for this assistance, as well as details about the services offered, is shown on page 86.

## Testing Services

(Career Services)

University Inn 115, ground level, (435) 797-1004

<http://www.usu.edu/career/testing/>

Information and test times are available for academic admission tests, including the GED (a high school equivalency exam), the ACT for undergraduate admission, the GRE and MAT for graduate admission, the LSAT for law school, the MCAT for medical school, the TOEFL (Test of English as a Foreign Language, for international students entering at both graduate and undergraduate levels), and PRAXIS tests for teacher education certification and licensure. CLEP exams, which give students the chance to earn semester credits toward their University Studies requirements by exam, are offered. Test information and booklets are also available.

## The Utah Statesman

Taggart Student Center 105, (435) 797-6397

<http://www.utahstatesman.com/>

The *Utah Statesman* is a USU student-produced news source. The *Statesman* is published three times weekly and distributed across campus and at several downtown locations. Additionally, the *Statesman* is produced online, updated regularly with news and important links available at <http://www.utahstatesman.com/>. Advertising of campus events is welcomed and encouraged in the *Statesman*.

# Other Student Resources

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A large number of students in all majors are involved in the production of the *Utah Statesman*. The *Statesman* and its staff have won many awards, including Best Nondaily Student Newspaper in a seven-state region, as determined by the Society of Professional Journalists in 2005.

The University provides a Student Media Board, comprised of staff and students, to advise and define policies toward established student media which receive student funding from University fees. This board provides for a defined relationship between student media and the University at large.

## Val R. Christensen Service Center

Taggart Student Center 332B, (435) 797-SERV (7378)  
<http://www.usu.edu/asusu/servicecenter/>

The Val R. Christensen Service Center is a place where students can find opportunities to serve and can develop leadership skills. With more than 20 volunteer programs, students are bound to find service opportunities matching their desires and abilities. Mentoring, tutoring, environmental, and leadership programs are available. Time commitments range from one hour per month to three hours per week. The mission of the Service Center is to prepare students to make lifelong contributions through service; provide students with opportunities to serve; and promote positive attitudes, personal growth, and change through service to the community and the environment.

The Service-Learning Scholars Certificate Program provides an opportunity for students to combine service with their academic experiences. To learn more about how to receive academic credit through service experiences and how to receive this certificate upon graduation, students should visit the Service Center.

## Veterans Services

(Office of the Registrar)  
Taggart Student Center 246, (435) 797-1102

The Office of Veterans Services assists eligible veterans, qualified dependents of disabled veterans, and National Guard and Reservists in pursuing their educational, professional, or vocational objectives and receiving their appropriate educational benefits.

## Women's Resource Center

Taggart Student Center 315, (435) 797-1728  
<http://www.usu.edu/womencenter/>

The purpose of the Women's Resource Center (WRC) is to support, educate, and empower women of all cultures, races, sexual orientations, and ages; providing a safe environment while respecting all facets of women's abilities, spirituality, and differences. The USU WRC celebrates women's achievements and advocates for a climate promoting social justice, free from all barriers and discrimination. The WRC provides scholarships, information, assistance, and referral for resources available on campus and in the community.

## Writing Center

Ray B. West 104, (435) 797-2712  
<http://writing.usu.edu/>

The Writing Center provides help at any stage of the writing process and is open to all students. Hours are by appointment, Monday through Friday 8:30 a.m. to 3:30 p.m., and Monday through Thursday 7:00 to 9:00 p.m. Students should sign up online at: <http://writing.usu.edu>. Consultants are available for one-on-one counseling in the center or online. Summer hours are Tuesday through Thursday, 9:30 a.m. to 2:30 p.m. during the eight-week session.

# National Honor Societies with Chapters at USU

## Beta Gamma Sigma

Beta Gamma Sigma international honor society was founded in 1913 to recognize superior scholarship in business. It is the highest international recognition a business student anywhere in the world can receive. The USU chapter was established in 1975.

Membership is by invitation only and is limited to the top 20 percent of business graduate students, the top 10 percent of seniors with business majors, and the top 7 percent of juniors with business majors. Candidates must have completed one year of study at Utah State University.

**Chapter Advisor:** Lindsey Thurgood, Academic Advisor, Business 309, (435) 797-3736

## Golden Key

Golden Key International Honour Society is an academic honor society which recognizes and encourages scholastic achievement and excellence among all sophomores, juniors, seniors, and graduate students from all academic disciplines with a 3.5 or higher cumulative GPA. With more than 25 years of rich tradition, Golden Key remains committed to scholarship, career development, leadership and altruistic service.

Members are connected to exclusive career opportunities through Golden Key's partnerships with major corporations and graduate programs. The society provides campus and community service opportunities enabling personal growth and leadership development, as well as collaborating with university faculty and administrators to develop and maintain high standards of education. A minimum of two scholarships are awarded annually to outstanding junior and senior members at Utah State University.

**Chapter Advisor:** Lisa Vaughn, Community Service Coordinator, Student Involvement and Leadership Center, Taggart Student Center 326, (435) 797-1740, lisa.vaughn@usu.edu

## Mortar Board

The Order of the Acorn chapter of Mortar Board has existed at USU since 1970. It was founded in 1918 as the first national organization honoring senior college women. Mortar Board opened its membership to men in 1975.

Mortar Board recognizes college seniors for distinguished abilities in scholarship, leadership, and service. Members continue to magnify these traits throughout membership by developing and carrying out activities, events, and service projects. New members are chosen during spring semester and must be in the top 35 percent of their class.

**Chapter Advisor:** Lisa Vaughn, Community Service Coordinator, Student Involvement and Leadership Center, Taggart Student Center 326, (435) 797-1740, lisa.vaughn@usu.edu

## National Society of Collegiate Scholars

The National Society of Collegiate Scholars is an honors organization founded on the principles of scholarship, leadership, and service. Each plays an important role in one's personal development. Society members are encouraged to pursue each of these ideals with a sense of passion and dedication. The society's mission is to:

1. Recognize and celebrate high achievement among first- and second-year college and university students across all academic disciplines.
2. Encourage and promote high standards throughout the collegiate experience.
3. Provide opportunities for personal growth and leadership development.
4. Organize and encourage community service.
5. Foster an overall appreciation for the value of higher education.

**Chapter Advisor:** William J. Popendorf, professor of Biology, Biology-Natural Resources 323, (435) 797-2566, popendorf@biology.usu.edu

## Phi Alpha Theta

Phi Alpha Theta is a professional society whose purpose is to promote the study of history through the encouragement of research, good teaching, publication, and the exchange of learning and ideas among historians. It seeks to bring students, teachers, and writers of history together, both intellectually and socially; and it encourages and assists historical research and publication by its members in a variety of ways. The History Honor Society, Inc., Phi Alpha Theta, was organized at the University of Arkansas on March 17, 1921. Since that time, it has grown to more than 820 chapters and has initiated more than 275,000 members. The USU chapter was established in 1952.

Membership is open to those students who have completed 12 credits of history courses, with a 3.1 GPA in history coursework. A 3.0 overall GPA is required. Students need not be history majors to become Phi Alpha Theta members.

**Chapter Advisor:** Timothy S. Wolters, Assistant Professor of History, Main 323F, (435) 797-1295, twolters@hass.usu.edu

## Phi Kappa Phi

Phi Kappa Phi is a national honor society, founded in 1897 to recognize and encourage superior scholarship in all academic disciplines. Membership is based upon academic achievement and is proffered to undergraduate and graduate students who obtain a grade point average in the highest 10 percent of those graduating from each college at USU. The national organization awards 50 graduate school fellowships each year to students from throughout the country and sponsors undergraduates for internships and study abroad programs. Each year, the USU chapter also awards two to three scholarships to outstanding juniors and recognizes faculty members for their achievements.

**Chapter Advisor:** Mary E. Leavitt, secretary/treasurer, (director, College of HASS Advising Center), Taggart Student Center 302, (435) 797-3883

## Phi Sigma Iota

Phi Sigma Iota is an international foreign language honor society for juniors, seniors, and graduate students who excel in a foreign language, have a cumulative GPA of 3.0 or higher, and have earned a grade of B or better in a 3000- or 4000-level language course. Copies of transcript must be verified by the chapter advisor.

# National Honor Societies with Chapters at USU

Phi Sigma Iota recognizes outstanding ability and high standards in the fields of foreign language, English as a second language, literature, and culture.

As the highest academic honor in the field of foreign languages, Phi Sigma Iota promotes international communication and understanding, as well as a sentiment of unity among nations. The society also helps students learn about themselves and their cultural heritage as they increase their understanding of other people.

Phi Sigma Iota stands for freedom of mind and democracy of learning. The society stimulates and supports scholarly programs nationwide, and also offers scholarships and graduation honors nationwide. To help members to further their training in foreign languages, the society promotes trips abroad. The USU chapter provides a job and internship list.

**Chapter Advisor:** Sarah Gordon, Assistant Professor of French, Main 002L, (435) 797-8213, sarah.gordon@usu.edu

## Pi Sigma Alpha

Founded in 1920, Pi Sigma Alpha is the national honor society for undergraduate and graduate students of political science. There are now more than 600 chapters established in colleges and universities in the United States, and Pi Sigma Alpha is one of the largest academic honorary societies in the U.S. The USU Alpha Iota Chapter was inaugurated in 1947. The purpose of Pi Sigma Alpha is to stimulate scholarship and interest in the subject of government by providing recognition and benefits to students who have excelled in the field.

**Benefits of Membership.** Membership in an honor society is a worthy distinction in itself, and as a measure of academic achievement can provide a tangible advantage in a competitive world. All members, regular and honorary, receive a certificate of membership and permanent enrollment on the society's membership rolls, maintained by the national office. Members may apply for scholarships for both graduate study in political science and Washington semester programs, as well as for Best Paper awards. Pi Sigma Alpha gives students opportunities for valuable administrative experience as chapter officers or organizers of chapter activities.

**Membership Eligibility.** Minimum standards for admission for juniors and seniors are completion of at least 12 semester credits of work in government, political science, international relations, or public administration, including at least one upper-division course, with a 3.2 GPA.

**Programs.** Pi Sigma Alpha activities are carried on mainly at the chapter level and include presentations by visiting scholars, talks by USU professors, socials, internship and graduate school preparation, service activities, career guidance, best paper competition, and much more.

The Alpha Iota Chapter has been recognized for excellence by the national office. The chapter has received several best chapter awards, as well as the best chapter advisor awards.

**Chapter Advisor:** William L. Furlong, Main 328B, (435) 797-1311, bill.furlong@usu.edu

## Pinnacle

Pinnacle was founded at Murray State University in Kentucky in 1989 for the purpose of recognizing the achievements of adult and nontraditional students. The USU chapter was established that same year, and the first members were inducted in 1990. Initiates must be 26 years of age or older, must have earned an overall USU GPA of 3.0

or higher, and must have been involved in campus and/or community activities. (Membership is open to no more than 15 percent of the junior and senior student population.) Applications are available in the Reentry Student Center.

**Chapter Advisor:** Patricia W. Stevens, director, Reentry Student Center, Taggart Student Center 315, (435) 797-1728

## Psi Chi

Psi Chi is a national honor society whose purpose is to encourage, stimulate, and maintain excellence in scholarship for the individual members in all fields, particularly in psychology, and to advance the science of psychology.

The intrinsic value of membership is rewarding to the achiever, in that recognition of excellence leads to self-fulfillment and thus to self-realization. By recognizing that what they do does make a difference, students are motivated to achieve higher productivity. When shared with others, accomplishments are enjoyed more. Furthermore, the contacts made through Psi Chi will be valuable throughout the student's educational and professional career.

Membership is open to undergraduate students who have completed a minimum of 3 semesters and have registered for major or minor standing in psychology or for a program which is psychological in nature. Undergraduates must rank in the upper 35 percent of their class (sophomore, junior, or senior) in general scholarship. For graduate students, an average grade of *B* or better is required in all graduate courses, including psychology.

**Faculty Advisors:** Melanie Domenech Rodríguez, Associate Professor of Psychology, Education 425, (435) 797-3059, melanie.domenech@usu.edu; Renée Galliher, Associate Professor of Psychology, Education 495, (435) 797-3391, renee.galliher@usu.edu

## Sigma Tau Delta

The central purpose of Sigma Tau Delta, National English Honor Society, is to confer distinction upon students of the English language and literature in undergraduate, graduate, and professional studies. Sigma Tau Delta also recognizes the accomplishments of professional writers who have contributed to the fields of language and literature.

Sigma Tau Delta has more than 600 active chapters, has more than 900 faculty sponsors, and inducts approximately 7,000 members annually. Members of the society have the opportunity to be recognized for their outstanding achievements, enrich their education, and advance their careers through scholarships and publication. Members are also assisted in making career choices.

The Rho Tau chapter was organized at Utah State University in 1996. Membership requires completion of at least three semesters of college coursework, completion of at least two English courses beyond the General Education requirements, and an average grade of *B* or better in English classes.

Further information about Sigma Tau Delta can be found at: <http://www.english.org/sigmatd/>

**Chapter Advisor:** Susan Nyikos, Lecturer, English Department, Ray B. West 103A, (435) 797-0599, susan.nyikos@usu.edu

# Affirmative Action/Equal Opportunity Office

**Director:** David L. Ottley  
**Location:** Military Science 118  
(Enter through the south door)  
**Phone:** (435) 797-1266  
**FAX:** (435) 797-0291  
**E-mail:** carolyn.whelan@usu.edu  
**WWW:** <http://www.usu.edu/aaeo>

The vision statement of the Affirmative Action/Equal Opportunity (AA/EO) Office reads as follows:

*"USU sees an environment in which every individual has an opportunity to learn, work, and contribute, and where full inclusion and respect for all people encourages creativity and productivity. The result will be students, faculty, and staff working together, serving and strengthening our local, national, and global communities."*

In support of this vision, it is the policy of Utah State University to ensure equal educational and employment opportunity regardless of race, color, religion, sex (including sexual harassment and pregnancy), national origin, age, disability, or veteran status. In addition, discrimination based on sexual orientation is prohibited in the hiring of employees or in evaluating employee or student performance.

The AA/EO Office implements federal, state, and University anti-discrimination laws, statutes, and policies, and strives to provide an atmosphere in which students, staff, faculty, and participants in USU-sponsored activities and programs can work, study, and live without fear of illegal discrimination or harassment. It also works to increase access to education and employment for groups that have traditionally faced barriers to opportunities in these areas.

The AA/EO Office focuses on a variety of areas, which include (but are not limited to):

1. Acting as the Title IX and Section 504 Coordinator for the University. This is the responsibility of the AA/EO Director.
2. Receiving, investigating, evaluating, processing, and assisting in the resolution of illegal discrimination and harassment (including sexual harassment) issues and complaints.
3. Providing training on affirmative action, illegal discrimination, harassment (including sexual harassment), valuing diversity and "differences," and other AA/EO-related topics to a variety of audiences, including students, staff, faculty, and community.
4. Developing affirmative action policies, plans, and programs at USU aimed at increasing employment opportunities for underrepresented groups of women, minorities, persons with disabilities, and veterans.
5. Monitoring the representation and status of women and minorities who are prospective or current faculty or staff.

Utah State University is dedicated to providing equal opportunity in education and employment to all students, faculty, staff, applicants, and participants in University programs. Members of the University community, who feel their rights have been violated, want information, or just need some guidance relating to their course of action relating to AA/EO issues, should contact the Affirmative Action/Equal Opportunity Office, located in Military Science 118 (use south entrance), or call (435) 797-1266. Copies of the complete Affirmative Action Program are available in the AA/EO Office. Copies of AA/EO-related policies, including the sexual harassment policy and discrimination complaint policy, are available in the office. Information pertaining to other AA/EO-related laws, policies, and issues at the local (USU), state, and federal levels are also available at the office. These items, along with other information, are also available on the AA/EO Office website at: <http://www.usu.edu/aaeo>



# Assessment

## Director, Office of Analysis, Assessment, and Accreditation:

H. Craig Petersen  
Location: Main 302, UMC 1437  
Phone: (435) 797-0001  
FAX: (435) 797-1680  
E-mail: craig.petersen@usu.edu  
WWW: <http://aaa.usu.edu>

Educational assessment involves gathering and analyzing information about learning activities with the goal of improving academic programs. In essence, assessment is what we do to assure that what we do is what we say we do.

Educational assessment is important for a number of reasons. First, Utah State University is accredited by the Northwest Commission on Colleges and Universities, as well as a number of discipline-specific accreditation bodies. USU must have a credible assessment program to satisfy the requirements of those organizations. Second, by documenting the effectiveness of its educational programs, USU demonstrates accountability of resource use to the USU Board of Trustees, the Utah State Board of Regents, and the Utah State Legislature. Finally and most important, faculty and administrators at USU have an innate curiosity about how well students are educationally prepared to meet the challenges of life. Faculty and administrators also have a strong desire to help USU students by making the institution better. To meet these objectives, the following policy on assessment has been formally approved by the USU Board of Trustees:

*The University is committed to timely internal and external assessment of its programs to assist in productive academic planning and the fulfillment of its mission and goals. To meet this commitment, the University and all of its units shall gather, analyze, and publish data annually that relate to the planning for and evaluation of the accomplishment of the missions, goals, and objectives of the University and its units. Such assessments are intended to determine the extent to which University programs meet their goals and objectives and further the mission of the University; to establish a culture of evidence for assessment; and to meet the standards of the Regents, the Trustees, the Northwest Commission of Colleges and Universities, and USU. The assessment process shall be a continuous process which shall involve faculty and other concerned stakeholders in central roles. Furthermore, assessment results will directly inform planning and other decision-making activities. (USU Policy Manual, 103.7.4)*

There are several aspects of good assessment. The first is that the focus should be on outcomes. The goal is to demonstrate that students actually develop needed competencies and significantly add to their knowledge as a result of attending USU. The second is that evidence derived from multiple sources is preferable to a single measure. The third is that academic units should have flexibility in formulating their assessment plans—"one size does not fit all." Finally, an effective

assessment plan should be structured as a process, rather than as an event. Assessment must be an ongoing activity that contributes to institutional improvement.

Consistent with these guidelines, USU has implemented a comprehensive plan for educational assessment. This plan focuses on the following areas:

- 1. Student Attitudes and Perceptions.** The Office of Analysis, Assessment, and Accreditation (AAA) conducts annual surveys of freshmen/sophomores, graduating seniors, and graduate students. Comparative surveys, such as the National Survey of Student Engagement, are also administered.
- 2. Early to Mid-Program Assessments.** AAA is involved in ongoing analyses to evaluate USU's freshman orientation program, measure improvements in writing and mathematics skills, and determine mastery of content in general education courses.
- 3. End of Program Assessment.** This is the key component of USU's assessment effort. Academic departments have been given the primary responsibility for evaluating the preparation of their graduates. Each department is expected to have an easily accessible and user-friendly assessment website that shows program learning objectives, the relationship between learning objectives and curriculum, outcomes data from several sources that demonstrate the extent to which students are mastering program objectives, a description of the process by which assessment data are used for decision-making, and examples of program changes made as a result of assessment efforts. AAA assists the departments in this endeavor by reviewing departmental progress, recommending changes, and providing "best practices."
- 4. Alumni Satisfaction.** AAA conducts periodic surveys of alumni. Departments also obtain information from alumni through advisory groups and departmental surveys.
- 5. Employment and/or Employer Satisfaction.** AAA conducts surveys of employment and participation in graduate education of recent graduates. At the academic department level, employers are contacted through surveys and/or employer advisory groups to determine the strengths and weaknesses of USU students they have hired.
- 6. Facts and Figures Website.** The USU Facts and Figures website is a virtual "Factbook" that provides a broad range of information about the University. Of particular importance is the USU Performance Dashboard, which shows trends in key areas of institutional performance and serves as a key management information tool for University administrators.

## Administration

### Vice President for Information Technology/

**Chief Information Officer:** M. Kay Jeppesen

**Location:** Main 161C

**Phone:** (435) 797-1134

**FAX:** (435) 797-2646

**E-mail:** [m.k.jeppesen@usu.edu](mailto:m.k.jeppesen@usu.edu)

**WWW:** <http://it.usu.edu/>

### Associate Vice President for Information Services:

Stacie Gomm, Main 161D, (435) 797-8585, [stacie.gomm@usu.edu](mailto:stacie.gomm@usu.edu)

### Associate Vice President for Technology Services:

Eric Hawley, Main 161B, (435) 797-8146, [eric.hawley@usu.edu](mailto:eric.hawley@usu.edu)

The Office of Vice President for Information Technology has the following responsibilities: (1) enhance interaction and feedback by working with students, faculty, and staff to meet their information technology needs, (2) develop information technology systems that support the University, (3) design and maintain a University-wide network backbone, and (4) contribute to the strategic plan and mission of USU.

All questions and requests are welcome and can be met 24 hours per day, seven days per week by calling the IT Service Desk at (435) 797-HELP (4357).

## Core Services

Information Technology (IT) core services include:

1. Database Design and Administration
2. Network Management (router and switch configuration, IP and DNS management, wireless networks)
3. Physical Infrastructure (data center, cable, wiring and telephone services)
4. Security (monitor systems, vulnerability tests, system backups, disaster recovery)
5. Server and System Administration
6. IT Customer Support
7. Project/Business Management (SLAs and MOUs)

## Faculty, Staff, and Student Services

### Aggiemail

Aggiemail is USU's e-mail system for students, alumni, and emeriti. Aggiemail is hosted by Google and provided with the USU brand. Users are allowed only one Aggiemail account at a time. Aggiemail account names are based on preferred name settings in Banner, and Aggiemail passwords are the same passwords that students use to login to Banner. Login to Aggiemail at: <https://aggiemail.usu.edu/>

### Aggies Exchange

Aggies Exchange is USU's enterprise e-mail system for faculty and staff. Aggies Exchange provides calendaring and scheduling capabilities, as well as Web and client access. Accounts can be activated at <http://it.usu.edu/email/>. Login to Aggies Exchange at: <https://owa.usu.edu/>

## Banner

Banner is USU's enterprise data management system and consists of the following components: (1) student information, (2) financial management, (3) human resources, and (4) grant management. The Banner administrative suite provides enterprise resource planning (ERP) and coordinated delivery of data, which allows USU to more efficiently manage institutional business processes and improve performance. In addition, Banner's standards-based authentication helps USU manage the growing number of users who need access. Login to Banner at: <http://banner.usu.edu/>

## Computer Purchasing

USU students, faculty, and staff can obtain quantity discounts on Apple and Dell computers. Apple computer purchases are placed through the USU Bookstore, and Dell computer purchases are placed through the USU Purchasing Office. For more information, visit: <http://it.usu.edu/qd/>

## Computer Labs

The 11 open-access computer labs on campus provide a wide array of software for USU's academic community. To learn more about the labs, lab software, and hours of operation visit: <http://www.usu.edu/computerlabs/>

## Course Development (Blackboard)

Blackboard Vista is a powerful e-learning platform designed to facilitate face-to-face classes and deliver online courses. Instructional designers are available to help faculty identify objectives, use appropriate technology, and develop effective online courses. For more information or help with Blackboard course development, call (435) 797-9506 or visit: <http://it.usu.edu/fact/>

## Desktop/Software Support

IT Service Desk full-time support analysts provide faculty and staff with quick and efficient methods for trouble-shooting and diagnosing technology-related issues. Service-level agreements allow the Service Desk to proactively and consistently manage and maintain departmental desktop computers and printers. The Service Desk also provides one-on-one consultation. For desktop support, call the Service Desk at (435) 797-HELP (4357).

## Hardware Repair/Data Recovery

To help students, faculty, and staff with their computing needs, IT provides a full-service hardware repair facility and data recovery services. The Service Desk is a Dell-certified repair and warranty service center and works with other computer vendors to provide the highest-level service. To learn more about hardware repair and data recovery services, call (435) 797-HELP (4357) or visit: <http://it.usu.edu/hardware/>

## Login and Password Assistance

Service Desk technicians are available to help customers login to e-mail (Aggiemail and Aggies Exchange), Adobe Connect, Banner, Blackboard, and the BlueZone network. For login assistance, call the Service Desk at (435) 797-HELP (4357).

## Multimedia (Video and DVD) Production

Information Technology's Multimedia Production Team provides video/audio editing, DVD authoring, video production, animation, Web conferencing, interactive CD and DVD production, studio production, and format-conversion services. For more information about multimedia production, call (435) 797-0525 or visit: <http://it.usu.edu/mediaproduction/>

# Information Technology

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## **Networking (BlueZone Wired, Wireless, and Wireless Secure)**

BlueZone is the name of the USU Network. Both the wired and wireless networks are referred to as "the BlueZone." To register any computer or device on the BlueZone network, go to:  
<https://bluezone.usu.edu/>

## **Programming and Design**

Information Technology's Programming and Design Team provides custom website and print design services. IT also provides a content management system (ezPlug) and custom Web applications for everything from inventory systems and large-file transfers to custom forms, online photo tours, and FAQ systems. For more information about programming and design services, call (435) 797-9505 or visit:  
<http://it.usu.edu/pad/>

## **Security Cameras**

As the need for security increases, Information Technology is on hand to install CCTV security cameras. CCTV security cameras are equipped with the latest digital video surveillance technology and record video to the central server around-the-clock. Departments can observe the videos and monitor traffic from anywhere there is a network connection. For more information about CCTV security cameras, call (435) 797-4321.

## **Server Hosting (Physical and Virtual)**

IT offers physical and virtual hosting services. Physical hosting services include IT provided rack space, UPS, cooling, network port, and cable and remote KVM (keyboard, video, and mouse) control for departmental servers. With virtual hosting, departments can have servers up-and-running within 24 hours. Virtual hosting services include on-demand capacity and automated recovery. Both services (physical and virtual hosting) result in cost savings for departments. Call (435) 797-2414 for more information about physical hosting services, and (435) 797-3333 for more information about virtual hosting services.

## **Service Desk/Help Desk**

The IT Service Desk is available to assist with technology-related issues and is equipped to handle any IT support request. The Service Desk is an Apple, Dell, and Sony certified warranty repair and support center. Technicians are certified to work on almost any Apple, Dell, or Sony component and will provide service for most computer systems. The Service Desk is centrally located on campus in the Janet Quinney Lawson (JQL) Building, directly across from the Emma Eccles Jones Education Building. For more information or assistance, call (435) 797-HELP (4357) or visit: <http://it.usu.edu/servicedesk/>

## **Smart Classrooms**

Information Technology designs, installs, and maintains smart classrooms for instructional use. To schedule faculty training, call (435) 797-6666. For more information about smart classrooms, visit:  
<http://it.usu.edu/classrooms/status/>

## **Software Store**

Information Technology negotiates with vendors to offer software to University departments at costs below regular educational pricing. A variety of software products are available for purchase. View software titles and pricing, and order online at: <http://software.usu.edu/>

## **Technology Training (Workshops) and Tutorials**

Information Technology offers a variety of online tutorials and workshops tailored to the needs of USU faculty and staff. Hands-on workshops are offered every semester. For more information about technology training and tutorials, call (435) 797-9506 or visit:  
<http://it.usu.edu/fact/>

## **Telephone Services**

From the initial set-up to voice mail, long-distance authorization, calling cards, and equipment repair, Information Technology provides telephone services to USU departments and on-campus student housing. For more information or to report problems, call (435) 797-3335 or the IT Service Desk at (435) 797-HELP (4357).

## **Test Scanning and Grading**

Information Technology provides test scanning and grading services for multiple-choice tests given with ScanTron forms. Scanning is done at the IT Service Desk, which is located in the Janet Quinney Lawson (JQL) Building (north entrance). For more information about test scanning and grading services, call (435) 797-3080 or visit:  
<http://it.usu.edu/facstaff/scantron/>

## **Virtual Private Network**

By creating an encrypted stream between off-campus computers and campus, USU's VPN (Virtual Private Network) server provides a secure, remote connection to the University network. Authorized users can access the University network from anywhere (home, hotel, conference, etc.) with a secure Internet connection. For more information about USU's virtual private network, call (435) 797-HELP (4357) or visit: <http://it.usu.edu/htm/networking/vpn/>

## **Virus Protection/Antivirus Software**

IT has a McAfee site license for all computers (private or University-owned) that connect to the University's network. Find more information and download McAfee virus protection at: <http://it.usu.edu/mcafee/>

# Intercollegiate Athletics

**Athletics Director:** S. Scott Barnes  
**Location:** Dee Glen Smith Spectrum  
**Phone:** (435) 797-1850  
**FAX:** (435) 797-2615  
**E-mail:** scott.barnes@usu.edu  
**WWW:** <http://utahstateaggies.cstv.com/>

## **Senior Associate Athletics Director for External Operations/**

**Senior Women's Administrator:** Jana Doggett  
**Senior Associate Athletics Director, Head Athletics Trainer:**  
Dale Mildenerger  
**Senior Associate Athletics Director, Development:** Kent Stanley  
**Associate Athletics Director, Development:** Kevin Dustin  
**Associate Athletics Director, Academic Services:** Dr. Brian Evans  
**Assistant Athletics Director, Business Manager:** Jeff Crosbie  
**Assistant Athletics Director, Annual Giving:** Tom Hale  
**Assistant Athletics Director, Marketing and Promotions:**  
Jason Herbers  
**Assistant Athletics Director, Media Relations:** Doug Hoffman  
**Assistant Athletics Director, Ticket Operations:** Stephanie Plueard  
**Assistant Athletics Director, Internal Operations:** Scott Randall  
**Special Assistant to the Athletics Director:** Dave Kragthorpe  
**Strength and Conditioning:** Jacob Scharnhorst  
**Equipment Supervisor:** Mike Bair  
**Compliance Director:** Jake Garlock  
**Faculty Representative:** Dr. Kenneth L. White

## **Head Coaches:**

**Basketball (Men's):** Stew Morrill  
**Basketball (Women's):** Raegan Pebley  
**Football:** Gary Andersen  
**Golf:** Dean Johansen  
**Gymnastics:** Jeff Richards  
**Soccer:** Heather Cairns  
**Softball:** Candi Letts  
**Tennis:** Chris Wright  
**Track/Cross Country:** Gregg Gensel  
**Volleyball:** Grayson DuBose

The Intercollegiate Athletics program at Utah State University encourages excellence in academic and athletic performance. The program is designed to develop qualities of leadership, sportsmanship, and individuality, helping each student-athlete realize his or her ultimate capabilities. Utah State's Intercollegiate Athletics operates under the direction of the National Collegiate Athletic Association (NCAA), the Western Athletic Conference (WAC), and Utah State University. The Aggies compete at the NCAA Division I Level in 16 sports, including football, women's soccer, women's volleyball, men's and women's cross country, men's and women's basketball, men's and women's indoor track and field, women's gymnastics, women's softball, men's golf, men's and women's tennis, and men's and women's outdoor track and field.

On July 1, 2005, a new era in Utah State Athletics began with the entrance into the WAC. With this move into one of the top 10 conferences in the country, Aggie fans are extremely excited about the future. During its first three-plus years in the WAC, Utah State has won 10 conference championships, while its student-athletes have earned 382 various all-conference honors. Additionally, USU has led the WAC in academic all-conference honorees in each of the last three years, including 130 during the 2007-08 academic year. USU's student-athletes also traditionally rank among the best in the WAC with an 82 percent graduation success rate and a cumulative 3.04 grade point average.

The basketball team has become a fixture in the NCAA Tournament and has won either a conference regular season title, conference tournament title, or both every year but two during the 2000s. The Aggies have also won 20-plus games and advanced to postseason play in each of the last nine years. USU also claimed its first-ever WAC regular season championship in 2008.

The football team has finished first or second in league play 12 times during its last 30 years of conference play. Three of the top five home attendance seasons have come in the last six years. With the entrance into the WAC, there are increased opportunities for post-season bowl games and added television exposure.

USU's cross country and track teams have been among the conference's best for a number of years, as the men's cross country team has won eight league titles and finished second seven times during the last 17 years. The track teams have claimed 10 league team championships during the last 16 years. Also, since USU joined the WAC, the men's cross country team has won four straight WAC Championships, while the track teams have won two WAC titles.

On the women's side, USU has had success in a number of its sports. The gymnastics program has competed in the NCAA regionals during 26 of the last 31 years and has won five conference championships during the last 17 years.

The Aggie soccer team has made great strides every year since it started the program in 1996 and produced its best season in 2008, as it won its first-ever regular season championship and set school records for overall wins and conference wins.

The track teams continue to have success, as the women's cross country team was the WAC Champion in 2006 and 2008, while the track team won seven consecutive league titles beginning in 1993 in the Big West.

Ten different student-athletes have earned All-American honors in volleyball 16 times, and Elaine Roque and Karolyn Kirby have gone on to successful careers on the pro beach volleyball tour. USU's volleyball team advanced to consecutive NCAA tournaments in 2000 and 2001, and participated again in 2005.

USU reinstated its women's basketball program ahead of the 2003-04 season. The program is quickly maturing into a competitive foe in the WAC.

Academically, Utah State is the leader of the WAC. USU's graduation success rate is above those of the other WAC schools, and "academics first" is stressed in all USU programs.

USU has a strong history of athletic success. Among these successful athletes is Merlin Olsen, who won the Outland Trophy awarded to the nation's top lineman in 1961. Olsen, who was selected into the NFL Hall of Fame, was also an academic All-American. Merlin's brother, Phil, was also an athletic All-American at Utah State and had great success in the NFL.

USU has produced five Olympians and 27 All-Americans in track and field, including former world record holders L. Jay Silvester and Mark Enyeart. Jay Don Blake became USU's first NCAA national champion in golf, winning the national title in 1980 and finishing second the following year.

# Intercollegiate Athletics

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Aggie basketball boasts the legacy of Wayne Estes, an All-American in the early 1960s before his untimely death prior to the conclusion of his senior season, and Jaycee Carroll who was a two-time Associated Press honorable mention All-American and is the school's all-time scoring leader with 2,522 career points.

Three Aggie gymnasts have earned All-American honors and two others have represented their countries in the Olympics and World Championships.

The softball team has produced four All-Americans, including three-time All-American Kelly Smith.

## Facilities

Excellent training and competition facilities are provided in all sports.

E. L. "Dick" Romney Stadium, home of the Aggie football team for more than 30 years, seats 25,513. A state-of-the-art lighting system was installed prior to the 1993 season, and chair-back seating was added ahead of the 1997 season. The 1999 season saw expanded seating, two new scoreboards, and an improved sound system. A new synthetic turf was installed prior to the 2004 season.

The Jim and Carol Laub Athletics-Academics Complex was completed prior to the 2008-09 academic year to meet the academic and athletic needs of all 16 Utah State University intercollegiate sports. The state-of-the-art facility is home to the 11,000 square-foot Dale Mildnerberger Sports Medicine Complex and the Dr. John Worley Sports Medicine Research Center, along with a 7,000 square-foot equipment room. The first floor is also home to the Steve Mothersell Hall of Fame, along with locker rooms for football, women's track and field, softball, and women's soccer. Coaches' offices and conference rooms are located on the second floor, and the academic center is on the third floor with classrooms, computer labs, and tutoring rooms for all 325 Utah State student-athletes.

Basketball, gymnastics, and volleyball are played in the beautiful 10,270-seat Dee Glen Smith Spectrum. A \$1.2 million scoreboard was installed prior to the 2002-03 academic year, and a new playing floor was installed during 2005. Basketball and volleyball practices are held in the Spectrum, while the HPER Building is the practice home for the gymnastics team.

The recently renovated gymnastics practice gym has been labeled as one of the nation's finest, complete with vaulting pits and foam-spring exercise floor.

The \$4.4 million Stan Laub Indoor Training Facility is one of the finest facilities in the nation. The building features a 95-yard football field that is regulation width, as well as a vaulted ceiling that reaches 78 feet high. The building is perfect for off-season conditioning for all of Utah State's sports.

The Nelson Fieldhouse is the home of the Aggie indoor track and field teams. The teams practice on a 200-meter tartan track. For the outdoor season, a recently resurfaced and renovated Ralph Maughan Stadium is the home for the men's and women's track teams.

The women's softball team plays its home games at LaRee and LeGrand Johnson Field, an on-campus facility, for which a large scoreboard, new grass, and a new fence were added ahead of the 2004 season.

The women's soccer team also has a new facility, the Chuck and Gloria Bell Soccer Field, which was built in 2003 and features a two-story press box.

The tennis teams play at the Sports Academy and Racquet Club, one of the finest indoor facilities in the West. The men's golf team practices and plays at the Birch Creek Golf Course and at the Logan Golf and Country Club.

## Scholarships

Utah State offers partial and full scholarships in each of its 16 sponsored sports. A student or prospective student desiring consideration for one of these awards may contact one of the coaches for further information about scholarship applications.

## Registration and Eligibility

Registration for athletic participation in Aggie athletics may be accomplished by contacting any of the coaches or the athletics office. Eligibility for participation is governed by the rules and regulations established by the NCAA, by the Big West Conference, and by Utah State University.

## Scheduling Policy

Utah State's Athletics program works very closely with coaches and schedulers to avoid scheduling of intercollegiate practices and competitions for both men and women at times that conflict with the instructional calendar, particularly during end-of-term examinations.

## Supervision

Supervision and direction for men and women is vested in the Director of Athletics and the Athletic Council, consisting of the President of the University, and members of the faculty, the alumni, and student organizations.

Utah State University is engaged in a broad array of activities designed to facilitate international education and research. Many activities are embedded in departments and colleges. Key University-level offices and points of contact are highlighted below.

## International Education

Key offices associated with international education include the Office of the Interim Vice Provost for International Education, the Office of International Students and Scholars, the Study Abroad Office, the Office of International Cooperative Education and Initiatives, the Office of International Scholarship Programs, the Office of International Program Development, and the USU Intensive English Language Institute. The roles and responsibilities of each of these units are described below.

### Office of the Interim Vice Provost for International Education

The Office of the Interim Vice Provost for International Education, under the Office of the Provost, supports and encourages a wide range of international activities throughout the institution. It directly oversees the Office of International Students and Scholars (OISS), the Study Abroad Office, and the Office of International Scholarship Programs. It assists in University diplomacy with foreign universities and government entities. It coordinates international contracts and educational programs abroad. It is also responsible for assisting students and scholars in obtaining Fulbright grants.

**Interim Vice Provost for International Education:** Edward M. Reeve,  
Industrial Science 108, (435) 797-3642, FAX (435) 797-2567  
**WWW:** <http://www.usu.edu/ia/>

### Office of International Students and Scholars

The Office of International Students and Scholars serves as the primary link between students and local and government agencies around the world. It provides leadership and advisement support for immigration issues and enhances the academic, social, and personal interactions of international students and scholars. A more detailed description of the Office of International Students and Scholars can be found on pages 38-39.

**Director of the Office of International Students and Scholars:**  
Jeannie Pacheco, Taggart Student Center 313, (435) 797-1124,  
FAX (435) 797-3522  
**WWW:** <http://www.oiss.usu.edu/>

### Study Abroad Office

The Study Abroad Office provides USU students with opportunities for study throughout the world, through exchange partner institutions or consortiums, during a semester, academic year, or summer program. This office also provides USU faculty-led programs in international locations worldwide. A more detailed description of the Study Abroad Office can be found on pages 85-86.

**Director of Study Abroad:** Kay Forsyth, Taggart Student Center 311,  
(435) 797-1253, FAX (435) 797-3522  
**WWW:** <http://www.usu.edu/studyabroad/>

### Office of International Scholarship Programs

The International Scholarship Programs office is under the direction of the Interim Vice Provost for International Education. It is designed to provide unique services to international scholarship recipients and the sponsors who provide funds for their studies at Utah State University. The office provides individual support at all levels to scholarship recipients, ensuring that students will have a successful experience at Utah State University, while maintaining the objectives of the scholarship programs.

**International Scholarship Coordinator:** Shelly Hernandez,  
Junction 104, (435) 797-1647, FAX (435) 797-1376

## International Research

### International Program Development Office

The International Program Development Office connects the resources of Utah State University with the international community to address global challenges and opportunities. International program development is under the Office of the Vice President for Research, and provides technical support and assists faculty members interested in implementing collaborative international development projects around the globe. As a land-grant university, USU has long been involved in providing technical assistance and training to various countries around the world. USU has implemented more than 125 major international technical assistance programs and training projects since 1960 having a combined value of more than US \$400 million. Much of USU's experience and development has made the University an international leader in the areas associated with irrigation and water resources; dryland and arid agriculture; livestock production on rangelands; dairy production and processing; management of natural resources; persons with disabilities; institutional building in research, extension, and education; and planning and implementation of skills development programs.

**Associate Vice President for Research—International Program Development:** DeeVon Bailey, Gunshed 105, (435) 797-2300,  
FAX (435) 797-0136, [deevon.bailey@usu.edu](mailto:deevon.bailey@usu.edu)  
**WWW:** <http://internationalresearch.usu.edu/>

## Programs and Resources

### Office of International Cooperative Education and Initiatives

The Office of International Cooperative Education and Initiatives assists University colleges and departments in delivery of USU degree programs abroad, as well as in other collaborative initiatives.

**Director of International Cooperative Education and Initiatives:**  
Li Li, Eccles Conference Center 108, (435) 797-3019,  
FAX (435) 797-8112

### Intensive English Language Institute

As a program in the College of Humanities, Arts, and Social Sciences, the Intensive English Language Institute (IELI) provides international students, residents, and refugees with the English skills and cultural knowledge they need to be successful university students. IELI teaches students seeking degrees at USU, as well as students who want to study English for personal or professional reasons. A more detailed description of the Intensive English Language Institute can be found on page 313.

**Director of the Intensive English Language Institute:**  
Ann E. Roemer, Main 071, (435) 797-2051, FAX (435) 797-4050  
**WWW:** <http://www.usu.edu/ielii/>

# Library

## Merrill-Cazier Library

**Dean of Libraries:** Richard W. Clement

**Location:** Merrill-Cazier Library 250

**Phone:** (435) 797-2631

**FAX:** (435) 797-2880

**WWW:** <http://library.usu.edu>

**Associate Dean for Public Services:**

John A. Elswailer, Jr., (435) 797-2636

**Associate Dean for Technical Services:**

Betty Rozum, (435) 797-2632

**Associate Dean for Special Collections and Archives:**

Bradford R. Cole, (435) 797-8268

**Reference and Instruction Services:** Flora G. Shrode,  
(435) 797-8033

**Collection Development:** Betty Rozum, (435) 797-2632

**Patron Services:** Vicki Read, (435) 797-2914

**Government Documents:** John S. Walters, (435) 797-2683

**Cataloging:** Cheryl H. Adams, (435) 797-2667

**Materials Acquisitions:** Kevin K. Brewer, (435) 797-3961

**Library Systems:** R. Todd Hugie, (435) 797-2638

**Digital Initiatives:** Cheryl D. Walters, (435) 797-2623

**Staff Assistants:**

Trina Shelton, (435) 797-2631

Becky Olson, (435) 797-2639

The Merrill-Cazier Library is a full-service academic library with a mission to connect people with information. A new building, opened Fall Semester 2005, brings all library resources and services under one roof in a single, comprehensive facility. The state-of-the-art library features an inviting, spacious, and comfortable setting for learning. There is a wide variety of study spaces, including more than 35 group study rooms, two digital media suites, an Information Commons with 150 workstations, a café, and ample seating in study lounges and at study tables and carrels. Expansive windows afford patrons an abundance of natural light and great views of Logan Canyon and the surrounding mountains.

The Library is rich in technology and resources. There is wireless connectivity throughout, and laptops are available for check out. The Merrill-Cazier Library features an automated storage and retrieval system (known to users as The BARN), which uses robotics to house and access 600,000 volumes with a capacity for 900,000 more.

The Merrill-Cazier Library maintains an extensive collection of research materials, including more than 650,000 print books and 197,000 electronic books. The Library has more than 35,000 print and electronic journals, as well as 150 electronic databases. As a designated regional depository of government documents, the Library has one of the largest collections of federal/state documents and maps in the intermountain region.

The Library's Special Collections and Archives division provides a significant body of primary source materials, including manuscripts, photographic images, maps, and rare books focusing on art, literature, and the history of the Intermountain West. Collections of particular note include one of the foremost collections of materials pertaining to Jack London, a nationally recognized collection of literary and artistic works relating to the Beat movement in American art and literature, the Prestini Design Collection, and the acclaimed Fife Folklore Archives. Through an on-going project, the Library is making many of its unique and rare materials available as digital collections (see <http://digital.lib.usu.edu/>).

The Library's faculty and staff members are invaluable resources for students, faculty, and researchers. They provide expertise in locating, evaluating, and using information. Librarians routinely work with faculty, selecting the best materials, teaching classes, and consulting about information needed in research.

Among the services provided to connect users with information, the Library offers the following:

1. **Course Reserves/Electronic Reserves.** Faculty members often assign course materials that they have placed "on reserve." The Library makes many of these available online, while others are available on-site for a limited borrowing period.
2. **Information/Research Assistance.** The staff at the Information Commons Desk is ready to serve the information needs of patrons on demand. Patrons can also chat with a librarian online and submit questions by e-mail.
3. **Instruction Services.** Librarians team up with faculty in a wide range of disciplines to teach students about research processes and information sources. Many tutorials and research guides are available online.
4. **Interlibrary Services and Document Delivery.** If the Library does not have a book or journal that a patron needs, the staff can borrow the item from another library. Patrons make their request online; most copies of journal articles are delivered to them electronically.
5. **Library Media Collections.** An extensive collection of video tapes, CDs, DVDs, and other media are available for loan and for viewing on-site.
6. **Peer Mentor Program.** The Peer Mentor Program trains students to assist their fellow students in locating and using information.
7. **Research Consultation.** For personal help or for in-depth assistance with a research question, students and faculty can work individually with a librarian who has expertise in the discipline and in finding and using information.

The Merrill-Cazier Library, in both its physical facility and its services, enhances the experiences of students and faculty alike. As the intellectual center of the University, the Library provides an engaging environment for learning.

# Regional Campuses and Distance Education (RCDE)

## Vice Provost for Regional Campuses and Distance Education:

Ronda R. Menlove

**Location:** Main 114

**Phone:** (435) 797-7198

**FAX:** (435) 797-3880

**E-mail:** ronda.menlove@usu.edu

**WWW:** <http://distance.usu.edu/html/campuses/>

During the past two decades, University faculty and administration have strengthened service to residents through development and delivery of Distance Education academic programs in partnership with University departments. Distance Education provides opportunities for students to complete degrees and receive training via online courses, interactive broadcast, independent study, and face-to-face classes at Regional Campuses. Distance Education provides opportunities for professional and vocational learning in addition to providing lifelong enrichment through social and cultural programs. Persons in all situations and of all ages can access learning opportunities which will increase their knowledge and skills without disrupting their employment or lifestyles.

## Degree and Credit Programs

A large number of people live in communities or areas remote from the University campus and desire to benefit from higher education but cannot come to Logan to attend courses on campus. Courses and degree programs are made available to approximately 50 different communities around the state through on-site faculty, visiting faculty, and via an interactive broadcast system using a variety of technologies. In addition, many courses are available on the Internet.

Off-campus credit courses, which are equivalent in content hours of class instruction and preparation, meet the same requirements as comparable classes offered on the University campus. Programs and classes may meet the requirements for an undergraduate degree, as determined by the individual departments and colleges. They also may meet the requirements for a graduate degree with approval of the School of Graduate Studies. All instructors in credit courses are either members of the regular University teaching faculty officially assigned to the teaching project concerned or nonresident members approved by the head of the department and by the college administration.

The registration fees charged for classes conform to regulations of the Board of Regents. Fees may not be less than the on-campus tuition and may be more if warranted by the additional expense of conducting the class off campus.

## Degrees and Programs Offered

Complete degree and certificate programs can be earned entirely through Regional Campuses and Distance Education (RCDE). Courses offered online are asynchronous, allowing students to coordinate assignments around their schedules, and do not require meeting at a specific place or time. Interactive Broadcast courses are synchronous, meaning that although the instructor and students may be in different locations, they all meet together on a regular schedule, each at a USU Regional Campus, center, or site. Face-to-face courses are taught at regional campuses and selected centers by either faculty members or adjunct faculty members. **Note:** The degrees and programs listed below are *not offered at all sites and locations*. For more information, visit <http://distance.usu.edu/html/campuses/> or call the nearest center.

### Associate Degrees

General Studies—AS

Office Systems Support—AAS

Ornamental Horticulture—AAS

### Bachelor's Degrees

Accounting—BS

Agribusiness—BS

Biology—BS

Business—BS (Dual major and 2nd BS only)

Communicative Disorders and Deaf Education—  
(second bachelor's, online)—BS

Computer Science—BS

Elementary Education—BS

English—BS

Entrepreneurship—BS

Family, Consumer, and Human Development—BS

Family Life Studies—BS (offered online *only*)

History—BS

Interdisciplinary Studies—BS

Psychology—BS

Psychology—BS (online)

Special Education (Mild/Moderate)—BS

### Master's Degrees

Agricultural Systems Technology—MS

Business Administration—MBA

Computer Science—MS, MCS

Electrical Engineering—MS, ME

Elementary Education—MS, MA, MEd

English (Technical Writing)—MS, MA (online)

Family and Human Development—MFHD

Health, Physical Education and Recreation—MS, MEd

Instructional Technology—MS, MEd

Psychology (licensure in school counseling)—MS

Rehabilitation Counseling—MRC

Secondary Education—MS, MA, MEd

Social Work—MSW

Special Education—MS, MEd

### Doctorate Degrees

Education (specialization in Curriculum and Instruction)—EdD

Educational Specialist—EdS

### Minors

Anthropology

English

Family and Human Development

History

Multimedia Development

Psychology

Sociology

### Endorsements and Certificates

Administrative/Supervisory Endorsement

Dietetic Internship Certificate

Distance Learning Endorsement

Education Technology Endorsement

English as a Second Language Endorsement

Gifted and Talented Endorsement

Linguistics Certificate (online)

NEPA Certificate

Ornamental Horticulture Certificate

Reading Endorsement

School Library Media Endorsement

Special Education (Early Childhood) Endorsement

Special Education (Mild/Moderate) Endorsement

Special Education (Severe) Endorsement

Utah Mathematics Endorsement Project



# Regional Campuses and Distance Education (RCDE)

## Degree Requirements

All students majoring in RCDE-administered degrees and programs must satisfy the requirements, provided below. Academic advising regarding these requirements is available in the Office of University Advising, Taggart Student Center 304, and at local RCDE campuses.

## Admission Requirements

When students apply, they need to indicate which campus they would like to attend. When students indicate they would like to attend an RCDE campus or center, they will be identified as RCDE applicants and evaluated for admission. Students who are not seeking degrees, as well as those students who have not been admitted, may enroll in selected courses if they have met the prerequisites for those courses. Students who are admitted through the RCDE matriculation will be evaluated using the following criteria:

1. Students who apply directly through an RCDE site and meet the current USU/college-specific admission criteria will be admitted and matriculated into their specified college according to current policy and procedure.
2. First-time/freshman students who apply directly through an RCDE site/center and **do not** meet the University's criteria will be admitted into the RCDE matriculation if they (a) have an index score of 85 or above or an ACT score of 16 or above, **or** (b) have been out of school for 5 or more years.
3. Students applying to a USU RCDE campus who have previous college experience (readmits/transfer students) and **do not** meet the University's criteria for admission into their requested major will be evaluated through the RCDE matriculation criteria. The criteria for re-admits and transfer students are as follows: (a) have been out of school for at least three years, **or** (b) have a minimum college cumulative GPA of at least 2.0, **or** (c) have previous college experience, including concurrent enrollment credit GPA of 2.0 or above.

Students who have been admitted through RCDE and later determine they want to attend courses on the main campus will be required to **either** complete at least 24 credits with a minimum GPA of 2.5 **or** meet college-specific requirements. When a student meets the major/college-specific criteria, a change of major form must be submitted.

## Associate of Science in General Studies

### Objectives

Students may pursue an Associate of Science degree for any of the following reasons: (1) it may serve as a vehicle to complete the Utah State University General Education requirements, (2) it may enable a student to transfer to another institution, or (3) it may serve as a vehicle to transfer into a four-year degree program. While completing their associate degree, students are encouraged to complete the sophomore-level requirements for their major, so as to facilitate a smooth transition to upper-division courses within their major.

### Graduation Requirements

1. 60 total credits
2. GPA of 2.0 or higher
3. Completion of 30-34 credits in University Studies courses, including:
  - a. 6 credits of Communications Literacy (CL1) and (CL2)
  - b. 3-4 credits of Quantitative Literacy (QL)

- c. fulfillment of Computer and Information Literacy (CIL) requirement, by scoring 70 percent or higher on each of six exams.
  - d. 18-20 credits of Breadth Requirements, including 3 credits in Breadth American Institutions (BAI), 3 credits in Breadth Creative Arts (BCA), 3 credits in Breadth Humanities (BHU), 3-4 credits in Breadth Life Sciences (BLS), 3-4 credits in Breadth Physical Sciences (BPS), and 3 credits in Breadth Social Sciences (BSS). Students are required to take at least two approved courses with a USU prefix.
  - e. 3-4 credits in the Exploration Requirement, fulfilled by completing an additional class chosen from one of the following General Education categories: QL, BAI, BCA, BHU, BLS, BPS, or BSS. This additional class is required *only* for students whose first semester enrolled at USU is Summer Semester 2008 or thereafter.
4. 27-30 credits in an area that will lead to junior-level status
  5. Completion of at least 20 credits earned at USU

## Associate of Applied Science (AAS) in Office Systems Support

The AAS degree in Office Systems Support is available *only* through RCDE. For information about admission requirements, degree requirements, and career opportunities, see the *Office Systems Support AAS Degree* section of this catalog on pages 406-407.

## Independent and Distance Education

**Location:** Eccles Conference Center 102

**Phone:** (435) 797-9700 *or* (800) 233-2137 (toll free)

**WWW:** <http://distance.usu.edu/>

Independent and distance learning advances the University's land-grant mission by taking academics and discovery to a diverse and under-served student population through electronic program and course delivery.

Independent Study courses allow students to reduce scheduling problems and earn college credit without attending campus classes. Independent Study courses are offered on an open-enrollment and semester schedule. Students may register anytime for open-enrollment courses and may take up to one year to complete the courses. Semester schedule courses follow the published dates and deadlines for registration. To request a catalog, call (435) 797-9700 *or* (800) 233-2137. For more information and to request registration for independent and distance education courses, visit: <http://distance.usu.edu/>

### Online Education

Online education allows students to accelerate their academic progress through high-quality interactive courses that fit their busy schedules. Students earn the same college credits working from their home computers as they would if they attended classes on campus. Most online courses are offered on a semester schedule and must be completed during regular USU semesters. For more information and to register for online courses, visit: <http://distance.usu.edu/>

### Interactive Broadcast Classes

Interactive Broadcast classes are available at all campuses and sites across Utah and allow students the opportunity to have a classroom experience with faculty from various USU campuses. Students are able to interact with their instructors and classmates in real time. To accommodate the schedules of students who work full time, many of the courses are available during the evenings.

# Regional Campuses and Distance Education (RCDE)

## Concurrent Enrollment

**Location:** Eccles Conference Center 101

**Phone:** (435) 797-8223

**WWW:** <http://concurrent.usu.edu/>

Concurrent Enrollment is a cooperative program between public and higher education in the State of Utah. It is designed to help high school students who are planning to attend a postsecondary educational institution. Students in this program are eligible to earn high school credits, as well as credits which can be applied toward a college degree. Students completing courses offered as part of this program can receive credit at Utah State University or at another institution in the state, as well as at many out-of-state institutions.

These courses are the same courses as offered on the campus of Utah State University. Although courses are usually limited to 1000-level courses, 2000-level courses may occasionally be offered. Textbooks, testing, attendance, grading, and assignments are equivalent to that used in courses taught at USU, and are approved by each department. Some USU faculty members, as well as departmental-approved part-time faculty, teach in this program. At USU, concurrent enrollment is administered by RCDE.

USU delivers concurrent education in a variety of ways. Although USU often uses its own faculty members to teach concurrent enrollment classes, departmental-approved high school faculty members may be used to teach courses at local high schools. Classes are also offered to a wider audience through the Utah Education Network system, through interactive video conferencing, and through online or internet courses.

In order to become eligible for enrollment in concurrent education courses offered through USU, students should first meet with their high school counselors. Generally, students should be juniors or seniors in high school, and should be in good academic standing. Students should be aware that concurrent education generates a college transcript which will accompany them throughout their college career. Because these courses are academically rigorous, students should ensure they are ready to commit to meeting University standards.

## USU Regional Campuses and Education Centers

### USU Brigham City Regional Campus

**Executive Director:** Andrew Shinkle

265 West 1100 South

Brigham City UT 84302

**Phone:** (435) 734-2277

#### Ogden Education Center (Weber State University campus)

**Phone:** (801) 626-8141

#### Tremonton Education Center

**Phone:** (435) 797-3943

### USU Tooele Regional Campus

**Dean and Executive Director:** Gary S. Straquadine

**Associate Dean:** Martha Archuleta

1021 West Vine Street

Tooele UT 84074

**Phone:** (435) 882-6611

#### Beaver Education Center

**Phone:** (435) 438-2301

#### Delta Education Center

**Phone:** (435) 864-5708

#### Ephraim Education Center

**Phone:** (435) 283-7590

#### Heber Education Center

**Phone:** (435) 863-6630

#### Milford Education Center

**Phone:** (435) 387-2751

#### Nephi Education Center

**Phone:** (435) 623-5119

#### Orem (Utah Valley University campus)

**Phone:** (801) 863-8333

#### Piute Education Center

**Phone:** (435) 577-2901

#### Richfield Education Center

**Phone:** (435) 896-9777

#### Salt Lake City Education Center

**Phone:** (801) 646-5570

#### Wayne Education Center

**Phone:** (435) 836-2662

#### Wendover Education Center

**Phone:** (435) 665-2343

### USU Uintah Basin Regional Campus

**Dean and Executive Director:** Wes Holley

**Associate Dean:** Steve Hawks

Roosevelt Campus

987 East Lagoon 124-9

Roosevelt UT 84066

**Phone:** (435) 722-1744

### Vernal Campus

1680 West Highway 40, #101A

Vernal UT 84078

**Phone:** (435) 789-6100

#### Blanding Education Center (College of Eastern Utah Campus)

**Phone:** (435) 678-8500

#### Castle Dale Education Center

**Phone:** (435) 381-2233

#### Moab Education Center

**Phone:** (435) 259-7432

#### Price Education Center (College of Eastern Utah campus)

**Phone:** (435) 613-5610

### USU Distance Education—Logan and Out-of-State

**Executive Director:** Robert Wagner

Eccles Conference Center 102

5055 Old Main Hill

Logan UT 84322

**Phone:** (435) 797-9700

**Toll-free:** (800) 233-2137

For a complete listing of locations, visit <http://distance.usu.edu/>

# University Advancement

**Vice President for University Advancement:** F. Ross Peterson  
**Logan Office:** Main 101B, (435) 797-1158, FAX (435) 797-1364  
**Salt Lake City Office:** Wells Fargo Center, 299 South Main Street, Suite 220, Salt Lake City UT 84111, (801) 961-1343, FAX (801) 961-1350, ross.peterson@usu.edu

**Associate Vice President for University Advancement:**  
David Driggs  
**Salt Lake City Office:** Wells Fargo Center, 299 South Main Street, Suite 220, Salt Lake City UT 84111, (801) 961-1344, FAX (801) 961-1350, david.driggs@usu.edu  
**Logan Office:** Main 110B, FAX (435) 797-1364

**Associate Vice President for University Advancement:**  
Joan Scheffke, Main 101A, (435) 797-1158, FAX (435) 797-1364, joan.scheffke@usu.edu

**Director of Stewardship Programs:** Joyce Albrecht, Main 101G, (435) 797-1324, FAX (435) 797-1364, joyce.albrecht@usu.edu

**Campaign Manager:** Jeannie Simmonds, Main 101F, (435) 797-3166, FAX (435) 797-1364, jeannie.simmonds@usu.edu

**Director of Research:** Julie Shumway, Main 102, (435) 797-3782, FAX (435) 797-1364, julie.shumway@usu.edu

**Executive Director of the USU Foundation:** Patty Halaufia, Main 102, (435) 797-2053, FAX (435) 797-1364, patty.halaufia@usu.edu

**Director of Annual Giving:** Lee Roderick, Main 101E, (435) 797-2194, FAX (435) 797-1364, lee.roderick@usu.edu

**Associate Director of Annual Giving:** Tonya R. Davis, Main 101D, (435) 797-0967, FAX (435) 797-1364, tonya.davis@usu.edu

**Director of Operations:** April Jensen, Main 106, (435) 797-3583, FAX (435) 797-1364, april.jensen@usu.edu

**Director of Development Publications:** Jared H. Thayne, Main 112C, (435) 797-1153, FAX (435) 797-1364, jared.thayne@usu.edu

**Assistant to the President and Director of Corporate and Foundation Relations:**  
R. Kent Clark, Main 101C, (435) 797-2645, FAX (435) 797-1364, kent.clark@usu.edu

**Executive Director of Public Relations and Marketing:**  
John DeVilbiss, Public Relations and Marketing 207, (435) 797-1358, FAX (435) 797-1250, john.devilbiss@usu.edu

**Assistant Director of Public Relations and Marketing:** Tim Vitale, Public Relations and Marketing 204, (435) 797-1356, FAX (435) 797-1250, tim.vitale@usu.edu

**Executive Director of Alumni Relations:**  
Wallace S. Odd II, David B. Haight Alumni Center, (435) 797-2018, FAX (435) 797-2591, wally.odd@usu.edu

**Associate Director of Alumni Relations:** Cecile Gilmer, David B. Haight Alumni Center, (435) 797-2018, FAX (435) 797-8275, cecile.gilmer@usu.edu

**Director of Alumni Chapters:** Scott Olson, David B. Haight Alumni Center, (435) 797-0931, FAX (435) 797-2591, scott.olson@usu.edu

**Director of Marketing/Development:** Kimberly A. Larson, David B. Haight Alumni Center, (435) 797-8537, FAX (435) 797-2591, kim.larson@usu.edu

University Advancement is the public face of Utah State University, managing the University's relationships with its alumni, friends, and the public. The Advancement Office has three components: the Alumni Association, Public Relations and Marketing, and Development. Alumni Relations' charge is to build and maintain strong connections with its alumni around the globe. Public Relations and Marketing holds responsibility for the public image of the University, telling the University's stories. The Office of Development provides resources for the University by securing private sources of funding.

The Office of Development's responsibility for raising private funds includes every aspect of relationship building, from publishing magazines and newsletters that keep donors connected and informed to ensuring that gifts are stewarded properly and holding celebrations to thank donors for their contributions.

Private gifts to the University augment declining state support and enable the University to build up-to-date facilities, conduct cutting-edge research, create innovative academic programs, and showcase exciting performers and guest speakers. Moreover, private support provides scholarships for deserving students who otherwise would not be able to afford the cost of higher education.

University Advancement provides professional assistance to the Utah State University community in the area of charitable giving. For further information on how to transmit gifts of cash, securities, or in-kind property to the University through a number of tax-friendly strategies, contact University Advancement, Main 101, 1440 Old Main Hill, Logan UT 84322-1440, (435) 797-1158 or toll-free (888) OLD-MAIN (653-6246).

## Development Officers

**College of Agriculture:**  
Mary Lynne Clark, Agricultural Science 214, (435) 797-2208, FAX (435) 797-7470, marylynne.clark@usu.edu

**Jon M. Huntsman School of Business:**  
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McKenzie Rees, (435) 890-0475, FAX (435) 797-3929, mckenzie.rees@usu.edu

**Emma Eccles Jones College of Education and Human Services:**  
Frank Stewart, Education 116, (435) 797-1611, FAX (435) 797-3939, frank.stewart@usu.edu

**College of Engineering:**  
Val Potter, Engineering 413, (435) 797-8012, FAX (435) 797-2769, val.potter@usu.edu

Joseph Jenkins, Engineering 413, (435) 797-7611, FAX (435) 797-2769, joseph.jenkins@usu.edu

**College of Humanities, Arts, and Social Sciences:**  
Ryan Lee Marsh, Main 338, (435) 797-0178, FAX (435) 797-1092, ryan.marsh@usu.edu

Dave Patel, Main 338, (435) 797-7878, FAX (435) 797-1092, dave.patel@usu.edu

**College of Natural Resources:**

Jon Paulding, Salt Lake Office: Wells Fargo Center,  
299 South Main Street, Suite 220, Salt Lake City UT 84111,  
(801) 961-1347, Cell (801) 541-2630, FAX (801) 961-1350,  
jon.paulding@usu.edu

**College of Science:**

Chris Tallackson, Eccles Science Learning Center 245,  
(435) 797-3510, FAX (435) 797-3378, chris.tallackson@usu.edu

**Athletics:**

Kevin Dustin, Spectrum 301, (435) 797-1325, FAX (435) 797-2615,  
kevin.dustin@usu.edu

Kent Stanley, Spectrum 301, (435) 797-2870, FAX (435) 797-2615,  
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**Library:**

Richard W. Clement, Dean, Libraries and Instructional Support,  
Merrill-Cazier Library 250, (435) 797-2687, FAX (435) 797-2880,  
richard.clement@usu.edu

**Utah Public Radio-KUSU:**

Bryan K. Earl, Multimedia and Distance Learning Services 108C,  
(435) 797-3107, FAX (435) 797-3150, bryan.earl@usu.edu

Nora Zambreno, Multimedia and Distance Learning Services 118E,  
(435) 797-9507, FAX (435) 797-3150, nora.zambreno@usu.edu

**Utah Botanical Center:**

David Anderson, Agricultural Science 148, (435) 797-1984,  
FAX (435) 797-8015, david.anderson@usu.edu

**Uintah Basin Campus:**

Rob Behunin, 1680 West Highway 40, #101A, Vernal UT 84078,  
(435) 722-1770, FAX (435) 789-3188, rob.behunin@usu.edu

## University Alumni Association

**President:** Paul D. Parkinson

**Executive Director of Alumni Relations:**

Wallace S. Odd II, David B. Haight Alumni Center, (435) 797-2055 or  
(800) 291-2586, wally.odd@usu.edu

The Utah State University Alumni Association numbers more than 180,000 members. This membership includes all who have attended USU for one semester (or one quarter) or more, or who have served on the staff or faculty of the University.

The mission of the Alumni Association is to promote the interests and welfare of Utah State University, as well as that of USU alumni, students, faculty, staff, and friends.

The governance of the association is vested in the Executive Board. The board is comprised of the president and vice president of the association, the vice president of University Advancement, the president of the Associated Students of USU, the president of the Emeriti, the president of the Young Alumni, the president of the Student Alumni Association, a College Alumni/Development representative, a University faculty representative, the University Athletic Director, the director of Alumni Relations, the immediate past president of the association, and representatives of regional alumni chapters selected by the Council of Chapter Presidents with the approval of the Executive Board.

The Alumni Association is the medium through which former students maintain contact with the University and are served after leaving the campus. Efforts are made to maintain a complete record of every former student throughout life, and his or her accomplishments and progress are recorded. The association maintains alumni volunteers and chapter organizations throughout Utah and in major areas where former students are located. Through the association, former students are kept in contact with each other, and they meet and participate in business and social activities. They likewise assist the University with special projects in their areas.

The Alumni Association takes the leadership in sponsoring such campus events as Homecoming, Founders Day, Distinguished Service Awards, Aggie Family Day, and reunions. The association also provides opportunities for travel through the alumni travel program, and aids in athletic and other school activities.

# University Research

**Vice President for Research:** Brent C. Miller

**Location:** Main 159

**Phone:** (435) 797-1180

**FAX:** (435) 797-1367

**E-mail:** vp.research@usu.edu

**WWW:** <http://research.usu.edu/>

## **Associate Vice Presidents for Research:**

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Joyce A. Kinkead, Main 162, (435) 797-1706,  
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DeeVon Bailey, GUNSHD 105, (435) 797-2300,  
[deevon.bailey@usu.edu](mailto:deevon.bailey@usu.edu)

It is the mission of the Research Office to provide an environment that facilitates and stimulates University-related research, scholarship, and creative activities by: (1) providing leadership to identify and pursue promising research opportunities; (2) providing resources to help recruit and retain outstanding faculty and student scholars; (3) improving research support services that are highly responsive and efficient; (4) fostering a culture of academic research integrity that discloses and manages conflicts-of-interest and conflicts-of-commitment, and that is consistent with federal regulations; and (5) identifying, protecting, and, where appropriate, commercializing intellectual properties for the benefit of authors/inventors, the University, and society.

## **Research Support Units**

**Environmental Health and Safety:** Steven C. Bilbao, (435) 797-2892

**Institutional Review Board:** True M. Rubal-Fox, (435) 797-0567

**Laboratory Animal Research Center:** Aaron L. Olsen,  
(435) 797-8141

**Research Integrity and Compliance:** Russell Price, (435) 797-8305

**Sponsored Programs:** R. David Paul, (435) 797-1226

## **Major Research Committees**

**Biohazards Committee:** Donald F. Smeed, (435) 797-2897

**Chemical Hygiene Committee:** Joan E. McLean, (435) 797-3199

**Human Subjects:** Gretchen A. Gimpel, (435) 797-0721

**Institutional Animal Care and Use Committee:** Mary E. Leavitt,  
(435) 797-3883

**Institutional Biosafety (RDNA) Committee:** John D. Morrey  
(435) 797-2622

**Radiological Safety Committee:** Peter T. Kolesar  
(435) 797-3282

**Research Council:** Brent C. Miller, (435) 797-1180

**University Safety Committee:** Howard M. Deer, (435) 797-1602

## **Research Centers, Institutes, and Laboratories**

**Center for Advanced Nutrition:** David York

**High Performance Computing:** Thomas Hauser

**Innovation Campus:** Ned M. Weinschenker

**International Program Development:** DeeVon Bailey

**Technology Commercialization Office:** Raymond DeVito

**Utah Science, Technology, and Research Initiative (USTAR)**

**Center for Active Imaging and Sensing (CASI):** Robert T. Pack

**Center for Advanced Nutrition (CAN):** David A. York

**Biofuels, Sustainable Energy Research Center (SERC):**

Jeff Muhs

## **College of Agriculture**

**Agricultural Experiment Station:** H. Paul Rasmussen

**Center for Epidemiologic Studies:** Ronald G. Munger

**Center for Integrated BioSystems:** Kenneth L. White

**Center for Profitable Use of Agriculture Byproducts:**

Conly L. Hansen

**Center for Water Efficient Landscaping:** Roger K. Kjelgren

**Institute for Antiviral Research:** John D. Morrey

**Rocky Mountain Dairy Herd Improvement Affiliate:** Jim Nix

**Utah Botanical Center:** William A. Varga

**Utah Climate Center:** Esmail Malek

**Western Dairy Center:** Marie K. Walsh

**Western Region Sustainable Agriculture Research and Education**

**(SARE) Center:** V. Philip Rasmussen

## **Jon M. Huntsman School of Business**

**Management Institute:** Glenn M. McEvoy

**Partners in Business Program:** Ken Snyder

**Shingo Prize for Manufacturing Excellence:** Robert Miller

## **Emma Eccles Jones College of Education and Human Services**

**Center for Open and Sustainable Learning (COSL):** Brett E. Shelton

**Center for Persons with Disabilities (CPD):** M. Bryce Fifield

**Center for the School of the Future (CSF):** Richard P. West

**Early Intervention Research Institute:** Richard N. Roberts

**Emma Eccles Jones Center for Early Childhood Education:**

D. Ray Reutzel

**Mountain Plains Regional Resource Center:** John D. Copenhagen

**National Center for Hearing Assessment and Management**

**(NCHAM):** Karl R. White

**SKI\*HI Institute:** Susan Watkins and Elizabeth C. Dennison

**Speech-Language Hearing Center:** Beth E. Foley

**Young Education Technology Center (YETC):** Nathan M. Smith, Jr.

## **College of Engineering**

**Anderson Center for Wireless Teaching and Research:**

Jacob H. Gunther

**Buried Structures Laboratory:** Marvin W. Halling

**Center for Advanced Thermal Management Technologies:**

Contact Engineering Dean's Office, (435) 797-2021

**Center for Control of Flows in Manufacturing:** Barton L. Smith

**Center for Profitable Uses of Agricultural Byproducts:**

Conly L. Hansen

**Center for Self-Organizing and Intelligent Systems:**

Yangquan Chen

**Center for Space Engineering:** Charles M. Swenson

**Huntsman Environmental Research Center:**

Contact Engineering Dean's Office, (435) 797-2021

**Institute for Natural Systems Engineering:** Thomas B. Hardy

**International Irrigation Center:** Ronald C. Sims

**National Center for Engineering and Technology Education:**

Christine E. Hailey

**Rocky Mountain NASA Space Grant Consortium:** Doran J. Baker  
**Toxic and Hazardous Waste Management:** Ronald C. Sims  
**Utah Local Technical Assistance Program:** Doyt Y. Bolling  
**Utah On-Site Wastewater Training Center:** Judith L. Sims  
**Utah Transportation Center:** Kevin C. Womack  
**Utah Water Research Laboratory:** Mac McKee

## College of Humanities, Arts, and Social Sciences

**Center for International Studies:** R. Edward Glatfelter  
**Institute for Political Economy:** Randy T. Simmons  
**Institute for Social Sciences Research on Natural Resources:**  
Richard S. Krannich  
**Mountain West Center for Regional Studies:** Elaine Thatcher  
**Western Rural Development Center:** John C. Allen

## College of Natural Resources

**Berryman Institute for Wildlife Damage Management:**  
Michael R. Conover  
**Ecology Center:** James A. MacMahon  
**Institute for Outdoor Recreation and Tourism:** Steven W. Burr  
**Geographical Information Systems Remote Sensing Lab:**  
R. Douglas Ramsey  
**Western Center for Monitoring and Assessment of Freshwater Ecosystems:** Charles P. Hawkins

## College of Science

**Center for Atmospheric and Space Sciences:** Robert W. Schunk  
**Intermountain Herbarium:** Mary E. Barkworth

## Utah State University Research Foundation

**Space Dynamics Laboratory:** Douglas Lemon

## State Centers of Excellence

**Advanced Imagery LADAR:** Robert T. Pack  
**Advanced Thermal Management Technologies:** J. Clair Batty  
**Control of Flow in Manufacturing:** Barton L. Smith  
**Pre-Center Business Teams:**  
**eMath Education:** E. Robert Heal  
**Solar Biofuels Technology:** Byard D. Wood  
**Universal Application System:** Adrienne L. Akers, Richard Roberts

## USDA/BLM/ARS

**Bee Biology and Systematics Laboratory:** Rosalind R. James  
**Center for Research on Disturbance Ecology:** Jesse A. Logan  
**Forage and Range Research Lab:** John Watterson  
**National Aquatic Monitoring Center:** Mark R. Vinson  
**Poisonous Plant Lab:** Lynn F. James  
**Predation Ecology Project:** John A. Shivik  
**Western Center for Monitoring and Assessment of Freshwater Ecosystems:** Charles P. Hawkins

## State Labs

**Utah Veterinary Diagnostic Lab:** Thomas J. Baldwin  
**USU Analytical Laboratory (Soil Testing):** Janice Kotuby-Amache  
**USU Plant Pest Diagnostic Lab:** Diane G. Alston

## International Program Development Office

The International Program Development Office connects the resources of Utah State University with the international community to address global challenges and opportunities. International program development is a branch of the Vice President for Research Office. USU's mission states that it aspires to be a "socially and intellectually vibrant campus community, enhanced by the diversity of its faculty, staff, and students." The International Program Development Office is dedicated to fostering USU's goals by encouraging the efforts of faculty and students to be involved in international research program opportunities.

## Undergraduate Research Program

Undergraduate research, scholarship, and creative activity offer Utah State University students unparalleled educational opportunities for hands-on learning, a hallmark of the institution. Students may begin a research track as early as their freshman year, preparing them to compete for prestigious scholarships, such as the Goldwater, Udall, and Rhodes, and for graduate studies. Undergraduate Research and Creative Opportunity (URCO) Grant competitions are held twice annually, in February and October. The Research Office also supports the annual "Research on the Hill" event at the State Capitol, as well as "Student Showcase," the spring celebration of undergraduate research. In addition, students selected to present at the National Conference on Undergraduate Research (NCUR) or the Council on Undergraduate Research (CUR) "Posters on the Hill" competition are also supported. For support of other travel to professional conferences and meetings, the Associated Students of Utah State University (ASUSU) allocates money to eligible undergraduates through the Academic Opportunity Fund.

# School of Graduate Studies

## Graduate General Information

**Dean of School of Graduate Studies:** Byron R. Burnham

**Location:** Main 164

**Phone:** (435) 797-1189

**FAX:** (435) 797-1192

**WWW:** <http://www.usu.edu/graduateschool/>

**E-mail and Informational Links:**

<http://www.usu.edu/graduateschool/contact/>

Graduate programs at USU are supervised by the dean of the School of Graduate Studies, assisted by the Graduate Council. The council consists of the dean, a faculty representative from each of the seven colleges of the University, a representative from the Faculty Senate, the Vice President for Information Technology, and two graduate students. Policies and regulations for graduate work are established by the Graduate Council with the approval of the Faculty Senate.

USU has awarded Master of Science degrees since 1914 and doctoral degrees since 1950. The School of Graduate Studies was formally organized in 1945. Forty of the University's 42 departments participate in graduate degree programs, including several interdepartmental programs. Included are 95 master's programs, 38 doctoral programs, 6 educational specialist programs, 1 engineer degree, and 2 interdisciplinary certificates. Nationally and internationally known scholars and research units participate in and support graduate studies at USU.

The School of Graduate Studies holds memberships in the Council of Graduate Schools in the United States and the Western Association of Graduate Schools.

## Degrees, Majors, and Certificates

Utah State University offers the following graduate degrees:

Master of Accounting (MAcc)  
 Master of Arts (MA)  
 Master of Business Administration (MBA)  
 Master of Computer Science (MCS)  
 Master of Dietetics Administration (MDA)  
 Master of Education (MEd)  
 Master of Engineering (ME)  
 Master of Family and Human Development (MFHD)  
 Master of Fine Arts (MFA)  
 Master of Food Microbiology and Safety (MFMS)  
 Master of Landscape Architecture (MLA)  
 Master of Mathematics (MMath)  
 Master of Music (MM)  
 Master of Natural Resources (MNR)  
 Master of Professional Studies in Horticulture (MPSH)  
 Master of Rehabilitation Counseling (MRC)  
 Master of Science (MS)  
 Master of Second Language Teaching (MSLT)  
 Master of Social Sciences (MSS)  
 Master of Social Work (MSW)  
 Civil Engineer (CE)  
 Educational Specialist (EdS)  
 Doctor of Education (EdD)  
 Doctor of Philosophy (PhD)  
 Doctorate of Audiology (AuD)

Following is a list of the academic areas, or majors, within which degrees are offered and the degree(s) for each:

Accounting.....	MAcc
Agricultural Systems Technology.....	MS
American Studies.....	MA, MS
Animal Science.....	MS, PhD
Anthropology.....	MS
Applied Economics.....	MS
Applied Environmental Geoscience.....	MS
Art.....	MA, MFA
Audiology.....	AuD
Biochemistry.....	MS, PhD
Biological Engineering.....	MS, PhD
Biology.....	MS, PhD
Biometeorology.....	MS, PhD
Bioregional Planning.....	MS
Bioveterinary Science.....	MS, PhD
Business Administration.....	MBA <sup>1</sup>
Chemistry.....	MS, PhD
Civil and Environmental Engineering.....	ME, MS, CE, PhD
Communication.....	MA, MS
Communicative Disorders and Deaf Education.....	MEd, MA, MS, EdS
Computer Engineering.....	MS
Computer Science.....	MS, MCS, PhD
Dairy Science.....	MS
Dietetics Administration.....	MDA
Disability Disciplines.....	PhD
Ecology.....	MS <sup>3</sup> , PhD <sup>3</sup>
Economics.....	MA, MS, PhD
Education.....	EdD <sup>1</sup> , PhD <sup>1</sup>
Electrical Engineering.....	ME, MS, PhD
Elementary Education.....	MEd, MA, MS, EdS
Engineering Education.....	PhD
Engineering and Technology Education.....	MS
English.....	MA, MS
Family and Human Development.....	MFHD
Family, Consumer, and Human Development.....	MS, PhD
Fisheries Biology.....	MS, PhD
Food Microbiology and Safety.....	MFMS
Forestry.....	MS, PhD
Geography.....	MA, MS
Geology.....	MS, PhD
Health, Physical Education and Recreation.....	MEd, MS
History.....	MA, MS
Horticulture, Professional Studies in.....	MPSH
Human Dimensions of Ecosystem Science and Management.....	MS, PhD
Human Environments.....	MS
Human Resources.....	MS
Industrial Mathematics.....	MS
Instructional Technology.....	MEd, MS, EdS, PhD
Irrigation Engineering.....	MS, PhD
Landscape Architecture.....	MLA
Management Information Systems.....	MS
Mathematical Sciences.....	PhD
Mathematics.....	MS, MMath
Mechanical Engineering.....	ME, MS, PhD
Music.....	MM
Natural Resources.....	MNR <sup>1</sup>
Nutrition and Food Sciences.....	MS, PhD
Physics.....	MS, PhD
Plant Science.....	MS, PhD
Political Science.....	MA, MS
Psychology.....	MS, EdS, PhD
Range Science.....	MS, PhD
Recreation Resource Management.....	MS, PhD
Rehabilitation Counseling.....	MRC
Second Language Teaching.....	MSLT
Secondary Education.....	MEd, MA, MS, EdS
Social Sciences.....	MSS <sup>1</sup>
Social Work.....	MSW
Sociology.....	MA, MS, PhD
Soil Science.....	MS, PhD
Special Education.....	MEd, MS, EdS
Statistics.....	MS

Theatre Arts.....	MA, MFA
Theory and Practice of Professional Communication.....	PhD
Toxicology.....	MS <sup>1</sup> , PhD <sup>1</sup>
Watershed Science.....	MS, PhD
Wildlife Biology.....	MS, PhD

## Certificates

National Environmental Policy Act (NEPA)<sup>2</sup>

Natural Resources and Environmental Education (NREE)<sup>2</sup>

<sup>1</sup>Interdisciplinary degree program.

<sup>2</sup>Interdisciplinary certificate program.

<sup>3</sup>The MS and PhD in Ecology are offered within each of the following departments: Biology; Environment and Society; Plants, Soils, and Climate; Watershed Sciences; and Wildland Resources.

## Graduate Financial Assistance

Applications for assistantships, fellowships, and other financial aid should be made through departmental offices.

Along with most graduate schools in the United States, USU is a party to a resolution of the Council of Graduate Schools that establishes April 15 as the deadline for acceptance of offers of financial assistance. If a student accepts an offer before April 15 and then wishes to withdraw, a resignation of the appointment may be submitted in writing at any time through April 15. However, after April 15 a student is not to accept another offer without first obtaining a written release from the institution to which a commitment has been made.

## Graduate Assistantships

Teaching, research, and other graduate assistantships are available in most of the departments of the University. A full-time assistantship is 20 hours per week. In the interest of timely degree completion, graduate students are generally employed by the University for *no more than* 20 hours per week. Employment for more than 20 hours per week must be approved by the student's advisor, degree-program department head, and the graduate dean. Graduate assistants must be full-time, matriculated students. For students employed as graduate assistants, full-time status is based on the full-time equivalent or FTE. A 0.25 to 0.374 FTE requires a student to enroll for 9 graduate-level credits; a 0.375 to 0.50 FTE requires a student to enroll for 6 graduate-level credits (see also *Student Classifications* section, page 113). Graduate assistants must maintain a cumulative grade point average (GPA) of 3.0 or higher for those courses included on their Program of Study. However, if a Program of Study has not been submitted to the School of Graduate Studies, a cumulative GPA is computed using all of the student's coursework at USU since the prior degree. The GPA is checked by the School of Graduate Studies at the end of each semester. If the student has not yet started the graduate program, the cumulative GPA on the last 60 semester credits will be used to determine eligibility as a graduate assistant. Graduate assistants may register for a maximum of 12 credits per semester. However, a research assistant whose assistantship involves his or her thesis or dissertation research may register for additional credits, as explained below.

## Teaching Assistantships/Graduate Instructors

Graduate students may be teaching assistants or graduate instructors in departments. Teaching loads vary up to a maximum of 20 hours per week, and salaries vary depending on the department and the teaching load.

International students may be considered for teaching assistantships if they demonstrate adequate proficiency in English communication, as determined by Utah State University's Intensive English Language Institute, and have participated in the required workshop.

All teaching assistants and graduate instructors are required to participate in a training workshop sponsored by the School of Graduate Studies prior to beginning their assistantships. The workshops help students gain the techniques and skills to be effective instructors in the university environment. The workshop for international students also aids students in understanding the American university culture and in improving communication. When a teaching assistant workshop has been successfully completed, 1 credit will be added to the student's transcript. However, this credit cannot be applied toward a graduate degree program.

## Research Assistantships

Salaries and workloads for research assistants vary, with a maximum workload of 20 hours per week. Students conducting research that will be used for their thesis or dissertation may register for 4 research or thesis credits above the 12-credit limit.

## Federal College Work-Study Assistantships

Graduate students may apply for work-study support by completing an online application at <http://www.fafsa.ed.gov>

## Tuition Award for the Nonresident Portion of the Tuition Fee

A nonresident student who holds *at least* a 0.25 FTE (10 hours per week) graduate assistantship and is receiving at least \$350 per month may be awarded a waiver of the nonresident portion of tuition for courses in the student's degree program. The nonresident tuition award for out-of-state, noninternational students will expire after 12 months. At this point, it is the student's responsibility to obtain Utah residency or other funding, in order to evade the cost of nonresident tuition. For additional information regarding Utah residency requirements, see page 35 in this catalog, or visit:

<http://www.usu.edu/admissions/information/residency.cfm>

Tuition awards *cannot* be used to audit classes. Tuition awards *cannot* be used for coursework below the 5000 level, *unless* the course is on the student's Program of Study or required by the student's supervisory committee, as indicated by a letter from the committee chair.

## Resident Tuition Award for Doctoral Students

A student who is matriculated in a doctoral degree program and is a graduate assistant working *at least* 0.5 FTE (20 hours per week) or a graduate fellow receiving at least \$600 per month may be awarded a resident (instate) tuition award. Full-time registration is required (see page 113). If credits other than those required for the doctoral degree are needed to meet the full-time registration requirement, registration must be for Dept. 7990 (Continuing Graduate Advisement). A doctoral in-state tuition award *cannot* be used to audit classes or for coursework below the 5000 level. Tuition awards *cannot* be used for coursework below the 5000 level, *unless* the course is on the student's Program of Study or required by the student's supervisory committee, as indicated by a letter from the committee chair.

## Tuition Award Application Process

The designated departmental staff must submit an award request to the graduate dean for approval according to the deadlines outlined in the Tuition Awards Policy. The award must be used before the last day for registering or adding classes in the semester for which it was awarded (15th day of classes). The awards are available for a



# School of Graduate Studies

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maximum of 12 credits per semester, with the number of eligible credits indicated on the Program of Study, which must be submitted by the end of the second semester for a master's student and the end of the third semester for a doctoral student. Audited courses do not qualify for the award. Students may receive the employee/spouse/dependent waiver as an employment benefit in conjunction with a tuition award. However, tuition awards will *not* combine with the employment benefit to surpass 100 percent of tuition charges for a given semester. For more information, refer to the Graduate Student Tuition Awards Policy on the School of Graduate Studies website:

<http://www.usu.edu/graduateschool/financial/tuitionwaiverpolicy.cfm>

## Western Regional Graduate Programs (WRGP)

Residents of participating states may enroll in graduate programs approved as Western Regional Graduate Programs (WRGP) by the Western Interstate Commission for Higher Education (WICHE) without paying nonresident tuition. USU's WRGP degrees are the MS and PhD in Biometeorology, Toxicology, and Watershed Science; and the MS in Physics, with a specialization in Upper Atmospheric Physics. Information is available in the School of Graduate Studies or at: <http://wrgp.wiche.edu>

## Fellowships and Scholarships

Fellowship and scholarship awardees must be full-time, matriculated students enrolled in approved graduate-level coursework. Application for these, as well as for departmental fellowships and awards, is made through the departments, except for the Martin Luther King Fellowship and the Dinesh and Kalpana Patel Fellowship (see below).

**Presidential Fellowships** include a \$12,000 stipend for the academic year, a waiver of the nonresident portion of tuition, subsidized health insurance, and for doctoral students, the resident tuition award. Criteria include a 3.50 GPA and quantitative and verbal GRE scores at the 70th percentile or above.

**Vice President for Research Fellowships** include a \$15,000 stipend for the academic year, a waiver of the nonresident portion of tuition, subsidized health insurance, and for doctoral students, the resident tuition award. Criteria are the same as for the Presidential Fellowships. In addition, the student must be in a research degree program that includes a master's thesis or doctoral dissertation.

**Martin Luther King Fellowships** are available to African-American students. The fellowship includes a waiver of the nonresident portion of tuition. The department usually awards an assistantship or other support, the amount of which varies. Application for this fellowship is made through the School of Graduate Studies.

**Dinesh and Kalpana Patel Fellowships** are available to doctoral students who are international students or students from an underrepresented group. The fellowship is typically for \$5,000 and includes a waiver of the nonresident portion of tuition and a doctoral tuition award. Recipients are required to maintain a cumulative GPA of 3.0. Students may not receive this award more than once. Preference will be given to students in the latter stages of their program. Application for this fellowship is made through the School of Graduate Studies.

**Resident Tuition Awards** covering the resident portion of tuition are available each semester on a competitive basis through the departments. Awardees must be full-time matriculated students and must maintain a 3.0 or higher GPA.

**Seely-Hinckley Scholarships** are awarded each year to qualified graduate students with superior academic records. College deans nominate, for the following school year, outstanding scholars who would not be able to attend or would be delayed in attending USU without financial assistance.

## Other Financial Assistance

Many students who do not receive assistantships or fellowships receive financial assistance by working for departments or other campus units. Graduate students are generally not employed by the University for more than 20 hours per week. Employment beyond 20 hours per week must be approved by the student's advisor, degree-program department head, and the graduate dean.

Graduate students may apply for Federal Stafford Loans, Federal Perkins Loans, Federal Supplemental Loans for Students (SLS), Emergency Loans, and Federal College Work-Study through the Financial Aid Office. More information can be found in the *Financial Aid and Scholarship Information* section of this catalog, page 46, or by contacting: Financial Aid Office, Taggart Student Center 106, Utah State University, 1800 Old Main Hill, Logan UT 84322-1800, tel. (435) 797-0173. Also visit the following website: <http://www.usu.edu/finaid/>

For information about **GI Bill Benefits**, contact: Office of Veterans Services, Taggart Student Center 246, Utah State University, 1600 Old Main Hill, Logan UT 84322-1600, tel. (435) 797-1102.

## Graduate Admission

For information concerning admission requirements and application procedures for students desiring to pursue a graduate degree at Utah State University, see the *Graduate Admission* section of this catalog on pages 36-37.

## Graduate General Regulations

Each graduate student is responsible to know the policies, regulations, and procedures of the School of Graduate Studies and of his or her department or program, and to see that they are followed and that the timelines are met. The policies and regulations stated in this catalog and in departmental handbooks may be changed between publication dates, and students are responsible to obtain up-to-date information.

## Time Limit

A master's degree must be completed within six years of matriculation. A doctorate must be completed within eight years of matriculation.

Coursework that is more than eight years old may not be used for a graduate degree. If permitted by the departmental or interdepartmental degree program policy, a supervisory committee may allow revalidation through testing, following a plan developed by the supervisory committee and approved by the dean of the School of Graduate Studies. The results must be verified in writing to the graduate dean by the student's major professor or other person(s) responsible for the testing. Work experience cannot be substituted for out-of-date coursework or used for revalidation.

Graduate credits from another institution that exceed the eight-year limit at the time of degree completion may be transferred to a USU graduate degree only if the student's supervisory committee provides a justification acceptable to the graduate dean. Then, the revalidation procedures described above apply.

## Student Classifications

A **matriculated graduate student** has been accepted by a department, with the concurrence of the dean of the School of Graduate Studies, to an approved graduate degree program and has enrolled at the University. A student may be accepted on a **provisional** matriculation basis when (1) information, such as GRE scores, is yet to be received by the School of Graduate Studies, or (2) when a missing prerequisite or academic deficiency must be remedied. The conditions and time limit for remedying these deficiencies must be specified to the student in writing at the time of admission. If the conditions are not met as specified, the student's participation in the degree program will be terminated. International students cannot be admitted on provisional status.

A **full-time matriculated graduate student** must be one of the following:

1. Registered for 9 or more graduate credits; or
2. Registered for 6 or more graduate credits if employed as a graduate assistant for 15 hours per week or more; or
3. Registered for 3 graduate credits with all required coursework completed and only the research component of the degree remaining (the student's Program of Study must have been submitted to the School of Graduate Studies); or
4. Registered for at least 3 graduate credits during the semester of the final thesis/dissertation defense or, in a nonthesis degree program, the last semester of coursework required on the student's Program of Study.

**Note: To defer a loan or to receive student loans, graduate students must be registered for at least 6 credits.**

A **matriculated-probationary graduate student** has been placed on warned status because of inadequate progress in his or her degree program. The conditions to be met and the time limit for meeting them must be specified to the student in writing at the time he or she is placed on probation. If the conditions are not met as specified, the student's participation in the degree program will be terminated.

Graduate assistants and fellowship recipients must be full-time matriculated students with a GPA of 3.0 or above, and must be registered each semester of the assistantship or fellowship, including summer.

A **nonmatriculated postbaccalaureate student** holds a bachelor's degree, is enrolled for USU coursework, but has not been accepted to a graduate degree program. If an application for graduate studies has been submitted to the School of Graduate Studies, a student may apply through the School of Graduate Studies to enroll as a nonmatriculated student. A letter must be submitted from the graduate department head or graduate program coordinator giving permission for the student to be entered on the computer as a nonmatriculated student. If the student does not intend to pursue a graduate degree, the student should apply to the undergraduate Admissions Office to enroll as a nonmatriculated student. A **maximum of 12 semester credits** earned as a nonmatriculated, postbaccalaureate student may be used in a graduate degree program, but only if approved by the student's supervisory committee.

An international student must be admitted to a degree program and hold a valid F-1 or J-1 visa before enrolling in classes at Utah State University. A student on an F-1 or J-1 visa must maintain full-time student status throughout the degree program. For other information about the University, he or she can contact the International Students and Scholars Office, Utah State University, 0140 Old Main Hill, Logan UT 84322-0140, tel. (435) 797-1124.

## Split Form Policy

An undergraduate student doing well in his or her studies and planning a graduate degree at USU may file a Split Form to request that some coursework be reserved (split out) from the undergraduate degree. The instructor's permission is required for an undergraduate student to register for graduate courses. For a Split Form to be approved, the student must be within 30 semester credits of completing bachelor's degree requirements, have filed an Application for Graduation in the Graduation Office (a copy of which must be attached to the split request), **be currently taking at least one required undergraduate class**, have a cumulative undergraduate GPA of 3.0 or higher at the beginning of the semester listed on the Split Form, and have applied for admission to the School of Graduate Studies. In accordance with School of Graduate Studies admission policy (see pages 36-37), a transitional student will not be matriculated in the School of Graduate Studies until his or her bachelor's degree has been completed. A maximum of 9 semester credits may be split out during a bachelor's program.

A Split Form, which must include one or more required undergraduate courses from the student's Application for Graduation, should be filed in the School of Graduate Studies, along with a copy of the Application for Graduation, before grades are posted for the semester requested to be split. **A Split Form cannot be processed after the bachelor's degree has been closed out and posted on the transcript.** The form must be signed by the undergraduate advisor and the graduate department head or departmental graduate program chair/coordinator before it is submitted to the School of Graduate Studies. If approved by the dean of the School of Graduate Studies, the form will be processed and forwarded to the Graduation Office. Approval of a Split Form does not guarantee acceptance to the School of Graduate Studies.

By default, courses numbered 0010 through 4990 will be posted to an undergraduate transcript; and courses numbered 6000 through 7990 will be posted to a graduate transcript. Courses numbered 5000 through 5990 are generally posted to *either* an undergraduate *or* graduate transcript, based on the primary program level of the student. Therefore, undergraduate students who qualify (under the regulations shown above) to have some of their undergraduate coursework "split out" for a graduate degree will need to submit a form to the Registrar's Office stating which undergraduate courses they desire to have "split out." Students should contact their undergraduate advisor for help with filing the appropriate form. In cases where a graduate student has taken one or more undergraduate-level courses as part of the approved program of study, a form will need to be submitted to the Registrar's Office, requesting that the course(s) be posted to the graduate transcript. Students should contact their graduate advisor for help with filing the appropriate form.

# School of Graduate Studies

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## Course-Level Numbering and Acceptability

**7000-7990** are doctorate-level courses. With supervisory committee and instructor approval, they may be used in a master's program.

**6000-6990** are master's-level courses. With supervisory committee approval, they may be used in a doctoral program.

**5000-5990** are advanced, upper-division courses and may be used in a graduate program if approved by the supervisory committee (see below).

**3000-4990** are junior/senior, upper-division undergraduate courses. Up to 3 semester credits of coursework at this level **may be used** (see below).

No more than 15 semester credits of 3000-5990 level coursework may be used for a graduate degree, except for a doctorate without a master's degree, for which a total of 21 semester credits of 3000-5990 level coursework may be used. Up to 3 semester credits of coursework at the 3000-4990 level may be included within the 15 or 21 semester credit limit, upon recommendation by the student's supervisory committee and approval by the graduate dean. To be approved, such courses must be outside the student's graduate-degree field. Courses that students entering the graduate program are expected to have taken as undergraduates and prerequisites for graduate courses are not acceptable.

**2990 and below** are lower-division courses and are not acceptable for graduate degree programs of study.

**6990 and 7990** (continuing graduate advisement) credits, **INST 7920**, and **IELI 7920** cannot be used in a degree program.

Audited courses may not be used for a degree program or toward status as a full-time student. Credits in the following areas are not acceptable in a degree program: foreign languages, continuing graduate advisement, individual home study, military science, and courses numbered below 3000. No more than 12 workshop credits may be applied to a master's degree.

## Minimum Grades and Credit Acceptability

Graduate students are required to maintain at least a 3.0 GPA for degree-program courses. Grades of C- or lower will not be accepted for a graduate degree. Some departments do not accept C grades.

### P-Grade Policy

P (Pass) will be accepted only for seminars, special problems, interdisciplinary workshops, thesis or dissertation research, and continuing graduate advisement.

### Correspondence Course Credits

Distance Education correspondence (independent home study) courses are not accepted for graduate degrees.

### Credit by Special Examination

Credit earned by special examination cannot be used to satisfy the course requirements for a graduate degree or to meet the residency requirement.

## Transfer and Nonmatriculated Credits

Provided USU residency requirements (see specific credit requirements under each degree) will be met, a student's supervisory committee may recommend transfer of graduate credits earned at another accredited institution, including credits with earned P grades. The credits must *not* have been used for another degree. Only 12 semester credits may be transferred into a graduate program at USU. Credits with P grades may be transferred *only* with committee approval. Transfer credits *cannot replace* required residency credits. Transfer credits are subject to approval of the supervisory committee and the dean of the School of Graduate Studies. Credits more than eight years old may not be acceptable (see *Time Limit* section, page 112). Transfer credits will be shown on official USU transcripts upon completion of the degree. These stipulations apply to nonmatriculated credits.

*No more than 12 credits* taken at USU or another institution *prior to matriculation at USU* may be used in a program of study.

## Rights in Inventions

It is the student's responsibility to be aware of University policy in regard to rights in inventions. (Information is available in the Office of the Vice President for Research.)

## Research Approval

All University research involving human subjects, animal subjects, radiation materials, recombinant DNA, or biohazardous materials must be reviewed and approved by the appropriate University committee(s) **before the research is started**. Graduate students are, with the assistance of their advisors, responsible for obtaining the necessary approval for their research. Verification of approval must be submitted to the School of Graduate Studies before the student's master's Program of Study or doctoral Application for Candidacy can be approved. For further information, contact the School of Graduate Studies or the Office of the Vice President for Research.

## Continuous Graduate Registration

Graduate students using University facilities or faculty time must be registered for a minimum of 3 graduate credits every semester until completion of all degree requirements, except, in some cases, the semester of final thesis or dissertation approval (see below). Students employed as graduate assistants or graduate instructors during all semesters, *except for summer semester*, must be registered as full-time matriculated students (see page 113). More than 3 credits of continuous registration may be required by a department. An off-campus student in a planned Regional Campuses and Distance Education program who is enrolled in a 1- or 2-credit course that is the only course offered locally that semester may be approved by the graduate dean for continuous registration upon written recommendation of the department head. Continuous registration may be met with courses, seminars, independent study, research credit, or 6990 or 7990 (Continuing Graduate Advisement). The continuous registration requirement goes into effect the semester a student matriculates in the School of Graduate Studies.

A graduate student who is not using University facilities or faculty time may meet the continuous registration requirement by paying the **Continuous Registration Fee** of \$100 per semester (not necessary for summer semester). This alternative requires a written request from the department head, including verification that the student is not using University facilities and/or faculty time. International students usually do not qualify to pay the Continuous Registration Fee because of immigration regulations.

The semester a student defends (or redefends) a thesis, Plan B paper, or dissertation or takes final oral examinations, he or she must be registered for at least 3 credits. Doctoral and master's Plan A, Plan B, and Plan C students will be given until the last day of the next semester (known as a "grace" semester) following the defense to finish degree requirements, and Plan C students will be given until the last day of the next semester after coursework completion to finish degree requirements. If a student has not completed all degree requirements by the end of the grace semester, the student must pay a \$100 Late Completion Fee for each semester following the grace semester. If working with faculty involves more than routine submission of the thesis or dissertation to the assistant dean, registration for 3 or more credits is required. After one year, redefense may be required.

Because of SEVIS regulations, a student holding an F-1 or J-1 visa is not eligible to pay the \$100 fee to complete the degree, but must be registered as a full-time student through the semester of completion.

## Leave of Absence

A leave of absence, during which neither continuous registration nor a \$100 payment is required, may be granted under the following conditions:

1. Illness, required military service, and other extenuating circumstances acceptable to the department head and the graduate dean.
2. Lack of availability of courses in a planned Regional Campuses and Distance Education program.
3. Participation in a planned program based primarily on summer semester courses.

For either 2 or 3, the student must have an approved Program of Study on file in the School of Graduate Studies before a leave will be granted.

A leave of absence must be approved by the graduate dean, upon written recommendation of the department head. A leave of absence may be the basis for extending the time limit to complete a degree, but not to extend the time limit for course validity.

## Low-Scholarship Notification

Students whose semester grade point average (GPA) is below 3.0 for any semester will be notified by letter that their academic performance is unsatisfactory. Students whose cumulative GPA falls below 3.0 will be placed on probationary status. If a student remains on probationary status for two consecutive semesters, the School of Graduate Studies will ask the student's department to explain why the student's graduate program should not be terminated. If the department cannot provide compelling reasons explaining why the student should continue graduate study, the student's graduate program will be terminated. In the case of termination, reapplication is required to regain matriculation.

If a student holding a University appointment as a teaching or research assistant or fellow is changed to probationary status, the student will have a grace semester to move from probation. If the student does not move from probation, the assistantship or fellowship will be terminated. If additional time is required to move from probation, the department may formally request an extension.

GPA will be computed using all coursework completed at USU since the prior degree. Upon formal request from the student and department, and once a Program of Study is approved by the student's supervisory committee, department head, and approved by and filed in the School of Graduate Studies, the courses listed on the Program of Study will be used to compute the student's GPA.

## Monitoring of Progress

The student's department and the School of Graduate Studies monitor the progress of graduate students. For continued participation in a graduate program, a student must complete requirements in a timely manner. In reviewing a student's progress, several factors will be considered, including demonstrated ability to develop a thesis proposal, independence in the conduct of research, performance on comprehensive examinations, GPA, and special program requirements. Satisfactory progress also involves maintaining the standards of professional ethics and integrity expected in the student's discipline.

## Academic Nepotism

A faculty member is not to participate in admission or graduate-assistant employment decisions, serve as major professor, or serve on the supervisory committee of a relative, including a person with whom he or she has or has had an amorous relationship. Graduate students may enroll in classes taught by a relative only under special conditions. For information, contact the department head or the School of Graduate Studies.

## Matriculation of Faculty

It is the policy of USU not to grant advanced degrees to its own faculty, except under unusual circumstances (see Faculty Policy 404.1.4).

## Academic Honesty and Research Misconduct

Maintaining the highest standards of academic honesty and research ethics is especially important at the graduate level, where students are expected to do original, scholarly work in preparation for future professional and academic roles. Academic dishonesty is defined in *The Code of Policies and Procedures for Students at Utah State University* (April 2002) Article V, Section 3 (see page 80 of this catalog) to include cheating, falsification of information, and plagiarism.

Violations of the above policy will subject the offender to the University disciplinary procedures as outlined in Article VI, Section 1 of the student *Code*, with the penalties or disciplinary measures to include one or more of the following:

1. **Probation.** Continued participation in an academic program is predicated upon the student satisfying certain requirements as specified by the University. Probation is for a designated period of time and includes the probability of more severe disciplinary penalties if the student does not comply with the specified requirements or is found to be violating the Honor System during the probationary period.

# School of Graduate Studies

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2. **Suspension.** Temporary dismissal from the University for a specified time, after which the student is eligible to return. Conditions for readmission may be specified.
3. **Expulsion.** Permanent dismissal from the University.
4. **Honor System violation.** Assigning a designation with a course grade indicating an Honor System violation involving academic dishonesty.
5. **Denial or revocation of a degree.**
6. **Performance of community service.**

Research is a vital part of the education of most graduate students, and appropriate scientific and research conduct is expected. An allegation of scientific misconduct involving funded research is handled through the Office of the Vice President for Research. If the research is nonfunded, the allegation is handled following *The Code of Policies and Procedures for Students at Utah State University*.

Research misconduct may be determined during a student's program or after the program is completed. If a student is found guilty of research fraud, the penalty may include, in addition to any listed above, correction and reanalysis of data and/or rewriting of the thesis or dissertation, with resubmission and redefinition of the thesis or dissertation, and/or loss of financial assistance.

## Appeals Procedure

Graduate students with grievances relating to academic matters may appeal to the dean of the School of Graduate Studies following the steps and procedures in *The Code of Policies and Procedures for Students at Utah State University*.

## Graduate Degree Requirements

Each graduate student must be aware of degree requirements and must work with his or her major professor, supervisory committee, and department head to meet the requirements and specific deadlines.

## Master's Degrees

When a student is accepted to a master's degree program, the department head appoints a temporary advisor. In most master's degree programs, a supervisory committee will be established for each student. During the first semester following matriculation, the student should meet with the department head to discuss the appointment of a supervisory committee. A completed **Supervisory Committee** form should be submitted by the department head to the dean of the School of Graduate Studies for final approval **by the end of the student's first semester**. Committee changes are not to be made during the six weeks prior to the final defense.

A master's degree supervisory committee must include at least three faculty members who are approved by the department head and the dean of the School of Graduate Studies. At least one member must represent the student's area of specialization, and at least one must be from outside the specialization area. Adjunct faculty can be members with the approval of the dean of the School of Graduate Studies. Upon recommendation of the department head, emeritus faculty may serve on supervisory committees, but may not chair new committees.

Within School of Graduate Studies and departmental requirements, the supervisory committee determines the courses for the student's Program of Study; conducts departmental qualifying examinations (if required); supervises the student's thesis research, Plan B paper, or project; and conducts the defense or final examination. The defense or final examination must be scheduled through the School of Graduate Studies. The major professor, who serves as the chairperson of the committee, usually directs the thesis, paper, or other degree project.

The original **Program of Study** form with signature in ink should be submitted to the School of Graduate Studies by the student **before the end of the second semester following matriculation**. Amendments to the Program of Study form can be made with an e-mail from the major professor to Laura Holley (laura.holley@usu.edu) with copies (in the cc: field) to all committee members. Submission of a new Program of Study is **not** necessary.

### Plan A

The Plan A option for a master's degree requires preparation of a thesis. From 6-15 semester credits of thesis research are required. The semesters during which a student registers for thesis credit should correspond as closely as possible to the semesters in which the thesis work is done and faculty supervision is provided.

The thesis for a Plan A master's degree is to be a contribution to the field of knowledge, based on the student's own research or a treatment and presentation of known subject matter from a new point of view. The student and major professor should decide upon a problem or subject for the thesis study by the end of the student's first semester of graduate study.

A **Thesis Proposal cover page**, signed by the entire committee, should be submitted by the student to the School of Graduate Studies **prior to the final defense**.

The student and all committee members are required to sign a **Data and Copyright** form and a **Plans for Publication** form. The forms are given to the student at his or her final defense and must be submitted to the School of Graduate Studies **prior to degree completion**.

### Plan B

The Plan B option requires the production of a paper or a creative work of art. At least 2 credits of thesis research are required, but no more than 3 credits of thesis credit can be included on the Program of Study.

The Plan B paper is usually a review of literature, with conclusions drawn after conceptualizing an area of inquiry, planning a systematic search, and analyzing and critiquing the acquired information. The summary and conclusions developed should enhance knowledge in the discipline.

Plan B papers and reports should follow the same format specifications as theses and dissertations and are expected to reflect equivalent scholarship standards, even though they may be less intensive and not demand the originality of a Plan A thesis. Plan B papers are defended, but are not reviewed by the School of Graduate Studies assistant dean or signed by the graduate dean. Plan B papers must be submitted to the Merrill-Cazier Library, and the binding receipt must be returned to the School of Graduate Studies.

## Plan C

A master's degree option with no thesis or Plan B paper is available in some programs. A departmentally approved program that includes a culminating creative or integrative experience must be filed in the School of Graduate Studies. Generally, a course or seminar on research methods is required, but thesis credits are not accepted. Plan C students should contact their department early in their final semester to be certain that all degree requirements, including completion of graduation forms, will be met, and that all appropriate paperwork has been sent to the School of Graduate Studies.

## Master of Arts

Requirements for the Master of Arts (MA) degree (except in the Art Department) include two years (equivalent to 16-20 semester credits) of an acceptable second language, which may include American Sign Language, with grades of C or above (unless a higher minimum grade is required by the department), or the equivalent level of learning as determined by testing approved by the supervisory committee and the graduate dean. One year each of two languages, or the equivalent as determined by approved testing, is acceptable if approved by the student's supervisory committee. Coursework to meet this requirement cannot have been used for another degree and cannot be more than eight years old.

Computer languages are not acceptable for the MA degree.

Approved testing procedures include the following:

1. Take and pass (C or above, unless the department requires a higher minimum grade) a language course at the appropriate level (i.e., the final course in a two-year sequence).
2. Take a test given by USU's Languages, Philosophy, and Speech Communication Department or at the BYU Testing Center and be certified for language equivalency for 16 or more semester credits. To obtain information on languages for which tests are available at USU and BYU, as well as to make arrangements for testing, contact the USU Department of Languages, Philosophy, and Speech Communication.
3. Arrange testing at another university center or testing agency approved by the department and the graduate dean.
4. For an international student who is using English as his or her second language, certification of English competency may be demonstrated through any of the following three conditions:
  - (a) either a TOEFL score of 79 (Internet-based) or the equivalent score of 6.0 on the International English Language Testing System (IELTS);
  - (b) successful completion of Intensive English courses; or
  - (c) a degree from a university in an English-speaking country.

The department of the MA degree candidate may also require proficiency in the candidate's primary language.

## Credit Requirement

The minimum requirement for a master's degree is 30 semester credits, except for a Plan C degree for which the minimum is 33 semester credits. For the MEd degree, the minimum number of semester credits is 36. The Master of Fine Arts is regarded as a terminal degree and requires a minimum of 60 semester credits.

## Residency Requirement

At least 24 semester credits for a master's degree must be from a committee-approved and an SGS-approved Program of Study from Utah State University. Furthermore, any allowed transfer credits cannot replace required residency credit.

## Post-Master's Professional Degrees

Three degrees—the Civil Engineer (CE), the Master of Computer Science (MCS), and the Educational Specialist (EdS)—are designed for students who seek to improve their professional skills and knowledge beyond the master's degree. The minimum requirement for each of these degrees is 30 semester credits beyond the master's degree (60 credits beyond a bachelor's degree). Each degree requires a project report that is prepared to the same format specifications as a thesis, but is not reviewed by the School of Graduate Studies assistant dean or signed by the graduate dean.

## Doctoral Degrees

When a doctoral student is admitted, the department head appoints a temporary advisor to work with the student until a supervisory committee is established. A **Supervisory Committee** form must be submitted to the dean of the School of Graduate Studies for approval **by the end of the student's second semester following matriculation**. Committee changes are not to be made during the six weeks prior to the final defense.

A doctoral supervisory committee must include at least five faculty members with doctoral degrees who are approved by the department head and the dean of the School of Graduate Studies. Three members must be from within and at least one must be from outside the department or interdepartmental degree-granting program in which the student is matriculated. Adjunct faculty can serve on doctoral committees with the approval of the dean of the School of Graduate Studies. Upon recommendation of the department head, emeritus faculty may serve on supervisory committees, but may not chair new committees.

The supervisory committee specifies the student's Program of Study; supervises the student's qualifying examination (if there is one) and comprehensive examination, unless some other departmental or program procedure is in place; approves the dissertation proposal and supervises the student's research and preparation of the dissertation; and conducts the final oral examination. The major professor is the chairperson of the committee and usually directs the student's research. Continuation in a doctoral program is contingent upon the availability of a major professor.

By the **end of the third semester**, the student should have submitted a **Program of Study** to the School of Graduate Studies. Amendments to the Program of Study form can be made with an e-mail from the major professor to Laura Holley (laura.holley@usu.edu) with copies (in the cc: field) to all committee members. Submission of a new Program of Study is **not** necessary.

The student and all committee members are required to sign a **Data and Copyright** form and a **Plans for Publication** form. The forms are given to the student at his or her final defense and must be submitted by the student to the School of Graduate Studies **prior to degree completion**.

Some departments or interdepartmental programs administer qualifying examinations. Each department or program has the responsibility of administering comprehensive examinations.

# School of Graduate Studies

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Following completion of all or most courses, successful completion of comprehensive examinations, and approval of a proposal for dissertation research, and **at least three months** before the final defense, the student must submit an **Application for Candidacy** form to the School of Graduate Studies, along with a copy of the dissertation proposal cover page, signed by all members of the supervisory committee. Submission of the candidacy form is a major step in the student's program, because the committee and department head thereby attest that the student is ready to conduct independent dissertation research, although successful completion of that requirement is not guaranteed.

## Credit Requirement

The minimum requirement for a doctoral degree is 60 approved semester credits in addition to a master's degree, or 90 approved graduate semester credits with no master's degree. Coursework cannot be used for more than one degree.

A minimum of 12 dissertation credits is required for a post-master's doctorate and a minimum of 18 for a no-master's doctorate. The semesters during which a student registers for dissertation credit should correspond as closely as possible to the semesters in which the dissertation work is done and faculty supervision is provided.

## Residency Requirement

For the PhD, a minimum of 33 USU semester credits from an approved Program of Study is required. At least three semesters, two of which must be consecutive, of full-time registration in residency at USU are required.

At least 24 semester credits for a master's degree must be from a supervisory committee- and SGS-approved Program of Study from Utah State University. Furthermore, any allowed transfer credits cannot replace required residency credit.

For the EdD, a minimum of 39 USU semester credits from an approved Program of Study is required. At least three semesters must be full-time registration in residence at USU; none of the semesters need to be consecutive, but two full-time semesters must be taken on campus prior to dissertation credit. Some departments also have language requirements.

## Preparation and Approval of Theses, Plan B Papers, and Dissertations

Before beginning work on a thesis, Plan B paper, or dissertation, a student should obtain the *Publication Guide for Graduate Students*, available online or from the USU Bookstore, and the style manual or journal approved by the supervisory committee and/or department. These documents will guide the student in the proper preparation of his or her manuscript. Theses and dissertations may be prepared in either traditional or multiple-paper format. One article or article-manuscript may **not** be submitted as a thesis or dissertation.

Preparation of a thesis, Plan B paper, or dissertation is the culminating learning experience for a graduate student. The quality of the product, which should represent the student's own best work, is the responsibility of the student. Monitoring the quality of the thesis, Plan B paper, or dissertation and mentoring the student in writing are responsibilities of the major professor, with the assistance of the supervisory committee. Editing by anyone other than the major professor and the supervisory committee should be limited to mechanics, such as spelling and grammar.

Drafts of sections should be submitted periodically to the major professor for critique. Committee members should be consulted, especially on sections that involve their special expertise. Upon request, the School of Graduate Studies assistant dean (in Main 164) will review an early draft for format and style. Students may also attend a thesis workshop. For more information about these workshops, see: [http://www.usu.edu/graduateschool/student\\_resources/workshops.cfm](http://www.usu.edu/graduateschool/student_resources/workshops.cfm)

## Oral Examination and Defense

The final defense should be scheduled by the student after all courses and the thesis, Plan B paper, or dissertation are completed. Changes in the membership of a supervisory committee cannot be made during the six weeks prior to the defense without a written request from the department head and approval of the graduate dean.

At least four weeks prior to the defense, the student shall give a copy of the thesis, Plan B paper, or dissertation to each member of the supervisory committee for approval or corrections. An **Appointment for Examination** form must be completed by the student and committee, indicating approval of the proposed time and place for the examination and defense, and submitted by the student to the School of Graduate Studies a **minimum of ten working days** prior to the exam.

The deadline for completing degree requirements is the last day of the semester. When the defense is scheduled during a semester break, the student must enroll for at least 3 credits the following semester.

No committee member should agree to proceed with a defense until he or she has carefully read and approved the thesis, Plan B paper, or dissertation. If any member of a committee believes that the document is not ready to be defended, he or she should notify the student and major professor and not sign the Appointment for Examination form. The defense should then be rescheduled.

The oral examination of the thesis, Plan B paper, or dissertation is a defense of a final document. Only minor changes, usually editorial, should be required following the defense. If major changes are required, a defense of the revised document should be held.

The chairperson of the examination is appointed by the graduate dean. At the examination, the student defends his or her thesis, Plan B paper, or dissertation and answers questions about the area of specialization. The results of the defense and any additional requirements are recorded on the **Record of Examination Completion** form, which is submitted to the School of Graduate Studies.

All members of the supervisory committee must approve and sign the thesis, Plan B paper, or dissertation. In the event of lack of unanimity, the matter is taken to the dean of the School of Graduate Studies.

Any final examination held without following the proper procedures is invalid. Graduate students failing to complete all degree requirements within one year of a successful defense will be required to redefend. Students must register for at least 3 credits the semester of redefense.

The student is responsible for proofreading the thesis/dissertation and having it read and approved by the department before submitting a final committee-approved and signed copy to the assistant dean in the School of Graduate Studies. The assistant dean will review the paper for proper format and conformity to departmental and School of Graduate Studies standards. The assistant dean will attach a checklist of format, stylistic, and mechanical problems and will mark examples of needed changes on the paper.

Format corrections and required rewriting must be completed before the assistant dean will submit the thesis or dissertation to the graduate dean for approval. The graduate dean examines each thesis and dissertation before approving and signing it. Any thesis or dissertation may be selected for further review by members of the faculty not on the student's supervisory committee or by expert reviewers at other institutions before being accepted by the dean.

The student may reserve a processing date for the thesis/dissertation by completing the appropriate form after the thesis/dissertation defense. The final committee-approved and signed thesis/dissertation should be submitted to the assistant dean by at least the day before the reserved processing date. If a processing date has not been reserved but the student would like to finish by the end of a semester, he or she must submit the final committee-approved and signed thesis/dissertation to the assistant dean at least seven weeks before the last day of the semester. At other times, the signed thesis/dissertation must be submitted at least four weeks prior to anticipated program completion.

## Final Steps

The following forms must be completed and submitted to the School of Graduate Studies before degree requirements are considered completed.

1. **Graduation Fee Payment Form** requires \$15 diploma payment at the Registrar's Office.
2. **Commencement Data Card**
3. **Alumni Card**
4. **Survey of Earned Doctorates**, if a doctoral student

In addition, two copies of the thesis or dissertation must be submitted to Current Periodicals in the Merrill-Cazier Library. The following fees must be paid at this time:

Binding fee for required copy.....	\$15
Binding and processing fee for personal copies* .....	\$15 per copy
Processing and handling fee .....	\$15

\*The student is responsible for verifying that the personal copies are complete and have been copied and/or printed without errors.

An electronic filing fee (paid online to ProQuest) is paid by the student.

The Current Periodicals personnel will provide a paper receipt, which must be submitted to the School of Graduate Studies before the degree is considered completed.

The final committee-approved Plan B paper must be taken to Special Collections in the Merrill-Cazier Library to be microfiched. Special Collections personnel will provide a paper receipt that must be submitted to the School of Graduate Studies before the degree is considered completed. (A processing and handling fee of \$7.50 is required.)

Also, incomplete grades must be removed from the student's record by the major professor using forms provided by the Registrar's Office. For Plan B and C programs, the School of Graduate Studies must receive a letter of completion from the department head or interdepartmental program director. **It is the student's responsibility to ensure that these final steps are taken.**

## Delay of Publication Policy

A thesis or dissertation must not contain material that cannot be disclosed publicly. However, occasionally it is in the University's best interest to delay disclosure of the contents of a thesis or dissertation while patenting and/or commercial development possibilities are investigated or for a period of report review by a funding agency. In such cases, publication of a thesis or dissertation through submission to the Merrill-Cazier Library and to ProQuest (UMI) may be delayed without delaying award of the student's degree. A copy of the publication delay policy, including the procedures for requesting a delay in library submission, may be obtained from the School of Graduate Studies.

## Diplomas and Commencement

Diplomas are prepared by the Registrar's Office at the end of each semester. Degrees are posted to transcripts throughout the year as students complete degree requirements. The actual date of completion is usually the date the thesis/dissertation is taken to the library for binding. The Plan C completion date is the last day of the semester.

During fall and spring semesters, only students completing degrees by the published Commencement deadline dates for a given semester will be included in the official Commencement program, although other students who complete requirements by a later date during the semester, established by the graduate dean, may participate in the graduate Commencement/Hooding ceremony. Their names will be printed in the next Commencement program.

## Graduate Interdepartmental Curricula

### Concurrent Degrees

Students may pursue concurrent master's degrees or concurrent master's and doctoral degrees with the approval of the cooperating departments and the graduate dean.

An application should be submitted for the first degree program. If admission is granted, the student may then apply for a second degree program after submitting a letter from the head of the department to which the student has been admitted. The letter should indicate that the department has no objection to the student applying for the second degree program. To be considered as concurrent degrees, admission to the second degree program must be finalized before the end of the first semester in the first degree.

### Guidelines for Concurrent Master's Degree Programs

In special cases, a student may complete concurrently the requirements for two master's degrees in different departments but with fewer than the total credits required by both programs, provided that the following conditions are met:

1. The student must formally apply and be accepted into both programs by the end of the first semester of the student's graduate program.
2. The chairperson of the student's supervisory committee in each department must also be a member of the other committee.



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3. The supervisory committee, the two department heads, and the graduate dean must approve the Program of Study for each degree.
4. There can be a maximum of 9 credits of overlap in courses between the two degree programs, and **the overlap must be in the elective or broadening courses**. With the allowance of overlapping, a student could thus complete the requirements for both degrees with up to 9 fewer semester credits than the usual minimum total for two degrees.

## Guidelines for Concurrent Doctoral-Master's Degree Programs

In special cases, a student may complete concurrently all requirements for a doctorate and a master's degree in different departments with fewer than the total credits required by both programs, provided that the following conditions are met:

1. The student must formally apply and be accepted into both programs by the end of the first semester of the student's graduate program.
2. The student's doctoral supervisory committee must consist of four members from the doctoral department and two members from the master's department if the student is on a thesis plan. The master's committee must consist of two master's departmental members and the chair of the doctoral committee.

3. The student's supervisory committee, the two department heads, and the graduate dean must approve each Program of Study.
4. There can be a maximum of 15 semester credits of overlap in courses between the two degree programs, and **the overlap must be in the elective or broadening courses**. With the allowance of overlapping, a student could thus complete the requirements for both degrees with a minimum of 75 semester credits, rather than the usual 90-credit minimum.

## Interdepartmental Degrees and Certificates

Several interdepartmental graduate degrees are offered at Utah State University. These include: the Interdepartmental Program in Ecology (MS, PhD), the Master of Business Administration (MBA), the Master of Science in Bioregional Planning, the Interdepartmental Program in Social Sciences (MSS), the Interdepartmental Program in Toxicology (MS, PhD), and the Master of Natural Resources (MNR). Also offered are the following two interdisciplinary certificates: (1) National Environmental Policy Act (NEPA) and (2) Natural Resources and Environmental Education (NREE).

Descriptions of the interdepartmental graduate programs are included alphabetically within the *Instructional Units and Programs* section of this catalog.

**Dean:** Noelle E. Cockett  
**Location:** Agricultural Science 221  
**Phone:** (435) 797-2201  
**FAX:** (435) 797-3268  
**E-mail:** noelle.cockett@usu.edu  
**WWW:** http://www.ag.usu.edu

**Associate Dean for Academic Programs:**

Gary S. Straquadine, Agricultural Science 223A, (435) 797-3521,  
gary.straquadine@usu.edu

**Associate Dean for Research and**

**Director, Agricultural Experiment Station:**

H. Paul Rasmussen, Agricultural Science 225, (435) 797-2207,  
paul.rasmussen@usu.edu

The College of Agriculture includes the following departments:

**Agricultural Systems Technology and Education (ASTE)**

**Animal, Dairy and Veterinary Sciences (ADVS)**

**Applied Economics (APEC)**

**Nutrition and Food Sciences (NFS)**

**Plants, Soils, and Climate (PSC)**

Degrees and curriculum options are listed in the *Instructional Units and Programs* section of this catalog. In addition to programs in the departments, the interdepartmental MS and PhD degrees in Toxicology involve more than one department.

Agricultural science and management is a dynamic, rapidly changing industry. It includes more than farming or producing food and fiber. It embodies all the occupations connected with the research, production, processing, marketing, and distribution of food and fiber products.

With a diversity of occupations, agriculture is the nation's largest industry. Of the 131 million people employed in the United States, about 21 million (16 percent) work in agriculture or an agriculture-related industry. This includes about one-half million scientists who serve agriculture directly or indirectly. The agricultural industry is the biggest buyer, seller, and borrower in the United States; it has the largest investment of any industry.

Today, agricultural science and management offers graduates challenging opportunities in a highly technological and competitive society. Students must be prepared to interact in such a society when they complete their formal education.

The success of various curricula in the College of Agriculture is manifest by the achievements of the graduates. They are setting new standards for agricultural production, processing, and distribution. Locally, nationally, and internationally, graduates are in positions as professional specialists, teachers, researchers, and leaders.

Education in the College of Agriculture includes fundamental science, as well as applied business and technology. Many graduates continue their education for advanced degrees and other specialized education and training.

## Admission Requirements

Undergraduate students accepted in good standing by the University are eligible for admission to the College of Agriculture.

## Facilities and Equipment

The E. G. Peterson Agricultural Science Building houses the administrative offices of the College of Agriculture; the Agricultural Experiment Station; University Extension; the Animal, Dairy and Veterinary Sciences Department; and the Plants, Soils, and Climate Department. The Animal, Dairy and Veterinary Sciences Department personnel are housed in the Agricultural Science Building, the Animal Sciences Building, the Biotechnology Center, the Skaggs Laboratory, the Veterinary Science Building, the South Farm, the Animal Teaching and Research Center, and the Caine Dairy. The Agricultural Systems Technology and Education Department is located in the Agricultural Systems Technology and Education Building. The Family and Consumer Sciences Education faculty and classes are located in the Family Life Building. The Applied Economics Department is housed in the George S. Eccles Business Building. The Department of Nutrition and Food Sciences is housed in the C. A. Ernstrom Nutrition and Food Sciences Building. Some classes and laboratories are located on Agricultural Experiment Station facilities near the campus, where research and teaching interact. Research units located throughout the state provide research opportunities for graduate students and faculty members.

## Curricula in Agriculture

Students may work toward the Bachelor of Science degree in any of the departments of the College of Agriculture.

Preveterinary training is offered in the Department of Animal, Dairy and Veterinary Sciences. Teacher certification can be completed through the Agricultural Systems Technology and Education Department in either Agricultural Education or Family and Consumer Sciences Education.

There are four basic curricula offered by most departments: (1) science, (2) production and sustainability, (3) business and management, and (4) community resource development and technology transfer.

Departmental listings detail the requirements for earning a degree in these curricula.

### Science

Students who choose the science curriculum learn the fundamentals of physical and biological sciences that are significant to agriculture and food science, including biotechnology and genomics. In the basic science courses, students prepare for graduate work and eventually research and teaching careers in the biological and natural sciences. Graduates in science curricula are also prepared to do research or technical work in agriculturally oriented businesses such as farm chemicals, livestock health, feed processing and marketing, crop breeding, water use, and food processing. Science curricula are offered in the Departments of Animal, Dairy and Veterinary Sciences; Nutrition and Food Sciences; and Plants, Soils, and Climate.

### Production and Sustainability

The production and sustainability curriculum is designed to educate students to meet the special demands of today's agriculture. Successful modern agricultural production requires an understanding of the latest scientific knowledge and an ability to apply the information to facilitate change. The production curriculum will satisfy the needs of a student who plans to be involved in sustainable production practices, to be a farm manager, or to work directly with farm operators as a businessman or as a government or farm organization employee. This curriculum is offered in the Departments of Agricultural Systems

# College of Agriculture

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Technology and Education; Plants, Soils, and Climate; and in the animal and dairy science emphasis of the Animal, Dairy and Veterinary Sciences major in the ADVS Department.

## **Business and Management**

The businesses and industries that buy from, sell to, and provide service for people involved in production agriculture are expanding the need for employees educated in agriculture. These enterprises include feed, fertilizer, machinery, and chemical firms that supply the producer's needs, as well as marketing firms that assemble, process, ship, and merchandise agricultural products. Managers of large-scale and small-scale farm enterprises also profit from the kind of education provided by the business curriculum. Students who want to capitalize on their agricultural background while pursuing a business, management, or industrial career should consider the business option. This curriculum is offered in the Departments of Applied Economics; Agricultural Systems Technology and Education; Nutrition and Food Sciences; Plants, Soils, and Climate; and in the animal and dairy science emphasis of the Animal, Dairy and Veterinary Sciences major in the ADVS Department.

## **Community Resource Development and Technology Transfer**

The community resource development and technology transfer curriculum allows for skill advancement in serving communities through teaching, research, entrepreneurship, leadership, and resource management. Family and consumer development is at the core of the community. The Family and Consumer Sciences Education program prepares individuals to lead in this area. Agribusiness management and regional community development will enhance communities, especially rural, agrarian locations. A degree in Agribusiness, Resource and Regional Economics, or Agricultural Systems Technology will position a graduate to lead.

Interdepartmental and intercollege cooperation has and will continue to facilitate the development of various other curricula. Students should not hesitate to inquire about the possibilities of following a curriculum that would allow for special interests. The College of Agriculture

participates in the Interdisciplinary Studies Major (see pages 314-315), which offers flexibility for qualifying students who cannot find an existing degree that meets their needs. Advisors in each department are available and should be consulted for guidance in scheduling classes and in planning careers.

## **Financial Support**

The College of Agriculture and the agricultural industry in the Intermountain West annually sponsor more than 150 scholarships, internships, and assistantships. The college, state and federal agencies, and the local agribusinesses also support many students through internship programs. For further information, contact the College of Agriculture Dean's Office (Agricultural Science 221) and/or individual department offices.

## **Safety and Liability in Classes, Laboratories, and Field Experiences**

Certain classes and laboratories involve a risk of bodily injury or of damage to clothing. Students will take appropriate precautions and wear suitable protective clothing. Some of the risks include handling or being near animals, slick floors or corrals, use of toxic or corrosive substances, and the use of sharp or breakable instruments and power equipment. Students must take safety precautions during demonstrations or work with chemical substances, animal tissues, or operative procedures. Students must assume their own liability protection for travel to and from classes, laboratories, and field trips. The University and its employees assume no liability in the performance of classroom or laboratory instruction or on scheduled field trips, or for other dangerous activities. The student, by voluntarily participating in these classes and activities, agrees to assume the risk and not hold USU or its staff liable.

## **Course Description**

Agriculture (AG), page 496

# Jon M. Huntsman School of Business

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## Director of International Cooperative Education and Initiatives:

Li Li, Eccles Conference Center 108, (435) 797-3019, lili@usu.edu

## Academic Departments

The Huntsman School of Business includes the following academic departments. Information about degrees and curriculum options are listed in the departmental sections of this catalog.

**Accountancy, School of  
Economics and Finance  
Management  
Management Information Systems**

## Interdisciplinary/Huntsman School Programs

The Huntsman School of Business offers the following programs in addition to those offered by academic departments. Detailed descriptions of these programs are provided in this section of this catalog and in the separate *Office Systems Support AAS Degree* (see pages 406-407) and *Master of Business Administration (MBA)* (see pages 194-195) sections.

**Major in Business** (bachelor's degree)  
**Dual Major and Second Bachelor's in Business**  
**Minor in Business**  
**Master of Business Administration (MBA)**  
**Office Systems Support** (Associate of Applied Science Degree)

## Nondegree and Other Programs

A wide variety of seminars and development programs are sponsored by units and academic departments within the Huntsman School of Business. For example, Business Relations operates the Partners in Business program and the Shingo Prize for Operational Excellence. *Partners in Business* provides a forum for the exchange of ideas, strategies, and innovative business practices through low-cost, high-quality management education seminars for working professionals. The program is managed by a staff of dedicated business students under the supervision of the program director. Annual seminars include: Financial Services and Banking, Operational Excellence, Accounting, Customer Service and Marketing, Women in Business, Information Technology, and Human Resources. The *Shingo Prize for Operational*

*Excellence* is an award given to organizations in recognition of world-class business performance achieved through focused improvements in lean business processes. The Shingo Prize is also awarded for research and writing that expands the knowledge and understanding of lean business processes. The Huntsman School sponsors the *Management Institute* as a link between the talents of the faculty and the training needs of leaders in business, industry, and government. The Management Institute focuses on delivering high-quality, custom-designed training and development programs in outdoor experiential learning, indoor experiential learning, and data-based consulting. The *Center for E-Commerce* is a part of the Management Information Systems Department in the Huntsman School of Business. The purpose of the center is to provide educational services within the University and community. The center includes e-commerce education, certification training, project coordination, and interdepartmental research.

## Accreditation

Huntsman School of Business programs in business and accounting are accredited by AACSB International—The Association to Advance Collegiate Schools of Business. AACSB is the premier accrediting association for business and accounting programs.

## Mission

The mission of the Jon M. Huntsman School of Business is to receive top-tier recognition within a global market.

## Vision

As strategic decisions are made within the Jon M. Huntsman School of Business, the faculty and staff aspire to see their investments pay off in the lives of students. Upon graduation, students should be prepared to add immediate value to the organizations where they will work, as well as to assume increasing leadership roles in the organizations and communities where they choose to serve. Graduates of the Huntsman School of Business should have a strong commitment to ethical leadership, a sense of purpose and place engendered by their global vision, an ability to create and leverage value through their understanding of entrepreneurial processes, and a mastery of applied and conceptual analytical frameworks.

## Learning Goals

Regardless of their major, undergraduate Huntsman School of Business students are required to take a common coursework core that includes learning experiences in both general knowledge and skills, as well as management-specific knowledge and skills. Nine specific learning goals drive the curriculum. These goals are:

### Goal 1

Each student can effectively communicate coherent and persuasive written reports and oral presentations.

### Goal 2

Each student can recognize and analyze legal and ethical issues and choose appropriate actions for practical business situations.

### Goal 3

Each student can correctly apply mathematical and statistical techniques appropriate for business analysis.

### Goal 4

Each student can use contemporary information systems and technology in business decision-making.

# Jon M. Huntsman School of Business

## Goal 5

Each student understands the domestic and international economic environment in which business organizations operate.

## Goal 6

Each student can evaluate the financial position of an organization and make appropriate financial decisions from an analysis of the organization's financial information.

## Goal 7

Each student can make appropriate decisions in the creation of value through the production and marketing of goods and services.

## Goal 8

Each student can demonstrate an understanding of individual and group dynamics in organizations, including the use of team building and collaborative behaviors in accomplishment of tasks.

## Goal 9

Each student can conceptualize complex business issues, apply analysis to identify plausible solutions, and communicate findings.

## Assessment

Each of the nine learning goals is monitored and assessed for achievement. Information obtained through the assessment process is used to adjust and modify instructional methods and curriculum design as part of the Huntsman School's continuous improvement effort. Achievement of goals is assessed using both direct and indirect measures. Direct measures include selection of students, course-embedded measurements, and a national achievement test. Indirect measures include student, alumni, and employer surveys, as well as employment and career success of graduates. Specific assessments for the Huntsman School of Business can be found at:

<http://www.huntsman.usu.edu/assessment/index.cfm>

## Honors in Business

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Qualified students in all majors within the Huntsman School of Business may pursue an Honors degree. Upon graduation, the student's transcript will read: *Graduated with Honors in [name of the major]*. Honors students have the privilege of priority registration (registering a week before other students), as well as the privilege of enrolling in special course sections for honors students only. As part of a senior project, they have the opportunity to conduct business research of interest to them. Participating in the business honors program enriches the student's educational experience, gains membership in the USU Honors Program, and enhances opportunities for admission to graduate and professional schools.

## Eligibility for Acceptance

New freshmen with an Admission Index score of 126 or higher will be invited to participate in USU's Honors Program and will be permitted to pursue Honors in Business. Admitted students must maintain a 3.50 minimum GPA in order to remain in the Honors Program. Sophomore, junior, and transfer students may apply or receive more information at the Honors Program Office, Main 15. Additional information can also be found online at: <http://www.usu.edu/honors/>

## Program of Study

Honors in Business requires 15 credits, which may be completed in the following way. If specific honors courses are not taken, then other courses may be substituted upon approval of the Huntsman School of Business honors advisor.

**ECN 1500 (BAI)** Introduction to Economic Institutions, History, and Principles ..... 3  
(taken during the first fall semester)

**ACCT 2010** Survey of Accounting I ..... 3  
(taken during the fall of the second year)

**MGT 3110 (DSS)** Managing People and Organizations ..... 3  
(taken during the spring of the second year)

At least one upper-division course in the major ..... 3 minimum  
(taken under contract)

Supervised Senior Thesis/Project taken under one of the following (depending on major): ACCT 4950, ECN 4950, FIN 4950, MGT 4950, or MIS 4950, (3 credits).

A student may elect to complete an Honors Advanced Internship (BUS 4250) by contract, in lieu of the Senior Honors Thesis/Project. For information about this option, contact Paige F. Geslin, Huntsman School of Business Internship Director, Business 309, (435) 797-2272, [paige.geslin@usu.edu](mailto:paige.geslin@usu.edu).

## Huntsman School of Business Honors Advisor

Christopher Fawson, Senior Associate Dean, Huntsman School of Business, Business 309, (435) 797-2320, [chris.fawson@usu.edu](mailto:chris.fawson@usu.edu).

## Undergraduate Programs

### Admission and Graduation Requirements

#### Freshman Admission

Students may be admitted directly into the Huntsman School of Business as incoming freshmen if they have less than 24 earned post-high school college credits and if all of the following conditions are met: (1) admitted to Utah State University; (2) designated a Huntsman School of Business major on USU application; (3) ACT Composite of 24 or higher; and (4) high school GPA of 3.5 or higher.

#### Non-Freshman and Transfer Admission

USU students and transfer students from other accredited colleges and universities may be admitted directly to any Huntsman School of Business major if they have met the following conditions: (1) admitted to Utah State University; (2) earned 24 or more post-high school college credits with 3.5 GPA or higher; and (3) designated a Huntsman School of Business major on USU application (transfer students) or submitted a Huntsman School of Business application to the Huntsman School of Business Programs and Advising Center (PAC) (USU continuing students).

Students not meeting the above conditions are encouraged to apply. Admission is competitive based on available space in the Huntsman School of Business. Application forms and information are available at the Huntsman School of Business PAC and at: <http://www.huntsman.usu.edu/advising/htm/admission/>

Applications are accepted after (1) passing the University's Computer Information Literacy (CIL) Exam or equivalent; (2) passing the Huntsman School of Business English Usage Exam, or receiving a satisfactory AP, ACT, or SAT score, or receiving a C or better in MIS 2200 or equivalent (information and sample test at: <http://huntsman.usu.edu/htm/students/mis-2200-prerequisite/>); and (3) completion of at least 24 post-high school college credits of coursework, including the pre-business course requirements or equivalent with a grade of C or better. An essay will also be required.

## Pre-Business Course Requirements (13 credits)

Applicants will be ranked according to an Application GPA that is calculated as follows: one-third weight on 13 credits earned in four required courses (ECN 1500, MATH 1100, STAT 2300, and PSY or SOC 1010); one-third weight on last 24 credits earned; and one-third weight on overall GPA. Essays will be evaluated by the admissions screening committee.

Students may not repeat a course *more than twice*, and *may have no more than 10 repeats in total* to earn a degree. (Huntsman School of Business courses are limited to one repeat.)

## Matriculation Requirement and Transfer Limitation

No more than 15 USU Huntsman School of Business credits (ACCT, BUS, FIN, MGT, MIS), numbered 2000 and above, earned as a nonbusiness major (before acceptance into the Huntsman School of Business) can be applied to a Huntsman School of Business degree. More than 15 business credits can be transferred from other accredited institutions. However, additional USU Huntsman School of Business credits added to previously earned transfer business credits may not exceed a combined total of 15. Furthermore, to earn a bachelor's degree in a Huntsman School of Business major, at least 50 percent of the required Huntsman School of Business credits must be earned from coursework taken from the Utah State University Huntsman School of Business.

## Enrollment Restrictions

Admission to the Huntsman School of Business does not ensure access to the courses required for graduation. The following course admission requirements must be met by all USU students:

1. There are no restrictions on 1000-level courses.
2. ACCT 2010, 2020, MGT 2050, and MIS 2200, require as prerequisites at least 15 credits of completed college-level work, an overall GPA (transfer credits included) of at least 2.50, and STAT 1040, or MATH 1030 or 1050. (MATH 1050 or equivalent is required for Huntsman School Majors.) In addition, MIS 2200 requires a passing score on the Huntsman School English Usage Exam or a satisfactory AP, ACT, or SAT score.
3. Most 3000-, 4000-, and 5000-level departmental courses in the Huntsman School are restricted to students admitted to the Huntsman School or another USU major with an overall GPA of at least 2.67.
4. MGT 4880 and 4890 require completion of at least 90 credits for admission, as well as completion of FIN 3400, MGT 3110, 3500, and 3700.
5. Huntsman School courses may be repeated only once.
6. Many Huntsman School courses have prerequisites and other restrictions requiring adherence. Before registering for courses within the Huntsman School, students should refer to course listings in this catalog or consult with their advisor to ensure they have completed the necessary prerequisites.

## University Studies Requirements

All freshmen-level students who enter USU Fall of 1998 and thereafter will be required to meet the University Studies requirements. Students who have received an Associate of Arts/Science degree from a college or university in the Utah System of Higher Education or from a school with which USU or the Huntsman School of Business has an articulation agreement will be considered to have fulfilled the General

Education portion of the University Studies requirements, *but must still complete the Depth Education portion*. It is recommended that all business students visit with an advisor in the Programs and Advising Center, Business 309, to clarify their specific requirements in this area. Additional information about these requirements is available on pages 70-75 of this catalog.

## USU Credits and Business Credits

At least 30 of the last 60 semester credits must be taken from Utah State University, at least 20 of which must be completed in upper-division courses, of which at least 10 credits must be completed in courses required by the student's major. At least 50 percent of the Huntsman School of Business credits required for a Huntsman School of Business degree must be taken from the Utah State University Huntsman School of Business or its departments, which include: School of Accountancy, Economics and Finance, Management, and Management Information Systems.

## Optional P/D+, D, F Grade Restriction

This option (see pages 56-57) is not available for any required courses for majors and minors in the Huntsman School of Business.

## Huntsman School of Business Stop-out Policy

Students having a break in attendance of Huntsman School of Business programs in excess of one year will be subject to the Huntsman School and departmental requirements in effect at the time of their return.

## Graduation

Students must satisfy all University, Huntsman School, and departmental major requirements to be eligible for graduation. Refer to appropriate sections of this catalog for details.

## Major in Business

The Huntsman School of Business administers Bachelor of Science (BS) and Bachelor of Arts (BA) degree programs in business. Because these degree programs require a broad course distribution among the departments of the Huntsman School, they are administered by the Huntsman School, rather than by a specific department. These programs are primarily designed to be offered through the University's Regional Campuses and Distance Education locations. However, students may also satisfy degree requirements by taking equivalent coursework on the Logan campus. Further information is available in the Huntsman School of Business Programs and Advising Center, Business 309, (435) 797-2272.

Students who have been admitted to Utah State University and who have earned *at least* 24 post-high school credits qualify for admission to this major. However, a minimum 2.5 GPA is required for business courses taught at the Regional Campuses and Distance Education locations. An overall 2.50 GPA is required for graduation. On-campus departmental courses at the 3000-, 4000-, and 5000-level are restricted to students who have been admitted to the Huntsman School of Business or another USU major, and who have earned *at least* 40 credits; a minimum 2.67 GPA is typically required for these courses. In order to progress in the program, students must maintain the required GPA level. They must also satisfy all specific prerequisites required for each course.

All students enrolled at USU are required to satisfy the General Education requirements and the University Studies Depth Education requirements of the University, as described on pages 67-75 of this catalog.

# Jon M. Huntsman School of Business

## Business Major Requirements (71 credits)

Coursework in the following three categories must be completed in order to earn a BS or BA degree in Business: **Pre-business, Business Core, and Option Areas.**

### Pre-Business (17 credits)

ECN 1500 (BAI) Introduction to Economic Institutions, History, and Principles .....	3
MATH 1050 (QL) College Algebra .....	4
MATH 1100 (QL) Calculus Techniques .....	3
STAT 2300 (QL) Business Statistics .....	4
PSY 1010 (BSS) General Psychology (3 cr) or	
SOC 1010 (BSS) Introductory Sociology (3 cr) .....	3

### Business Core (36 credits)

ACCT 2010 Survey of Accounting I .....	3
ACCT 2020 Survey of Accounting II .....	3
BUS 3110 (DSS) Management Fundamentals .....	3
BUS 3400 (QI) Finance Fundamentals .....	3
BUS 3500 Marketing Principles .....	3
BUS 3700 Operations Management Fundamentals .....	3
BUS 4880 (CI) Business Strategy .....	3
ECN 2010 (BSS) Introduction to Microeconomics .....	3
ECN 3400 (DSS) International Economics for Business .....	3
MGT 2050 Legal and Ethical Environment of Business .....	3
MIS 2100 Principles of Management Information Systems .....	3
MIS 2200 (CI) Business Communication .....	3

### Option Areas (18 credits)

One of the following three option areas must be selected.

#### Accounting Option

BUS 3010 Intermediate Accounting I .....	3
BUS 3020 Intermediate Accounting II .....	3
BUS 3310 Managerial Cost Accounting .....	3
BUS 3410 Federal Income Tax I .....	3
BUS 4250 Advanced Internship (6 cr) or	
Approved upper-division coursework (6 cr) .....	6

#### Business Information Systems Option

BUS 3330 Essentials of Database Systems .....	3
BUS 3510 Business Programming .....	3
BUS 4050 Selected Topics in Information Systems .....	3
BUS 5100 Systems Analysis and Design and Project Management .....	3
BUS 4250 Advanced Internship (6 cr) or	
Approved upper-division coursework (6 cr) .....	6

#### Management Option

The management option can be satisfied in one of three ways:

1. **18 credits**—12 credits of approved business-subject coursework, plus 6 credits of BUS 4250 (Advanced Internship) or other approved upper-division coursework.
2. **Dual Major**—Must complete *all* requirements for another major outside of the Huntsman School of Business.
3. **Second Bachelor's Degree**—Must have a previously earned bachelor's degree in a nonbusiness subject.

## Dual Major and Second Bachelor's Degree

The Huntsman School offers both a dual major and a second bachelor's degree in business. The course requirements consist of the Pre-Business and Business Core courses listed above in the *Major in Business* section. The first major for a dual major or previous

bachelor's degree for a second bachelor's must be in a subject outside the Huntsman School. For information concerning other dual majors or second bachelor's degrees in specializations (other majors) in the Huntsman School, see departmental sections of this catalog.

## Minor in Business

The Huntsman School offers a minor for non-Huntsman School majors requiring six of the courses listed below. This minor is designed to develop a general background and perspective in business. Completion of this minor will acquaint students with each business discipline. Advisement for the minor in business is through the Huntsman School Programs and Advising Center in Business 309. An overall minimum GPA of 2.50 is required for the six courses. Students are responsible to complete prerequisite courses where applicable. Required courses for the minor in business include ACCT 2010; BUS 3400 or FIN 3400 or PFP 3460; BUS 3500 or MGT 3500; BUS 3110 or MGT 3110; and two of the following courses: ACCT 2020, BUS 3700 or MGT 3700, BUS 3100 or MIS 2100, ECN 3400, and MGT 2050.

## Minors in Other Business Subjects

Minors are available in other business subjects, as indicated in departmental sections of this catalog.

## Huntsman School of Business Sponsored Student Organizations

### Business Ambassadors

Student representatives of the Huntsman School. Each year, 12 to 13 ambassadors are selected. These ambassadors assist the dean of the Huntsman School with hosting convocations, breakfasts, tailgate parties, and other events attended by alumni and other prominent business people.

The ambassadors also assist with Huntsman School transfer student recruitment, by traveling with the USU Ambassadors to community colleges and other two-year institutions. In addition, they work with campus advisors to recruit undeclared students.

The main duty of the ambassadors is to ensure that all people who visit the Huntsman School feel welcome. Ambassadors give campus tours and engage visitors in fun and interesting conversation. For additional information, contact Mary Price at [mary.price@usu.edu](mailto:mary.price@usu.edu) or at (435) 797-8328.

### Business Council

Consists of 12 Huntsman School students from various business majors. The main objectives of the council are to listen to students and to take action to implement their ideas within the Huntsman School.

During weekly meetings, the council discusses feedback received from students via the student idea box in the George S. Eccles Business Building. In addition, a representative from the council meets with Huntsman School administrators once per month to ensure faculty members are aware of student opinions and concerns. For more information, contact Jan Lyons at [jan.lyons@business.usu.edu](mailto:jan.lyons@business.usu.edu) or at (435) 797-3722.

### Phi Beta Lambda (PBL)

A national student organization, specifically designed for students seeking a competitive edge in the business world. Benefits of membership in PBL include leadership development, networking contacts, social activities, travel opportunities, and professional conferences. For more information, visit <http://www.usu.edu/pbl/> or contact Paige F. Geslin at [paige.geslin@usu.edu](mailto:paige.geslin@usu.edu) or at (435) 797-2272.

## Other Professional Student Organizations

The following student organizations are sponsored by Huntsman School of Business departments and are available for membership, depending upon student objectives and qualifications.

### American Marketing Association (AMA)

The USU Chapter of the American Marketing Association (AMA) provides interested students with exposure to marketing issues, speakers, networking opportunities, and career advice. The club meets every other week and welcomes all who are excited about the field of marketing. For more information, contact Jan Lyons at [jan.lyons@usu.edu](mailto:jan.lyons@usu.edu) or at (435) 797-3722. An additional contact is Stacey Hills at [stacey.hills@business.usu.edu](mailto:stacey.hills@business.usu.edu) or at (435) 797-8201.

### Association for Computing Machinery and Special Interest Group on E-commerce, Student Chapter (BIS ACM and SIGE-com)

The USU Huntsman School of Business student chapter of the Association for Computing Machinery has joined forces with the Special Interest Group in E-commerce. This alliance enables Management Information Systems majors to begin professional networking and career-enhancing activities. SIGE-com encourages research and acquiring of first-hand experience with advanced applications relating to electronic commerce and the sharing of new ideas and experiences. The group is also dedicated to the advancement of electronic commerce principles and practice. As the leading computing-centric professional organization in the field, SIGE-com seeks to promote the informed development of commerce automation technology, employing the best available engineering methods and economic understanding. For more information, visit <http://www.ususigecom.com/> or contact Jeffrey Johnson at [jeffrey.johnson@usu.edu](mailto:jeffrey.johnson@usu.edu) or at (435) 797-2350. An additional contact is Bernie Lantz at [bernie.lantz@usu.edu](mailto:bernie.lantz@usu.edu) or at (435) 797-2899.

### Beta Alpha Psi

The objective of Beta Alpha Psi is to encourage and recognize scholastic and professional excellence in the accounting profession. Membership includes opportunities for self-development, service, and association among members, faculty, and practicing professionals. Beta Alpha Psi recognizes academic excellence, complements members' formal education, and encourages lifelong growth, service, and ethical conduct. The organization has strict entry requirements, but its members are the most eagerly sought-out by recruiters for the best jobs in accounting. It is appropriate to include the Beta Alpha Psi honor as a resume item for the entire span of one's professional career. For further information, see: <http://www.usu.edu/bap/>

### Beta Gamma Sigma

Founded in 1913 to recognize superior scholarship in business. Provides the highest international recognition a business student anywhere in the world can receive. The USU chapter was established in 1975. Membership is by invitation only and is limited to the top 20 percent of business graduate students, the top 10 percent of seniors with business majors, and the top 7 percent of juniors with business majors. Candidate must have completed one year of study at USU. For more information, contact the Huntsman School of Business Programs and Advising Center (Business 309) at (435) 797-2274.

### CEO Club

The student chapter of the CEO organization develops interaction and networking opportunities for students. The chapter sponsors the campus-wide Entrepreneurship Day, with the renowned Elevator Speech competition each spring. For more information, contact David Herrmann at [david.herrmann@usu.edu](mailto:david.herrmann@usu.edu) or at (435) 797-2287.

### Economics Club

Provides a forum whereby meaningful interaction between professionals, faculty, and students can be fostered. The meetings

provide social contact as well. For more information, contact Tyler Bowles at [tbowles@econ.usu.edu](mailto:tbowles@econ.usu.edu) or at (435) 797-2378.

### Finance Club

Provides opportunities for USU students to learn how to apply their skills and knowledge, while enhancing their resume through participation and leadership activities. Members network with successful business professionals who speak at club meetings. Finance Club members find this knowledge is a necessary and valuable part of their education at Utah State University. For more information, visit <http://www.usu.edu/finance> or contact Jan Lyons at [jan.lyons@usu.edu](mailto:jan.lyons@usu.edu) or at (435) 797-3722.

### Financial Planning Association (FPA)

The Financial Planning Association (FPA) is a national association of financial planning professionals. The FPA student chapter allows students to enjoy all of the benefits of FPA membership at a significantly reduced cost. In addition, student members have opportunities to develop leadership skills, attend informative educational sessions, network with professionals, participate in service activities, and serve as volunteer staff members at state and national meetings of financial planning professionals. For further information, see: <http://www.usu.edu/fpsa/>

### Institute of Management Accountants (IMA)

The Institute of Management Accountants (IMA) is a worldwide organization comprised of management accounting and finance professionals. USU's student chapter of the IMA provides networking and leadership opportunities for students pursuing accounting careers in business entrepreneurship and industry. The local chapter organizes professional meetings, social events, and service events to assist students in developing and advancing their careers through certification, education, networking, and the advocacy of the highest ethical and professional practices. For further information see: <http://www.usu.edu/ima/>

### MBA Association (MBAA)

The MBA Association (MBAA) provides USU students with an opportunity to enhance their professional and academic skills while building their resumes. Club members focus on career attainment and benefit from a forum for networking with faculty, alumni, and employers. The MBAA also works to increase awareness of the USU MBA program and assists the USU Huntsman School of Business in developing an effective curriculum for the MBA program.

### Society for Human Resource Management (SHRM)

Worldwide association of human resource professionals having more than 42,000 members nationally. SHRM covers a wide variety of topics, including compensation, interviews and candidate selection, and occupational safety and training. For more information, visit <http://www.usu.edu/shrm> or contact Al Warnick at [alan.warnick@usu.edu](mailto:alan.warnick@usu.edu) or at (435) 797-2301.

## Scholarships, Fellowships, and Assistantships

A number of scholarships and assistantships are available to Huntsman School of Business students at both the undergraduate and graduate levels. There are also opportunities for employment in research projects and other activities. Assistantships for graduate students are available for both teaching and research. Applications for undergraduate scholarships may be made directly to the Programs and Advising Center, Business 309.

## Course Descriptions

Business (BUS), pages 518-519



# Emma Eccles Jones College of Education and Human Services

**Dean:** Carol J. Strong  
**Location:** Emma Eccles Jones Education 109  
**Phone:** (435) 797-1437  
**E-mail:** shannon.johnson@usu.edu  
**WWW:** <http://www.cehs.usu.edu>

**Associate Dean for Graduation, Educator Licensing, and Accreditation:**  
Francine Fukui Johnson, Education 101, (435) 797-1443,  
[francine.johnson@usu.edu](mailto:francine.johnson@usu.edu)

**Associate Dean for Education Outreach:**  
Michael K. Freeman, Education 114A, (435) 797-1474,  
[michael.freeman@usu.edu](mailto:michael.freeman@usu.edu)

**Associate Dean for Research:**  
James T. Dorward, Education 453A, (435) 797-1471,  
[jim.dorward@usu.edu](mailto:jim.dorward@usu.edu)

**Associate Dean for School of Teacher Education and Leadership:**  
Martha T. Dever, Education 385, (435) 797-2225,  
[martha.dever@usu.edu](mailto:martha.dever@usu.edu)

## Academic Departments and Degrees

The Emma Eccles Jones College of Education and Human Services has the following departments, which offer the degrees shown:

**Communicative Disorders and Deaf Education**—BS, BA, MS, MA, MEd, EdS, AuD

**Family, Consumer, and Human Development**—BS, BA, MS, MFHD, PhD

**Health, Physical Education and Recreation**—BS, MS, MEd

**Instructional Technology and Learning Sciences**—MS, MEd, EdS, PhD

**Psychology**—BS, BA, MS, PhD

**Special Education and Rehabilitation**—BS, BA, MEd, MS, MRC, EdS, PhD

**Teacher Education and Leadership, School of**—BS, BA, MS, MA, MEd, EdS

In addition, the college offers the following degrees:

**Interdisciplinary Studies Major**—BS, BA

**Doctoral Degree (administered by the School of Teacher Education and Leadership)**—EdD, PhD

The Emma Eccles Jones College of Education and Human Services provides preparation programs for prospective teachers, for counselors and other professional personnel in education, and for professionals in the human services area and in corporate settings. Students are urged to refer to the more detailed descriptions of programs, majors, and areas of specialization contained in this catalog.

The Emma Eccles Jones College of Education and Human Services participates in the Interdisciplinary Studies Major (see pages 314-315), which offers flexibility for qualifying students who cannot find an existing degree that meets their needs.

## Accreditation

Utah State University is a member of the American Association of Colleges of Teacher Education and is a candidate member in good standing with the Teacher Education Accreditation Council and accredited by the Utah State Board of Education. Students who are licensed to teach in the State of Utah may qualify for licensure in other states and the District of Columbia. Additional program accreditations include: American Association of Family and Consumer Science,

American Psychological Association, American Speech-Language-Hearing Association, Commission on Accreditation for Marriage and Family Therapy Education, Council on the Education of the Deaf, National Association of School Psychologists, and Council on Accreditation of the National Recreation Park Association.

## University Studies Requirements

All students graduating from the Emma Eccles Jones College of Education and Human Services must complete the USU University Studies requirements (see pages 67-75).

## Admission Requirements to Teacher Education

Students wishing to enter the Teacher Education Program at Utah State University must formally apply for admission and be approved by the Office of the Associate Dean for Graduation, Educator Licensing, and Accreditation as well as by the department where the teaching major is being offered. All applicants are required to submit a record of their ACT scores, pass the Teacher Education Writing Exam, take a speech and hearing test, and have and maintain a 2.75 cumulative GPA. Individual departments may also have additional admission requirements. Students are not permitted to enroll in the teacher education professional core classes prior to being admitted to the Teacher Education Program.

Detailed information about admission to the Teacher Education Program should be obtained from a departmental advisor or from the Office of the Associate Dean for Graduation, Educator Licensing, and Accreditation.

## Teacher Licensing

The Dean of the Emma Eccles Jones College of Education and Human Services is assigned responsibility for the development, approval, and administration of Teacher Licensing requirements for students.

The Emma Eccles Jones College of Education and Human Services currently offers preservice teacher preparation leading to licensure in 34 different areas. In addition, advanced programs leading to professional licensure are available for administrators, supervisors, school counselors, school psychologists, school library media specialists, speech-language pathologists, audiologists, educators of the deaf, and specialists in special education. Training is also available in English as a Second Language (ESL), reading, distance education, gifted and talented education, and middle-level education.

Specific requirements for each license may be obtained from the Office of the Associate Dean for Graduation, Educator Licensing, and Accreditation or from the department in which the major work is offered. All students who desire licensure must complete a criminal background check and must take the Utah State Office of Education approved content test (Praxis II) in their content area.

For the early childhood, elementary, secondary, or special education license, a closely supervised program of student teaching is conducted in selected schools throughout the state. Student teachers are required to pass the Utah State Office of Education approved content test (Praxis II) in their major content area prior to student teaching. Students should be financially prepared to live off campus during the semester selected as their professional semester of student teaching.

# Emma Eccles Jones College of Education and Human Services

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## Dual Licensing

Dual licensing programs are offered in the following areas: early childhood education and deaf education; early childhood education and special education; elementary education and deaf education; elementary education and secondary education; elementary education and special education; and secondary education and special education. A student desiring dual licensure should consult with an advisor in one of the departments within the Emma Eccles Jones College of Education and Human Services early in his or her program. Ordinarily dual licensure will require at least one additional semester of work.

## Facilities

The Emma Eccles Jones College of Education and Human Services Edith Bowen Laboratory School is a functioning elementary school on the University campus, serving as a research, demonstration, and teacher preparation site.

The Center for Early Childhood Education provides educational experiences and resources for teachers and parents that reflect the most current understanding of the social, emotional, physical, and cognitive needs of children in pre-kindergarten, kindergarten, and the primary grades.

The Center for the School of the Future is dedicated to improving the quality and effectiveness of education through identifying, researching, and developing proven educational practices, as well as supporting their dissemination and adoption in local circumstances.

The Center for Persons with Disabilities is Utah's university center for excellence in developmental disabilities. Its programs offer students opportunities to participate in multidisciplinary education, research, and service. Students complete clinical and field experiences, and may receive financial support through assistantships, internships, stipends, or employment.

## Course Descriptions

Education and Human Services (EDUC), pages 546-547

# College of Engineering

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The College of Engineering includes the following academic departments:

**Biological and Irrigation Engineering**  
**Civil and Environmental Engineering**  
**Electrical and Computer Engineering**  
**Engineering and Technology Education**  
**Mechanical and Aerospace Engineering**

The College of Engineering includes the following research centers, institutes, and laboratories:

## Research Centers, Institutes, and Laboratories

**Anderson Center for Wireless Teaching and Research:**

Jacob H. Gunther, Director

**Buried Structures Laboratory:** Alma P. Moser, Director

**Center for Profitable Uses of Agricultural Byproducts (CPUAB):**

Conly L. Hansen, Director

**Center for Self-Organizing and Intelligent Systems (CSOIS):**

Yangquan Chen, Director

**Center for Space Engineering:** Charles M. Swenson, Director

**Huntsman Environmental Research Center (HERC):**

Ronald C. Sims, Director

**Inland Northwest Research Alliance at USU:**

Ronald C. Sims, Coordinator

**Institute for Natural Systems Engineering:**

Thomas B. Hardy, Director

**International Irrigation Center (IIC):**

L. Humberto Yap-Salinas, Director

**Manufacturing Extension Partnership:** Stephen S. Reed, Director  
**Rocky Mountain NASA Space Grant Consortium:**

Doran J. Baker, Director

**Utah Local Technical Assistance Program (LTAP):**

Doyt T. Bolling, Director

**Utah On-Site Wastewater Training Center:** Judith L. Sims, Director

## State Centers of Excellence

**Center for Advanced Imagery LADAR:** Robert T. Pack, Director

**Center for Control of Flows in Manufacturing:**

Barton L. Smith, Director

**Center for Solar Biofuels Technology:** Byard D. Wood, Director

## National and State Centers

**National Center for Engineering and Technology Education**

(NCETE): Christine E. Hailey, Director

**Utah Transportation Center:** Kevin C. Womack, Director

**Utah Water Research Laboratory (UWRL):** Mac McKee, Director

## Utah State University Research Foundation

**Space Dynamics Laboratory (SDL):** Michael D. Pavich, Director

## Mission

The primary objective of the College of Engineering is to foster a creative learning environment that will:

1. prepare engineering students to support the needs of industry and
2. develop new technologies and services that will improve tomorrow's economy and environment.

## Goal

The goal of the academic programs of the College of Engineering is to provide engineering and technical education enabling engineering students to:

1. develop as ethical professionals who understand engineering and technology in its societal context;
2. learn modern engineering/science and technology principles and their application in conducting experiments and analyzing data;
3. gain experience in working on engineering problems and designing solutions to meet desired needs;
4. acquire skills in communicating effectively and working on teams; and
5. understand the importance of life-long professional development and learning.

The college strives to create a brighter future by working with students, employers, industry, and government research partners to achieve this objective.

## Programs

The undergraduate engineering BS degree programs offered by USU, which are accredited by the Engineering Accreditation Commission of ABET (EAC/ABET), include: Biological Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Environmental Engineering, and Mechanical Engineering.

At the graduate level, Master of Engineering (ME), Master of Science (MS), and Doctor of Philosophy (PhD) degrees are offered in these specific majors, along with the Civil Engineer (CE) degree.

The Engineering and Technology Education Department offers BS degrees in Engineering and Technology Education, Aviation Technology—Maintenance Management, and Aviation Technology—Professional Pilot, as well as an MS degree in Engineering and Technology Education. Admission and academic requirements for the ETE Department are considerably different than those for the other engineering departments. For details, see the Engineering and Technology Education section of this catalog (pages 253-258).

For details about the various majors and specialties offered by departments and programs within the College of Engineering, see the respective departmental sections in this catalog.

## Assessment

The College of Engineering is committed to assessing the quality of its academic departments and programs, in order to assure that the desired educational outcomes will be achieved. Faculty members within the college strive to assure that their students obtain the knowledge and skills needed for success in their chosen fields.

The college uses a variety of tools and methods to gather information and data to evaluate progress in meeting the college's program goals and objectives, and to take actions to continually improve the quality of students' educational experience.

## Undergraduate Programs

### Objectives

The objectives of the engineering curriculum are: (1) to provide students with professional competence enabling them to enter and progress rapidly in their professional careers, (2) to provide an understanding of the physical and social world in which they live and work, and (3) to provide a basis for continued intellectual growth, professionally and socially.

In the engineering programs, the curricula begin with studies in mathematics, basic science, introductory engineering, and introductory engineering design. These basic science and engineering skills are coupled with communication skills, as well as courses in humanities and social sciences. The professional engineering programs continue with engineering science, engineering design, and modern engineering tools. Engineering design activities start during the freshman and sophomore years, progressing in-depth during the junior and senior years as the student's proficiency increases. The design experience culminates with a capstone design sequence, which builds upon the fundamentals of engineering, communication skills, science, mathematics, humanities and social sciences, economics, ethics, safety, reliability, aesthetics, and social impact.

The expected outcomes of the professional engineering programs are: (1) to unite engineering sciences and modern engineering tools with engineering design to enhance the practical problem-solving abilities, decision-making proficiency, and creativity of the engineering student; (2) to provide for an understanding and appreciation of professional responsibility and ethics; (3) to expand a sensitivity to the economic, legal, and social dimensions of engineering decisions; and (4) to provide the foundation and help instill a desire for life-long learning.

Studies in the humanities and social sciences serve not only to meet the objectives of a broad education, but also to meet the objectives of the engineering profession. In the interest of making engineers aware of the impact of engineering solutions in a global, economic, environmental, and societal context, the College of Engineering requires coursework in the humanities and social sciences as an integral part of the engineering program. To satisfy this requirement, courses selected must provide both breadth and depth and be planned to fulfill an objective appropriate to the engineering profession.

## Admission Requirements

### Engineering Requirements

In addition to the policies of the University concerning admission of students, the following regulations apply to the engineering programs:

1. In order to complete an engineering curriculum in four years, high school students must complete at least two years of algebra, one year of geometry, one-half year of trigonometry, four years of English, and courses in computers, chemistry, and physics. If these courses are not taken in high school, they must be taken in college prior to starting the regular engineering programs. Students with deficiencies in several areas will probably require five years to fulfill graduation requirements.

Students can earn university credits in English, humanities, and social sciences by receiving appropriate scores on the College Level Examination Program (CLEP) tests. Advanced placement (AP) credit may be obtained in calculus, chemistry, English, history, and physics.

2. Transfer students from other colleges or universities will be referred to the Engineering Admission Committee for evaluation. Criteria considered in admission decisions for transfer students include resources available in the requested department and the transfer GPA, along with an evaluation of the program of the former college or university. Decisions concerning academic standing once the student is admitted to USU will be based solely on USU grades.
3. Students registered on campus (including General Studies) must be approved by the Engineering Admission Committee before transferring to the College of Engineering. Students in this category must have demonstrated, by courses taken at USU, a potential to succeed in the major of their choice.

## Professional Engineering Program

### Introduction

The purpose of the Professional Engineering Program (PEP) is to provide a quality education for engineering students by (1) requiring that students be fully prepared for upper-division engineering coursework by having satisfactorily completed all required preprofessional courses and (2) limiting enrollment in upper-division courses consistent with resources available within the departments and the college.

# College of Engineering

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## Policy

Enrollment in upper-division engineering courses (3000-level and above) is available *only* to students who have been accepted into the PEP or an appropriate graduate program or have a nonengineering major which requires a specific engineering class for which the student has passed the prerequisite courses.

## Application Requirements

Current PEP applications listing the required PEP courses and admission standards are available from the various departments and the office of the Dean of Engineering. The minimum requirements a student must satisfy in order to be eligible to apply for admission to a professional program are:

1. The student must be in good academic standing in the University and the college.
2. The student must achieve a grade of C- or better in every required preprofessional course. Required preprofessional courses are defined by each major. They include math, science, and engineering courses, as well as ENGL 2010. The 2.3 (2.8 for Electrical Engineering and Computer Engineering) minimum GPA requirement (see item 3 below) does not include ENGL 2010. The *P/D+*, *D*, *F* grading option may not be used except in freshman English Composition.
3. The student must achieve an overall grade point average of 2.3 (2.8 for Electrical Engineering and Computer Engineering) or better for all required preprofessional coursework completed at USU.

## Repeated Coursework

A student can repeat no more than three of the required preprofessional courses in order to satisfy the PEP application and eligibility requirements. Multiple repeats of the same course are included in the total of three repeats. Audits count as a time taking a class unless prior written approval is obtained from the college academic advisor.

## Transfer Credit

Transfer credit accepted by the department and the college may be applied toward meeting the requirements for admission into the PEP; however, the grades received will not be used in the USU GPA calculation. For students with transfer credits, a final decision on admission into the PEP will not be made until after the applicant has completed at least 12 semester credits of acceptable engineering, math, and science coursework at USU. Some of this coursework may include upper-division classes taken by permission.

## Applications

Students should apply to the Professional Program midway through the semester in which they will complete all preprofessional courses. Students may request permission to take a limited number (not to exceed 15 credits) of upper-division courses if they are within 10 credit hours of completing the necessary requirements, have submitted a PEP application, and are registered for all remaining preprofessional courses. The final decision on granting permission to take upper-division classes before admission to the PEP rests with the college academic advisor and the Associate Dean of Engineering for Academics.

## Admission Procedures

Satisfying minimum eligibility requirements does not ensure that a student will be admitted to a PEP program in a specific department.

The number of students accepted in the Professional Engineering Program of a department will be based upon the number of students that can be accommodated in upper-division classes. Applicants will be ranked and selected in order of their academic standing in the required preprofessional courses. Admission into a PEP program is for a period of three years. Students unable to complete graduation requirements during this time will be interviewed by the department head to determine whether special circumstances justify their continuance in the program.

## Academic Requirements

The Dean's Office of the College of Engineering maintains a handout sheet giving current details of all academic regulations of the college. **It is the responsibility of the student to know the current regulations and to follow these regulations.**

## Preprofessional Program

Students must maintain a USU GPA of 2.0 to remain in good standing both in the college and the University. Students in a preprofessional program who are not making satisfactory progress toward acceptance into a professional program or who become ineligible to enter a professional program will be suspended from the college. Students in good standing in a preprofessional program must still meet the entrance requirements for admission into a professional program.

## Professional Program

For all engineering majors in the professional program the following academic regulations apply, in addition to University regulations:

1. A GPA of 2.0 or higher must be maintained in all upper-division engineering/math/science courses required for, or used as technical electives in, the chosen major. Courses which were part of the preprofessional program requirements and University Studies courses are not included in this GPA calculation.
2. No more than 10 hours of *D* or *D+* credit may be applied toward meeting graduation requirements in engineering/math/science classes.
3. College of Engineering courses may be repeated only once. Audits count as a time taking a class unless prior written approval is obtained from the department head. A maximum of three required or elective courses completed as part of a professional program can be repeated in order to meet graduation requirements. (Courses completed as part of a preprofessional program are not included in this total of three repeats.)
4. The *P/D+*, *D*, *F* grading option may not be used in required or elective courses completed as part of a professional program. (The *P/D+*, *D*, *F* grading option is approved for University Studies Courses.)
5. The academic regulations listed above (1-4) apply to required coursework and any elective engineering/math/science course which could be used to satisfy graduation requirements for the chosen degree. That is, once a student completes a particular technical elective, it becomes a required course for that student.
6. Students in violation of departmental or college academic regulations, no longer eligible for graduation, or not making satisfactory progress toward a degree, will be placed on probation.

- a. Students will be placed on probation if they (i) earn an *F* in an engineering/math/science course which could be used to satisfy graduation requirements for the chosen degree (see No. 5 above); (ii) have more than 10 hours of *D* credit (see No. 2 above); or (iii) have a GPA of less than 2.0 (see No. 1 above).
- b. Students remain on probation until they improve their standing by repeating and passing all failed classes, repeating classes to reduce the number of *D* credits to 10 or less, and/or by raising their GPA above 2.0.
- c. While on probation, a student must earn a semester GPA of 2.0 or higher in engineering/math/science classes and must not earn any grades of *D* or *F*.

While on probation, a student may not preregister. The student's major code will be changed to a preprofessional code. The student must meet at least once each semester with the college academic advisor to work out a schedule having the primary goal of correcting the existing academic problems.

## General Engineering

Engineering students are encouraged to select a major as soon as possible. Many of the courses taken during the freshman year are common to all engineering majors; however, there are significant differences in the courses taken during the sophomore year. Students who have not selected a specific major should meet with the college academic advisor for assistance in planning a personalized program. Students who choose to remain in general engineering must be prepared to meet the specific requirements of a professional program in the department of their choice.

## Additional Engineering Information

### Professional Societies

Faculty members of the departments hold memberships in various professional societies and organizations.

Student chapters or societies include the American Society of Agricultural and Biological Engineers; the Institute of Biological Engineering; the Biological and Irrigation Engineering Club; American Institute of Aeronautics and Astronautics; American Society of Civil Engineers; Chi Epsilon; Institute of Electrical and Electronic Engineers; American Society of Mechanical Engineers; American Water Resources Association; Tau Beta Pi; International Technology Education Association; National Intercollegiate Flying Association; Professional Flight Society; Society of Environmental Engineering Students; and Society of Women Engineers. Students are encouraged to affiliate with appropriate student societies.

The Engineering Council is comprised of a student from each department, a representative from each student society, and a staff member from the Dean's Office. The college senator is chairperson, or a chairperson is appointed by the Dean's Office. The council meets regularly to provide effective student-staff-administration liaison.

### ROTC

Many engineering students find satisfaction in serving their country in the Reserve Officer Training Program (ROTC) and as reserve officers after graduation. Junior and senior ROTC students receive compensation equivalent to a substantial scholarship. See the Department of Aerospace Studies section (pages 147-148) or the Department of Military Science section (pages 376-377) of this catalog.

## Scholarships, Fellowships, and Assistantships

A number of scholarships and assistantships are available to College of Engineering students. Interested high school seniors are encouraged to submit the *Application for Undergraduate Admission and Scholarships* to the Admissions Office before February 1 of the year they wish to receive assistance. Continuing students, transfer students, and returning students should contact the Dean's Office, College of Engineering for a scholarship application. Completed applications are always due February 1. There are also opportunities for employment on research projects and other activities.

## Concurrent BS/Master's Program

### Qualifications

The concurrent BS/Master's program allows engineering students to begin taking graduate-level classes during their senior year. This permits them to complete requirements for *both* the BS degree *and* the master's degree concurrently during two years. Students in this program have a greater selection of graduate courses, since many graduate courses are taught during alternate years. In addition, the student's senior design project could be a start for a graduate design project or thesis. After completing their BS degree, students in the program can earn a master's degree in only one additional year. Both the BS and the master's degree can generally be earned with 150 total credits, although students should note that a Plan C MS requires 3 extra credits.

### Procedures

Students in Biological Engineering must complete their junior year in engineering with a 3.0 GPA, both overall and during the last 60 semester credits. Students in Civil Engineering and Environmental Engineering must have a 3.2 GPA, both overall and during the last 60 semester credits. Students in Electrical Engineering and Computer Engineering must have a 3.3 GPA, both overall and during the last 60 semester credits. Students in Mechanical Engineering must earn a 3.4 GPA for the 60 semester credits completed at the end of their junior year. No later than the beginning of the first semester of the senior year, they must apply to the department offering their major and be accepted into the concurrent program. For application forms, students should contact their department office or the College of Engineering Advising Center (Engineering 314A).

To prepare a two-year completion plan of study, students must meet with their approved faculty advisor. (Department head gives approval for advisor.) Students must take the GRE exam and submit scores to the School of Graduate Studies. (See major department for minimum GRE qualifying scores.)

Students must first contact the department to determine eligibility for the concurrent program. If eligible, they should apply to the School of Graduate Studies. A Split Registration Form must be filled out and submitted for each semester the student is enrolled in the concurrent program. All paperwork involved should have a notation of "Concurrent Enrollment" at the top of each page (e.g., undergraduate application for graduation, Program of Study, split forms, etc.).

Formal acceptance into the School of Graduate Studies is required. The student must select a graduate committee, which must be approved by the School of Graduate Studies. The proposed master's program must be approved by the committee, as well as by the School of Graduate Studies.

# College of Engineering

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During the second year of the concurrent program, the student must pay graduate tuition. When the student is within 21 credits of completing both degrees, he or she will be coded as a graduate student. Thereafter, the student will pay graduate fees and will be eligible for loans, but *not* grants.

An application for graduation with a BS degree must be completed. The student must maintain a 3.0 or higher GPA in courses approved for his or her concurrent program.

## Graduate Programs

For information about graduate programs, admissions, assistantships, and fellowships, see departmental sections of this catalog.

## Research

The College of Engineering pursues an extensive program of research through the various research centers, institutes, laboratories, and departments. There are opportunities for graduate students to participate, and many undergraduates can find employment in research programs. An extensive list of research centers and points of contact can be found on page 130.

## Graduate Study

The college offers graduate study programs leading to the ME, MS, CE, and PhD degrees. For further information and details, see individual departmental sections of this catalog.

## Course Descriptions

General Engineering (ENGR), page 554

# College of Humanities, Arts, and Social Sciences

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**Phone:** (435) 797-1195  
**FAX:** (435) 797-1092  
**WWW:** <http://www.hass.usu.edu>

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Director, Asian Studies Major and Minor:**  
R. Edward Glatfelter, Main 333, (435) 797-1196,  
[ed.glatfelter@usu.edu](mailto:ed.glatfelter@usu.edu)

**Associate Dean:**  
Christine Hult, Main 338E, (435) 797-8619, [christine.hult@usu.edu](mailto:christine.hult@usu.edu)

**Interim Associate Dean of the Arts:** Jeannie B. Thomas,  
Main 338D, (435) 797-0605, [jeannie.thomas@usu.edu](mailto:jeannie.thomas@usu.edu)

**Director, College of HASS Advising Center:**  
Mary E. Leavitt, Taggart Student Center 302, (435) 797-3883,  
[mary.leavitt@usu.edu](mailto:mary.leavitt@usu.edu)

**Liberal Arts Program:**  
Contact College of HASS Advising Center,  
Taggart Student Center 302, (435) 797-3883

The College of Humanities, Arts, and Social Sciences has the following departments and programs:

**Aerospace Studies**  
**American Studies**  
**Art**  
**Asian Studies**  
**British and Commonwealth Studies**  
**Classics Minor**  
**English**  
**History**  
**Intensive English Language Institute**  
**Interdisciplinary Studies** (participates in, along with colleges of  
Agriculture, Emma Eccles Jones Education and Human Services,  
Natural Resources, and Science)  
**Interior Design**  
**International Studies**  
**Journalism and Communication**  
**Landscape Architecture and Environmental Planning**  
**Languages, Philosophy, and Speech Communication**  
**Liberal Arts**  
**Military Science**  
**Music**  
**Political Science**  
**Religious Studies**  
**Sociology, Social Work and Anthropology**  
**Theatre Arts**  
**Women and Gender Studies**

**Other HASS Units:**

**Center for International Studies**  
**College of HASS Advising Center**  
**Mountain West Center for Regional Studies**  
**Nora Eccles Harrison Museum of Art**

A listing of majors and degrees can be found under each department or program.

Within the College of Humanities, Arts, and Social Sciences are found those departments that provide career preparation in some of the most interesting and vital academic fields. The study of society, the governing of society and its history, communication in a number of languages, the various aspects of culture—all these appeal to an increasing number of undergraduate and graduate students. Many train for careers in these fields; more—scientists, engineers, etc.—take courses to broaden their horizons and add interest to their lives.

Today's social trend is toward an awareness that while material things are important they are not enough for a full life. For this, the individual may turn to literature, art, music, and theatre. Concern with environmental problems may lead the student to an investigation of landscape architecture. The complexities of modern life necessitate an understanding of the social sciences and history. It is within the College of Humanities, Arts, and Social Sciences that these needs may be met.

## Admission and Graduation Requirements

Students accepted in good standing by the University are eligible for admission to the College of Humanities, Arts, and Social Sciences (HASS). Because of limitations of faculty or space, a few departments within the college, such as Art, Journalism and Communication, LAEP, and Sociology, Social Work and Anthropology, limit enrollment in their professional programs. See the departmental sections in this catalog and the department head for information regarding these limitations and/or requirements in addition to the University graduation requirements.

The College of HASS participates in the Interdisciplinary Studies Major (see pages 314-315), which offers flexibility for qualifying students who cannot find an existing degree that meets their needs.

## Caine School of the Arts

The Caine School of the Arts is a dynamic community of artist-scholars in the College of Humanities, Arts, and Social Sciences at Utah State University. Its mission is to provide scholarly and multidisciplinary arts opportunities to the students and communities of Northern Utah and the Intermountain West.

The Caine School's ten supporting departments and programs include: Art, English, Interior Design, Landscape Architecture and Environmental Planning, Music, Mountain West Center for Regional Studies, Nora Eccles Harrison Museum of Art, Production Services, Theatre Arts, and Utah Public Radio.

The Caine School provides arts education grounded in a strong liberal arts tradition. A studio approach and expert faculty provide a supportive environment for training professional artists in creative writing, interior design, landscape architecture and environmental planning, music, theatre, and the visual arts. These programs are instrumental in preparing teachers, historians, critics, and scholars. The Caine School also serves students throughout the University with breadth and depth courses in the arts.

The Caine School offers a unified public presence for the arts that enhances the reputation of the University: informing the community about events, showcasing excellence in artistic programming and discovery, recruiting students, and promoting the campus as a culture that values the knowledge and enjoyment the arts engender.



# College of Humanities, Arts, and Social Sciences

## Nora Eccles Harrison Museum of Art

**Executive Director and Chief Curator:** Victoria Rowe Berry,  
(435) 797-0163, victoria.berry@usu.edu

**Business Officer:** Rachel Hamm, (435) 797-1414,  
rachel.hamm@usu.edu

**Curator of Programs and Exhibitions:** Deborah Banerjee,  
(435) 797-8207, deborah.banerjee@usu.edu

**Education Curator:** Nadra Haffar, (435) 797-0165,  
nadra.haffar@usu.edu

**Registrar/Education Assistant:** Casey Allen, (435) 797-0166,  
casey.allen@usu.edu

**ArtsBridge Program Director:** Laurie Baefsky, (435) 797-8207 or  
(435) 760-4889, laurie.baefsky@usu.edu

The Nora Eccles Harrison Museum of Art is the major center for the exhibition of the visual arts in northern Utah. Emphasizing the breadth of artistic expression and the history of art in the western United States, the Museum's permanent collections include Twentieth Century American sculpture, ceramics, paintings, graphic arts, photographs, and American Indian arts. Selections from the collection are always on view and are rotated periodically to reflect the continuing growth and refinement of the collection. In addition to installations of its permanent holdings, the Museum organizes temporary and traveling exhibitions and serves as a venue for exhibitions of national and international stature. Artist talks, films, docent tours, and educational activities are additional dimensions of the Museum's programs which are designed to interpret, present, and foster the development of the visual arts.

As a component of Utah State University, the Museum provides educational opportunities for undergraduate and graduate students pursuing professional careers in the museum field. Through on-the-job training, independent study, and internships, students participate in collections care and management, exhibition development, installation design, and educational programming. Research and publication are also integral parts of the Museum's educational offerings, and students, along with faculty and other scholars, pursue projects which are relevant to the permanent collections and exhibitions.

Named for its benefactor, the Nora Eccles Harrison Museum of Art was made possible through an insightful and generous gift from the Nora Eccles Treadwell Foundation. Designed by internationally acclaimed architect, Edward Larabee Barnes, the 20,000-square-foot structure includes offices, a workshop, library, storage facilities, and five exhibition galleries.

For more information, write or call: Nora Eccles Harrison Museum of Art, Utah State University, 4020 Old Main Hill, Logan UT 84322-4020, (435) 797-0163, FAX (435) 797-3423.

## Mountain West Center for Regional Studies

**Program Coordinator:** Elaine Thatcher, Main 303, (435) 797-0299

The Mountain West Center for Regional Studies is a multidisciplinary outreach center in the College of Humanities, Arts, and Social Sciences. Its purpose is to enhance the work of the University through public programs, research and program funding, visiting scholars, student scholarships, and other projects, with a particular emphasis on activities that increase understanding of the Interior West, its land, and cultural groups.

Programs of the center include the David and Beatrice Evans Biography Awards, the Bennion Teachers' Workshop, the L. T. and J. T. Dee Visiting Scholars Program, the Utah History Fair, the Mountain West Center Faculty Fellowship, and several scholarships.

The center also sponsors various special projects relating to arts, humanities, and social sciences issues, and conducts ongoing oral history and folklore field research.

## Center for International Studies

**Director:**  
R. Edward Glatfelter (HASS Dean's Office), Main 333,  
(435) 797-1196, ed.glatfelter@usu.edu

The Center for International Studies promotes and coordinates international academic exchanges between the University and institutions of higher education abroad. Major objectives of the center are: (1) to develop bilateral university linkage programs, (2) to facilitate faculty and student exchange programs, and (3) to promote collaborative research programs, joint seminars, workshops, and conferences.

## Area Studies

**Program Coordination:** College of Humanities, Arts,  
and Social Sciences  
**Contact:** College of HASS Advising Center, Taggart Student  
Center 302, (435) 797-3883

The Area Studies Certificate program is an interdisciplinary approach to the study of a geographical or thematic subject. The program is available to undergraduate and graduate students. It is not a major and does not lead toward a degree. Rather, it is designed to strengthen an academic degree and provides an opportunity for a student to enlarge the scope of the educational experience through an in-depth study of a sector of the world or thematic problem. Where appropriate, courses applying to the major, minor, or other graduation requirements may also apply to the Area Studies Certificate.

Students may earn the following Area Studies Certificates:

**Law and Society**  
**Medieval and Early-Modern Studies**  
**Museum Studies**  
**Women and Gender Studies**

For specific requirements for each of these programs, see program brochures.

# College of Humanities, Arts, and Social Sciences

In addition, a **self-designed Area Studies Certificate**, tailored to the student's individual interests, is available. Examples of these are: **African-American Studies, Natural Ecosystems, and Russian Studies**. A student takes a minimum of 24 credits related to the area of study from at least three disciplines, such as economics, natural resources, political science, sociology, literature, history, geography, and philosophy. No more than 12 of the 24 credits may be taken in any one discipline. A GPA of at least 3.0 must be maintained in courses applied to the certificate.

A student who completes the Area Studies program is awarded a certificate at the time of graduation. The information is also noted on the graduation program and on the student's transcript. Graduate students are awarded the certificate at the end of the semester in which they complete the requirements.

For a more detailed description of requirements for this program, contact the program coordinator in Taggart Student Center 302.

## College of HASS Advising Center

**Director:** Mary E. Leavitt

**Associate Director:** Irene B. McInerney

**Advisor:** Susan B. Parkinson

**Advisor:** Daniel Mathews

**Advisor:** Marcia R. Roberts

**Program Coordinator:** Scott C. Robinette

Office in Taggart Student Center 302, (435) 797-3883  
(Please call ahead for an appointment.)

The College of HASS Advising Center (CHAC) provides academic advising for students in the College of Humanities, Arts, and Social Sciences. Academic advisors counsel these students in the University Studies requirements and in certain HASS majors.

Academic advising is provided through the center to all Liberal Arts majors.

## Advising

College of HASS students receive advising concerning University and College of HASS policies and procedures, as well as in University Studies, the Liberal Arts Program, graduation requirements and processes, the Interdisciplinary Studies Major, and the USU Area Studies Certificate programs. In addition, students are advised concerning academic choices, low grade point averages, and other problems.

## Academic Services

CHAC represents the Dean of HASS in providing academic services to undergraduate students in the College of HASS. This includes requests for academic record changes and other documentation requiring the Dean's signature. Coordination of academic problems, support, or referrals to other University services are also provided. Transcript evaluations, including international and transfer records, are made and approved in CHAC.

## Graduation

All HASS graduation matters are processed through CHAC. Students should begin the graduation process at least one month prior to the graduation application deadline, and the application should be turned into CHAC at least two weeks prior to the deadline in order to avoid a late fee. A final review of University Studies (or other General Education programs) and other University graduation requirements will be made and the final approval signature added before the application is returned to the student for payment of the graduation fee. If the student wishes to amend the application to substitute or drop courses that are listed on it, a Supplement Form must be submitted through CHAC.

The Area Studies Certificates are awarded at the time of graduation. Application for the certificate should be made through CHAC.

## Course Descriptions

Humanities, Arts, and Social Sciences (HASS), page 574

Interdisciplinary Studies (ITDS), page 589

Latin American Studies (LATS), page 596

Women and Gender Studies (WGS), page 679

# College of Natural Resources

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Dean: Nat B. Frazer

Associate Dean and Extension Program Leader: Nancy O. Mesner

Director of Distance Education: Richard C. Etchberger

Director of Development: Jon Paulding

Location: Natural Resources 108

Phone: (435) 797-2452

FAX: (435) 797-2443

E-mail: [nradvise@usu.edu](mailto:nradvise@usu.edu)

WWW: <http://www.cnr.usu.edu>

## Undergraduate Advisor:

Maureen A. Wagner, Natural Resources 120, (435) 797-2448,  
[maureen.wagner@usu.edu](mailto:maureen.wagner@usu.edu)

The College of Natural Resources has the following academic degree programs:

### College of Natural Resources

Master of Natural Resources (MNR)

Participates in Interdisciplinary Studies (BS, BA)

### Environment and Society Department

Bioregional Planning (MS)

Environmental Studies (BS)

Geography (BS, BA, MS, and MA)

Human Dimensions of Ecosystem Science  
and Management (MS and PhD)

Recreation Resource Management (BS, MS, and PhD)

### Watershed Sciences Department

Ecology (MS and PhD)

Fisheries and Aquatic Sciences (BS)

Fisheries Biology (MS and PhD)

Watershed and Earth Systems (BS)

Watershed Science (MS and PhD)

### Wildland Resources Department

Conservation and Restoration Ecology (BS)

Ecology (MS and PhD)

Forestry (BS, MS, and PhD)

Rangeland Resources (BS)

Range Science (MS and PhD)

Wildlife Biology (MS and PhD)

Wildlife Science (BS)

A list of degree requirements, emphases, and specializations can be found in the catalog section for each department. For a description of the Master of Natural Resources (MNR) professional degree, see page 391.

### Interdisciplinary Programs

Many of the degree programs listed above are interdisciplinary to some extent. However, the Conservation and Restoration Ecology, Environmental Studies, Geography, and Watershed and Earth Systems programs offer students the opportunity to develop broad interdisciplinary programs to meet their interests. Conservation and Restoration Ecology and Watershed and Earth Systems build on a strong science base; Environmental Studies has a greater emphasis on management and policy; and Geography brings together ideas about culture, human behavior, and the physical environment.

The College of Natural Resources also participates in the Interdisciplinary Studies major, which offers flexibility for qualifying students who cannot find an existing degree that meets their needs. In addition to the requirements found on pages 314-315, the college also requires completion of 23 credits in College of Natural Resources courses, and a 2.5 GPA in all College of Natural Resources courses.

## Minors in Natural Resources

The college offers minors in the following areas:

**Environmental Studies**

**Fisheries Science**

**Geographic Information Science**

**Geography/Geography Teaching**

**Recreation Resources**

**Watershed Science**

Requirements for the minors are found in the appropriate departmental sections of this catalog. Students should also consult a faculty advisor for the minor.

## Objectives

The College of Natural Resources provides programs of study and professional training in the use and management of natural resources and the environment. These programs deal with renewable land and water resources and the management of these resources and their ecosystems. Forests, rangelands, wildlife, fisheries, watersheds, and recreation resources comprise the natural resources and environmental areas in which the college has developed professional competence. The college's expertise in geography provides a link between the management of these resources and their value to our society and other cultures.

The College of Natural Resources programs and facilities provide exceptional opportunities for field experience. Forests and rangelands comprise more than 90 percent of the total Utah land area. The Wasatch-Cache National Forest and other areas of natural lands close to the USU campus provide unlimited study projects and opportunities for demonstration. Yellowstone and other national parks are within one day's driving distance.

## Career Opportunities

The curricula of the college prepare men and women for positions with federal or state agencies, private-sector work in natural resources management and administration, and positions in education.

## Summer Employment/Work Experience

Students are strongly encouraged to seek summer employment with faculty research projects or natural resource agencies to gain practical work experience and help refine career goals. Students should check with the College of Natural Resources Academic Service Center in early January regarding summer employment opportunities.

## Undergraduate Programs

### Academic Policies

#### Admission

Freshmen accepted in good standing by the University are eligible for admission to the College of Natural Resources. Transfer students need a cumulative 2.5 GPA for admission to College of Natural Resources majors. Departments may impose additional requirements; refer to departmental sections for information.

Students will make more satisfactory progress in natural resources majors if they have had two years of high school algebra; have taken coursework in chemistry, physics, and biology; and have obtained basic computer skills. Four years of English are also desirable. Prospective students should realize that natural resources fields are

# College of Natural Resources

highly technical professions, requiring not just field ability, but also high aptitude for scholarship. Success is also correlated with an ability to work well with people.

## Natural Resources—Undecided

Students who have not yet decided on a specific natural resources major may be admitted to the college as “undecided.” Many of the courses taken during the freshman year are common to all natural resources majors; however, students are encouraged to select a major as soon as possible. Students in the undecided category should meet with the college academic advisor for assistance in planning their educational program and selecting a major.

## Changes in Graduation Requirements

Students who complete a baccalaureate degree within seven years of enrollment at USU can qualify for graduation by meeting (1) the General Education/University Studies requirements in effect when they initially enrolled at USU (or any revision of the University Studies requirements that has been in effect within seven years of their graduation) **and** (2) the major requirements in effect when they officially declared their major (or any revision of the major requirements that has been in effect within seven years of their graduation).

Students who have not completed the baccalaureate requirements within seven years of their initial enrollment at USU must have their General Education/University Studies and major requirements evaluated and approved by their department head and dean.

## Academic Responsibility

The departments publish current major requirements in the catalog each year. It is the student’s responsibility to know the current requirements and to consult with a faculty advisor in planning and completing his or her degree program.

## Graduation Requirements

Students must satisfy all University, College of Natural Resources, and departmental major requirements for graduation. Students must complete a series of basic lower-division courses, providing the disciplinary foundation for the natural resource and environmental professions, before advancing to professional coursework; foundation course requirements vary among the departments of the college. Equivalents of the foundation courses can be taken at many two- and four-year colleges. Students intending to transfer to a College of Natural Resources major should consult with a faculty advisor before registering for foundation courses at another school. Some foundation and core courses can be used to satisfy University Studies requirements. College requirements also include a grade point average of 2.5 or higher for all courses taught by the College of Natural Resources. Refer to the appropriate sections of this catalog for further details on graduation requirements.

## Student Leadership

In addition to coursework and research involvement, undergraduate education in the College of Natural Resources also includes leadership education through professional internships and extracurricular involvement.

The Natural Resources Student Council and various student clubs offer opportunities for enrichment, professional development, and fun. Most of the student leaders have participated in leadership training activities offered by the College of Natural Resources. Students are strongly encouraged to participate in organizations affiliated with their majors or future career paths. Among these are student chapters affiliated with the following professional societies:

**American Fisheries Society**  
**International Association for Society and Natural Resources**  
**Society of American Foresters**  
**Society for Range Management**  
**The Wildlife Society**

## Financial Aid

The College of Natural Resources awards more than 65 individual scholarships annually to undergraduates having majors within the college. During recent years, more than \$160,000 in financial aid has been awarded annually, with emphasis on assistance to upper-division undergraduate students. The S.J. and Jessie E. Quinney Scholars program awards up to 10 new scholarships annually of \$3,000 per year to entering freshmen and transfer students in the College of Natural Resources. Interested high school students and prospective transfer students are encouraged to write to the College of Natural Resources Dean’s Office regarding these scholarships.

## Undergraduates in Research

The College of Natural Resources maintains an extensive program of research in all aspects of natural resources and the environment. Undergraduate students are an integral part of this program. Their participation in research is encouraged, especially for those students planning to go on to graduate study.

Students are often able to find part-time employment in professors’ laboratories, working side-by-side with graduate students and faculty members on studies involving a wide range of topics from endangered fish biology to wildland soil science, backcountry hiking behavior to sagebrush ecology, and water conservation policy to the genetics of rare plants and animals. Highly motivated students can also design their own research projects with the assistance of College of Natural Resources faculty members. University and college programs can offer undergraduate researchers financial assistance to help cover the costs of research and of presenting research results to audiences of natural resource scientists and managers, as well as to other students.

## Graduate Programs

The College of Natural Resources offers graduate programs leading to the Master of Natural Resources (MNR), Master of Science (MS), and Doctor of Philosophy (PhD) degrees. These degree programs are described in the catalog sections for the respective departments. There are also separate descriptions for the programs leading to the MNR degree (page 391), the National Environmental Policy Act (pages 386-387), and the Natural Resources and Environmental Education Graduate Certificate (pages 388-390).

# College of Natural Resources

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## Financial Assistance

### Assistantships

Financial assistance for graduate programs includes both research and teaching assistantships that are awarded through the departments offering each degree. For further information, students should contact their department and major professor.

### Fellowships

Fellowships and tuition waivers are offered to incoming graduate students on a competitive basis. Application is made through the student's major professor.

## Course Descriptions

Natural Resources (NR), page 623

National Environmental Policy Act (NEPA), pages 618-619

**Dean:** Mary S. Hubbard  
**Location:** Eccles Science Learning Center 245  
**Phone:** (435) 797-2478  
**FAX:** (435) 797-3378  
**E-mail:** [scido@cc.usu.edu](mailto:scido@cc.usu.edu)  
**WWW:** <http://www.usu.edu/science/>

**Associate Dean:** Richard J. Mueller, ESLC 245G, (435) 797-2479,  
[rmueller@biology.usu.edu](mailto:rmueller@biology.usu.edu)

**Associate Dean:** Lisa M. Berreau, ESLC 245J, (435) 797-3509,  
[berreau@cc.usu.edu](mailto:berreau@cc.usu.edu)

The College of Science has the following departments and programs:

**Biology**  
**Chemistry and Biochemistry**  
**Computer Science**  
**Geology**  
**Mathematics and Statistics**  
**Physics**  
**Cooperative Nursing Program**

Degrees, emphases, specializations, and program descriptions are listed with the departments and the Nursing Program. In addition, there is a Center for Atmospheric and Space Sciences (CASS) and two interdisciplinary programs which involve the college. The Department of Biology participates in the Interdepartmental Graduate Program in Toxicology. This program offers research opportunities leading to MS and PhD degrees within several specialties of toxicology. The college also participates in an interdisciplinary, interdepartmental program in ecology which operates under the Ecology Center. The Ecology Center brings distinguished scientists to campus, fosters faculty research, and enhances graduate education in all areas of ecology.

## Objectives

USU has always emphasized the sciences. Modern civilization is based on science, most facets of which are fundamental in a land-grant university.

Opportunities for rewarding careers are excellent in the fields of science. These opportunities exist in education, research, conservation, service, and industry.

The curricula of the science departments are designed to achieve five purposes:

First, they serve all students. No college graduate can be considered educated without an appreciation of scientific principles.

Second, the college trains teachers of science at all levels of education. Highly competent teachers are absolutely essential to the continued well-being and development of society.

Third, students are prepared to take positions in industry and business in a highly technological world.

Fourth, education is provided in the health fields both at the preprofessional and entry level. The college has excellent programs in predoctoral and premedical education with an exceptional record of placing students in dental and medical schools. Undergraduate degrees in the various departments of the college can be tailored to include predoctoral and premedical training. Other programs prepare

graduates to enter the health profession directly upon graduation.

Fifth, the College of Science educates research scholars in many fields of science. This is accomplished by completing a sound undergraduate degree in the field, followed by graduate specialization.

Students planning to enter the sciences are urged to discuss their plans and goals early with advisors, who are available in each academic department. Basic coursework in mathematics, chemistry, physics, and computer science is essential to most areas of science.

## Admission Requirements

Students accepted in good standing by the University are eligible for admission to all departments in the College of Science. Students majoring in Computer Science must qualify for advanced standing status on the basis of their academic performance. Specific details are given in the Computer Science section of this catalog (see pages 222-223).

## College of Science Core Requirements

### Mathematics Requirement

All bachelor degree candidates in the College of Science must complete one year of calculus, consisting of MATH 1210 and 1220. In some degrees or options within degrees, the second semester of calculus may be replaced by STAT 3000. The substitution will be for specific degree programs, and not by student choice.

### Science Requirement

Every bachelor degree candidate in the College of Science must complete a year-long sequence outside of his or her major department. The approved sequences are: (1) BIOL 1610, 1620; (2) CHEM 1210, 1220; (3) GEO 1150, 3200; (4) PHYS 2110, 2120; and (5) PHYS 2210, 2220.

### Science Major (Undecided)

A beginning freshman student who wishes to major in science, but who has not selected a specific major, may register in the college as an Undecided Science Major. A course of study will be developed that will attempt to maximize transfer into the various departmental majors in the college. Students in the Undecided Science Major will be required to transfer to a departmental major after one year of study.

## Scholarships

Scholarships are available through the college and some of the departments. Students should contact the college or their major department for further information about these scholarships. Information is also available at: <http://www.usu.edu/science/>

## Graduate Assistantships and Fellowships

Excellent graduate assistantships and fellowships are available in all departments. Assistantships are available both for teaching and research. Applications should be made directly to the department concerned. For more information, see the Graduate Financial Assistance section of this catalog (pages 111-112).

# College of Science

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## Graduate Programs

Graduate programs leading to the MS or PhD degree are available in each department in the college. In addition, the Department of Mathematics and Statistics offers an MMath (Master of Mathematics) degree, and the Computer Science Department offers an MCS (Master of Computer Science) degree. See the departmental sections in this catalog for more information on these programs.

## Interdisciplinary Studies Major

The College of Science participates in the Interdisciplinary Studies Major (see pages 314-315), which offers flexibility for qualifying students who cannot find an existing degree that meets their needs.

## Honors Program

Several departments in the college participate in the University Honors Program by offering special honors courses and by sponsoring an option for graduation with departmental honors.

## Undergraduate Research

The sciences provide an ideal setting for research. All departments within the College of Science provide opportunities for undergraduate students to participate in research activities. Interested students should discuss this option with their academic advisor or with an associate dean in the college office.

## Course Description

Science (SCI), page 652

**Department Head:** Larry M. Walther  
**Location:** Business 511  
**Phone:** (435) 797-8697  
**FAX:** (435) 797-1475  
**E-mail:** maryann.clark@usu.edu  
**WWW:** <http://www.huntsman.usu.edu/acct/>

**Director of Graduate Accounting Programs:**  
Ryan E. Larkin, Business 518, (435) 797-3958,  
ryan.larkin@usu.edu

**Undergraduate Advisor:**  
Joslyn M. Heiniger, Business 309, (435) 797-2272,  
joslyn.heiniger@usu.edu

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA) in Accounting; Master of Accounting (MAcc); participates in Master of Business Administration (MBA)

**Undergraduate options:** A dual major in Accounting and Economics is available.

**Graduate specializations:** MAcc—Professional Accountancy, Taxation, Personal Financial Planning, Information Systems, and Finance. MBAs with specializations in Accounting and Personal Financial Planning are offered in the Huntsman School of Business (see MBA—Accounting and MBA—Personal Financial Planning programs).

**Undergraduate minors offered:** Accounting and Personal Financial Planning

## Undergraduate Programs

### Mission

The mission of the USU School of Accountancy is to: (1) develop effective accounting and business leaders who are committed to professional excellence and ethical conduct, (2) advance accounting knowledge through theory development and accounting practice improvement, and (3) provide leadership and service to the University and professional community.

### Objectives

The objective of the School of Accountancy is to provide high-quality preparation for professional accounting careers in industry, public accounting, and other organizations. The undergraduate programs are devoted to providing basic conceptual accounting, information systems, and business knowledge, along with general education, as a well-rounded foundation for career development. The fostering of active student organizations is fundamental to the career-development process for on-campus programs.

The accounting curriculum is designed to help students prepare to meet changes in social, economic, and technological development. Academic course requirements for the bachelor's degrees include University Studies coursework, as well as supporting courses in mathematics, economics, management information systems, business communications, business administration, accounting, and information technology. The programs provide an opportunity to choose from a number of elective courses to broaden educational backgrounds and enhance employment opportunities.

## Career Opportunities

Practice in the profession of accounting has become more complex, with computerized information and accounting systems becoming an integral part of the various accounting and business functions. University training is essential to prepare for high-level accounting careers in business, government, and public accounting.

Graduates of the accounting program find employment in a variety of industrial companies, nonbusiness and government agencies, and both large and small public accounting and business advisor firms. Graduates hold all levels of positions within organizations, including supervisors, managers, partners, controllers, financial vice presidents, and chief executive officers. Nonbusiness units and government agencies, such as the Utah State Auditors Office, the Federal Bureau of Investigation, and the Internal Revenue Service, provide jobs in many varied accounting functions.

## Departmental Honors

See *Honors* in Business description in the Huntsman School of Business section of this catalog (page 124).

## Learning Objectives and Assessment

Assessment information for the School of Accountancy can be found online at:  
<http://www.huntsman.usu.edu/acct/assessment/index.cfm>

## Requirements

### Huntsman School of Business Admission Requirements

All students majoring in accounting must satisfy the Huntsman School admission requirements, provided on pages 124-125. Academic advising about these requirements is available in the Huntsman School of Business Programs and Advising Center, Business 309. All students enrolled at USU are required to satisfy the General Education requirements and the University Studies Depth Education requirements of the University, as described on pages 67-75 of this catalog.

### Matriculation Requirement and Transfer Limitation

No more than 15 USU Huntsman School of Business credits (ACCT, BUS, FIN, MGT, MIS), numbered 2000 and above, earned as a nonbusiness major (before acceptance into the Huntsman School) can be applied to a Huntsman School degree. More than 15 business credits can be transferred from other accredited institutions. However, additional USU Huntsman School credits added to previously earned transfer business credits may not exceed a combined total of 15. Furthermore, to earn a bachelor's degree in a Huntsman School major, at least 50 percent of the required Huntsman School credits must be earned from coursework taken from the Utah State University Huntsman School of Business.

### USU Credits and Business Credits

At least 30 of the last 60 semester credits must be taken from Utah State University, at least 20 of which must be completed in upper-division courses, of which at least 10 credits must be completed in courses required by the student's major. At least 50 percent of the Huntsman School credits required for a Huntsman School degree must be taken from the Utah State University Huntsman School or its departments, which include: School of Accountancy, Economics and



# School of Accountancy

Finance, Management, and Management Information Systems. At least 12 credits of 3000-level or above accounting courses must be completed through the USU School of Accountancy.

## Accounting Admission Requirements

In addition to meeting the Huntsman School of Business requirements, students must have achieved a cumulative overall GPA of 3.0 or higher and have earned a grade of *B* or better in ACCT 2010 before they will be allowed to enroll in ACCT 3110 or 3310.

## General Instructions for all Accounting Majors

Since some accounting courses are not offered every semester and many have prerequisites, students should plan their program at least a year ahead.

## Accounting Major Requirements

For a bachelor's degree in accounting, students must complete at least 120 credits, including at least 30 credits in accounting and at least 90 credits in nonaccounting courses. At least 12 credits of upper-division accounting courses must be completed through the USU School of Accountancy. To qualify for graduation as an accounting major, a student must have an accounting and an overall GPA of at least 2.5. All accounting majors are required to complete the General Education requirements and the University Studies Depth Education requirements (see pages 67-75), the Pre-Business course requirements, the Huntsman School of Business Core, and the Required Accounting Courses.

### Pre-Business Course Requirements (13 credits)

<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su).....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su).....	4
<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) (3 cr) <b>or</b>	
<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp) (3 cr).....	3

### Huntsman School of Business Core (37 credits)

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>BUS 3250</b> Discussions With Business Leaders (F,Sp).....	1
<b>ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>ECN 3400</b> International Economics for Business (F,Sp,Su).....	3
<b>FIN 3400 (QI)</b> Corporate Finance (F,Sp,Su).....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su).....	3
<b>MGT 3110</b> Managing Organizations and People (F,Sp,Su).....	3
<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su).....	3
<b>MGT 3700</b> Operations Management (F,Sp,Su).....	3
<b>MGT 4880 (CI)</b> Business Strategy in an Entrepreneurial Context (F,Sp,Su) (3 cr) <b>or</b>	
<b>MGT 4890 (CI)</b> Business Strategy in a Global Context (F,Sp,Su) (3 cr).....	3
<b>MIS 2100</b> Principles of Management Information Systems (F,Sp,Su).....	3
<b>MIS 2200 (CI)</b> Business Communication (F,Sp,Su).....	3

### Required Accounting Courses (24 credits)

<b>ACCT 3110</b> Intermediate Financial Accounting and Reporting I (F,Sp,Su).....	3
<b>ACCT 3120</b> Intermediate Financial Accounting and Reporting II (F,Sp,Su).....	3
<b>ACCT 3310</b> Strategic Cost Management (F,Sp,Su).....	3
<b>ACCT 3410</b> Income Taxation I (F,Sp,Su).....	3
<b>ACCT 4200</b> Advanced Accounting (F,Sp).....	3
<b>ACCT 4410</b> Income Taxation II (F,Sp).....	3
<b>ACCT 4500</b> Accounting Information Systems (F,Sp).....	3
<b>ACCT 4510</b> Auditing Principles and Techniques (F,Sp).....	3

## Four-Year Degree Plan (8 Semesters)

A four-year degree plan for the Accounting major can be found at: <http://www.usu.edu/degreeplans/>

## Accounting Minor (18 credits)

Students seeking a minor must be approved by the School of Accountancy and must achieve a 2.5 grade point average for accounting courses taken. Courses required for this minor may *not* be taken *Pass/Fail*.

Students with a major in an area other than accounting may qualify for an accounting minor by completing 18 semester credits as follows:

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>ACCT 3110</b> Intermediate Financial Accounting and Reporting I (F,Sp,Su).....	3
<b>ACCT 3120</b> Intermediate Financial Accounting and Reporting II (F,Sp,Su).....	3
<b>ACCT 3310</b> Strategic Cost Management (F,Sp,Su).....	3
<b>ACCT 3410</b> Income Taxation I (F,Sp,Su) (3 cr) <b>or</b>	
<b>ACCT 4500</b> Accounting Information Systems (F,Sp) (3 cr).....	3

## Personal Financial Planning Minor (15 credits)

Students seeking a minor in personal financial planning must be approved by the School of Accountancy and must achieve at least a 2.5 grade point average in the required courses. Courses required for this minor may not be taken pass/fail. The required courses consist of 15 semester credits as follows:

<b>ACCT 3410</b> Income Taxation I (F,Sp,Su).....	3
<b>PFP 3460</b> Fundamentals of Personal Investing (3 cr) <b>or</b>	
<b>FIN 4460</b> Investments (F,Sp) (3 cr).....	3
<b>PFP 5060</b> Personal Financial Planning and Advising (F).....	3
<b>PFP 5070</b> Retirement Planning (Sp).....	3
<b>PFP 5080</b> Estate Planning (Sp).....	3

The courses above are registered with the Certified Financial Planner (CFP)® Board of Standards. Students completing these courses will qualify to sit for the comprehensive CFP® Examination.

## Dual Major

### Accounting and Economics Dual Major

Select 12 credits in economics in addition to the courses required for an accounting major from the following:

<b>ECN 3010</b> Managerial Economics (F,Sp) (3 cr) <b>or</b>	
<b>ECN 4010</b> Intermediate Microeconomics (Sp) (3 cr).....	3
<b>ECN 4020</b> Intermediate Macroeconomics (F,Sp) (3 cr) <b>or</b>	
<b>ECN 5000</b> Advanced Macroeconomic Topics (F) (3 cr).....	3
Upper-division Economics electives.....	6

## Second Bachelor's Degree in Accounting

Students seeking a second bachelor's degree in accounting must be approved by the School of Accountancy, must achieve an accounting and overall grade point average of 2.5, and must complete the course of study listed above for an accounting major. For further information, refer to the *Second Bachelor's Degree* text on page 79.

## Beta Alpha Psi

The objective of Beta Alpha Psi is to encourage and recognize scholastic and professional excellence in the accounting profession. Membership includes opportunities for self-development, service, and association among members, faculty, and practicing professionals. Beta Alpha Psi recognizes academic excellence, complements members' formal education, and encourages lifelong growth, service, and ethical conduct. The organization has strict entry requirements, but its members are the most eagerly sought-out by recruiters for the best jobs in accounting. It is appropriate to include the Beta Alpha Psi honor as a resume item for the entire span of one's professional career. For further information, see: <http://www.usu.edu/bap/>

## Institute of Management Accountants

The Institute of Management Accountants (IMA) is a worldwide organization comprised of management accounting and finance professionals. USU's student chapter of the IMA provides networking and leadership opportunities for students pursuing accounting careers in business entrepreneurship and industry. The local chapter organizes professional meetings, social events, and service events to assist students in developing and advancing their careers through certification, education, networking, and the advocacy of the highest ethical and professional practices. For further information see: <http://www.usu.edu/ima/>

## Financial Planning Association

The Financial Planning Association (FPA) is a national association of financial planning professionals. The FPA student chapter allows students to enjoy all of the benefits of FPA membership at a significantly reduced cost. In addition, student members have opportunities to develop leadership skills, attend informative educational sessions, network with professionals, participate in service activities, and serve as volunteer staff members at state and national meetings of financial planning professionals. For further information, see: <http://www.usu.edu/fpsa/>

## Additional Information

For additional information about undergraduate programs and requirements in the School of Accountancy, see the major requirement sheet, which can be obtained from the School of Accountancy, or accessed at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

The graduate programs provide greater breadth and depth in accounting, taxation, information systems, and management to develop a high level of understanding, skill, and leadership capability to enter professional accountancy and related business careers. The Master of Accounting (MAcc) and the Master of Business Administration-Accounting Specialization (MBA-Accounting), offered by the Huntsman School of Business, enable students to fulfill the 150-hour education requirement for CPA certification in Utah and most U.S. jurisdictions.

## Admission Requirements

See general admission requirements, pages 36-37. In addition, candidates are selected based on the combined consideration of their

score on the Graduate Management Admissions Test (GMAT) and their grade point average from the previous 60 semester credits (90 quarter credits) completed. Generally, 200 times the GPA plus the GMAT score must total 1,150 or more. Additionally, for MAcc Programs, the minimum acceptable GMAT score is at the 40th percentile and the minimum GPA is 3.0. In addition, scores for each section of the GMAT must be at least at the 40th percentile. For information about admission to the MBA—Accounting Specialization Program, see Admission Requirements for the MBA Program, page 194. Letters of recommendation, professional experience, professional certification, and leadership are also considered in admission decisions for all accounting graduate programs. Students may apply for admission to the graduate programs during their senior year of baccalaureate study. USU accounting students may take graduate courses during their last semester of undergraduate study, provided prerequisite courses have been completed, they have been admitted into a graduate program, and a split registration form is approved by the dean of the School of Graduate Studies. (See *Split Form Policy*, page 113.)

Students with the equivalent of a USU undergraduate degree in Accounting have completed all of the preparatory work for graduate study. Students with less than the equivalent of the undergraduate program are expected to make up the deficiencies. The director of Graduate Accounting Programs will assist in necessary program scheduling.

Graduate students are expected to maintain an overall GPA of 3.0 to remain in the program.

Complete information relative to the details of the program and course scheduling is available from the School of Accountancy.

## Graduate Degree Programs

**MAcc requirements for students who have completed all of the preparatory work for graduate study**

### Program of Study

Students matriculated in the Master of Accounting degree must complete an approved program of study consisting of at least 30 credits. This program must include completion of the MAcc Core Requirements and one of the Areas of Specialization Requirements. Details for each requirement type are provided in the following paragraphs.

### MAcc Core Requirements

The core courses required for this degree include: ACCT 6200, 6410, 6510, 6610; PFP 6560; and one additional approved elective course (3 credits).

### Master of Accounting Specializations

In addition to meeting the MAcc Core Requirements, students must complete requirements for one of the following specializations:

#### Professional Accountancy Specialization

Required courses for this specialization are: ACCT 6250, 6310, 6540, and 6600.

#### Taxation Specialization

Required courses for this specialization are: ACCT 6420, 6440, 6460, and one course chosen from PFP 6060, 6070, or 6080.

#### Personal Financial Planning Specialization

Students must complete PFP 6060, 6070, 6080, and one course chosen from ACCT 6420, 6440, or 6460. In addition, students must

# School of Accountancy

complete, or have previously completed, the equivalent of PFP 3460 or FIN 4460 (neither of these courses count as part of the 30-credit MAcc degree requirement). This specialization satisfies the requirements to sit for the national Certified Financial Planner (CFP) examination.

## Information Systems Specialization

Students must complete ACCT 6500, 6600, and an additional 6 credits of approved systems-related courses.

## Finance Specialization

Complete ACCT 6310, plus 9 credits selected from approved finance-related courses.

## Accelerated Program for Nonaccounting Undergraduate Majors

### MAcc for nonaccounting undergraduate majors (54 to 68 credits)

Candidates for this program must score at or above the 50th percentile on all sections of the GMAT and have a 3.3 minimum GPA for the last 60 semester credits. This program requires the successful completion of the Business Core, plus an additional 54 credits. The Business Core may be satisfied by taking the Accelerated Business Core (13.5 credits), which is offered during summer semester *only*. (See *Accelerated Business Core* text in the *Master of Business Administration (MBA)* section, pages 194-195.) Students with undergraduate degrees in business subjects (other than accounting) need not take the Accelerated Business Core and therefore may earn the MAcc in 54 credits. The 54 credits include: ACCT 3110, 3120, 3310, 3410, 4200, 4410, 4500, 4510, the MAcc Core Requirements, and one of the MAcc areas of specialization.

### MBA—Accounting Specialization

Students admitted to the USU MBA Program may earn an Accounting Specialization by completing at least 12 approved 6000-level accounting credits as part of their MBA program of study. To qualify for this specialization, students must complete, or have previously completed, the equivalent of ACCT 3110, 3120, 3310, 3410, 4200, 4410, 4500, 4510, 6200, 6510, and 6610.

### MBA—Personal Financial Planning Specialization

Students admitted to the MBA Program may earn a Personal Financial Planning Specialization by completing the MBA Advanced Required Courses (see MBA program description, pages 194-195), and the following: PFP 6060, 6070, 6080; ACCT 3410; and PFP 3460 or FIN 4460. This specialization satisfies requirements to sit for the national Certified Financial Planner (CFP) examination.

## Financial Assistance

Financial assistance is available in the form of President's Fellowships, Graduate School Fellowships, graduate assistantships, and special School of Accountancy scholarships. Applications for assistance should be made after the application for admission to the School of Graduate Studies is filed, but before March 1 of each year. Application forms are available from the School of Accountancy, and the awards are normally announced by April 15.

## Professional Organizations and Activities

Graduate students are encouraged to participate in professional organizations, such as the USU chapters of Beta Alpha Psi (National Honors Fraternity for Financial Information Professionals), the Institute of Management Accountants, and the Financial Planning Student Association. The Federation of Schools of Accountancy, the American Institute of Certified Public Accountants, the Utah Association of Certified Public Accountants, and other professional organizations sponsor professional activities for accounting graduate students.

## Accountancy Faculty

### Professors

*Larry M. Walther*, department head, School of Accountancy; financial  
*Richard L. Jenson*, ATK Thiokol Professor, information systems, systems audit  
*I. Richard Johnson*, Larzette G. Hale Professor, financial  
*Jay H. Price, Jr.*, Arthur Andersen Executive Professor, financial, governmental, public utilities  
*Clifford R. Skousen*, Ernst & Young Professor, international, managerial, financial

### Associate Professors

*Jeffrey T. Doyle*, George S. Eccles Chair in Capital Markets Research, financial, capital markets  
*Rosemary R. Fullerton*, managerial, cost  
*E. Vance Grange*, tax, financial planning

### Assistant Professors

*Garth F. Novack*, financial, tax  
*Christopher J. Skousen*, financial, managerial, cost  
*Nate M. Stephens*, auditing, corporate governance and internal controls

### Principal Lecturer

*Franklin D. Shuman*, financial, managerial

### Lecturers

*Ryan E. Larkin*, tax, financial  
*Jack W. Peterson*, auditing, financial  
*Dale G. Siler*, business law, tax

### Adjunct Professor

*M. Kay Jeppesen*, government contract accounting and administration

### Professors Emeritus

*James W. Brackner*  
*Frank A. Condie*  
*Larzette G. Hale*  
*David H. Luthy*  
*Richard L. Ratliff*

## Course Descriptions

Accounting (ACCT), pages 490-491

Personal Financial Planning (PFP), pages 630-631

# Department of Aerospace Studies

**Department Head:** Lieutenant Colonel Robert E. Herndon, Jr.

**Location:** Military Science Building, Room 107

**Phone:** (435) 797-8723

**FAX:** (435) 797-8733

**E-mail:** afrotc.det860@usu.edu

**WWW:** <http://www.usu.edu/afrotc/>

## Undergraduate Programs

### Objectives

Air Force ROTC provides educational experiences that develop skills and attitudes vital to the career of an Air Force officer. The purpose of the course is to give an understanding of the mission and the global responsibilities of the United States Air Force. The academic phase develops background in national and international affairs to help understand and evaluate world events.

In addition, the curriculum includes experiences designed to stimulate and develop an interest in the Air Force (e.g., orientation flights and visits to Air Force bases); opportunities to apply the principles of leadership, human relations, management, and staff work in practical situations; and other related experiences.

### Requirements

#### Physical Fitness and Medical

All students must meet the physical fitness and medical standards for general military service.

#### Age Limitations

Pilot and navigator category applicants must enter undergraduate flying training prior to age 30. **AFROTC pilot and navigator candidates must be scheduled for commissioning before reaching 29 years of age.** Other applicants must receive an enrollment allocation before reaching age 30. The maximum age restriction may be waived for individuals scheduled for commissioning after age 34, but prior to age 35. Public Law 88-647 prohibits commissioning or active duty entrance after age 35. By law, scholarship recipients must be under age 31, as of December 31 of the calendar year during which commissioning is scheduled. **Title 10, United States Code, Section 2107 does not provide for waivers.**

#### Academic Requirements

Successful completion of the four-, three-, or two-year Air Force ROTC program is required to be commissioned as a Second Lieutenant in the U.S. Air Force. Aerospace Studies classes are taken in addition to the classes required for a bachelor's degree. In some cases, ROTC classes may be taken in conjunction with a master's degree program. The program taken is based on the number of years remaining until graduation (e.g., a transfer student with two years remaining until graduation would enroll in the two-year program). The courses, along with the normal schedule for taking them for each of the programs, are listed below:

#### Four-Year Program

##### First year:

AS 1010 Introduction to the Air Force Today.....	1
AS 1110 Leadership Laboratory I.....	1
AS 1020 Introduction to the Air Force Today.....	1
AS 1120 Leadership Laboratory I.....	1

##### Second year:

AS 2010 The Evolution of U.S. Aerospace Power .....	1
AS 2110 Leadership Laboratory II.....	1
AS 2020 The Evolution of U.S. Aerospace Power .....	1
AS 2120 Leadership Laboratory II.....	1

##### Third year:

AS 3400 Field Training (4 weeks) .....	1-4
AS 3010 Air Force Leadership and Management .....	3
AS 3110 Leadership Laboratory III.....	1
AS 3020 Air Force Leadership and Management .....	3
AS 3120 Leadership Laboratory III.....	1

##### Fourth year:

AS 4010 National Security Affairs/Preparation for Active Duty.....	3
AS 4110 Leadership Laboratory IV .....	1
AS 4020 National Security Affairs/Preparation for Active Duty.....	3
AS 4120 Leadership Laboratory IV .....	1

#### Three-Year Program

##### First year:

AS 1010 Introduction to the Air Force Today.....	1
AS 2010 The Evolution of U.S. Aerospace Power .....	1
AS 2110 Leadership Laboratory II.....	1
AS 1020 Introduction to the Air Force Today.....	1
AS 2020 The Evolution of U.S. Aerospace Power .....	1
AS 2120 Leadership Laboratory II.....	1

##### Second year:

AS 3400 Field Training (4 weeks) .....	1-4
AS 3010 Air Force Leadership and Management .....	3
AS 3110 Leadership Laboratory III.....	1
AS 3020 Air Force Leadership and Management .....	3
AS 3120 Leadership Laboratory III.....	1

##### Third year:

AS 4010 National Security Affairs/Preparation for Active Duty.....	3
AS 4110 Leadership Laboratory IV .....	1
AS 4020 National Security Affairs/Preparation for Active Duty.....	3
AS 4120 Leadership Laboratory IV .....	1

#### Two-Year Program

##### First year:

AS 3500 Field Training (6 weeks) .....	1-6
AS 3010 Air Force Leadership and Management .....	3
AS 3110 Leadership Laboratory III.....	1
AS 3020 Air Force Leadership and Management .....	3
AS 3120 Leadership Laboratory III.....	1

##### Second year:

AS 4010 National Security Affairs/Preparation for Active Duty.....	3
AS 4110 Leadership Laboratory IV .....	1
AS 4020 National Security Affairs/Preparation for Active Duty.....	3
AS 4120 Leadership Laboratory IV .....	1

#### Summer Training

AS 3500 is a prerequisite for cadets entering the Air Force ROTC two-year program. Training will be given at an Air Force base and will last six weeks. Up to 6 credits may be granted for this training.

All cadets in the three- and four-year programs will attend a four-week summer training camp. Attendance at this camp is usually between the sophomore and junior year at a selected Air Force base. Up to 4 credits may be granted for this training.

# Department of Aerospace Studies

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## Leadership Laboratory

A Leadership Laboratory period is required each week during the fall and spring semesters for each year of aerospace studies. Interested students should check the current *Schedule of Classes* for the Leadership Laboratory schedule.

## Minor

A minor in Aerospace Studies may be awarded upon completion of commissioning requirements.

## Veterans

A veteran may apply for the Air Force ROTC program if he or she can complete the program prior to reaching age 30, with a year for year waiver up to age 35 for each year of active duty service. (The waiver does not apply to the maximum age at graduation to enter flight training of 29.) The general military course (first two years) may be waived for prior military service. However, veterans must successfully complete AS 3400 prior to entering the two-year program.

## Commitment

Most officers have a four-year commitment. However, pilots have a commitment of ten years after pilot training, and navigators have a commitment of six years after their training. Air battle managers have a six-year commitment.

## Future Educational Benefits

During the senior year, a cadet may request a delay to active duty to continue studies toward a graduate degree. The length of the delay depends upon the student's request and the Air Force needs.

Through a variety of Air Force programs, officers may continue their education after going on active duty. Most bases have extensive on-base graduate college programs. The Tuition Assistance Program will pay 100 percent of tuition costs. ROTC graduates may also be eligible for the Montgomery GI Bill.

The Air Force Institute of Technology provides full-time graduate study for selected officers. Some classes are taught in residence at the institute's campus at Wright-Patterson Air Force Base in Ohio, and others are taught at civilian universities.

Many officers make the Armed Forces their career, but some use the skills and training obtained in military service for civilian jobs. Most private businesses and government agencies require the same basic skills that are needed for jobs in military service. Air Force training and experience provide excellent leadership skills and can be a valuable asset in obtaining civilian employment.

## Additional Information

For additional details about requirements for the Aerospace Studies program, see the major requirement sheet, which can be obtained from the department, or accessed at:  
<http://www.usu.edu/majorsheets/>

## Scholarships and Financial Aid

### Scholarships

Air Force ROTC scholarships are available on a competitive basis in four-, three-, or two-year awards. These scholarships provide up to full tuition, laboratory and incidental fees, plus an allowance for textbooks. Eligible USU students should apply to the Department of Aerospace Studies at USU.

The High School Scholarship Program (HSSP) for high school students is announced annually through the Air Force ROTC website at: <http://www.afrotc.com>. This website contains information regarding eligibility requirements and application procedures, as well as an online application. **Generally, students must use the online application.** However, in the rare case that this is not possible, HQ AFROTC/DOR will work out an alternative application plan on a case-by-case basis. Students must apply by December 1 of their senior year in high school.

In addition, all students on contract (either on an Air Force ROTC scholarship or contracted in the POC) receive a tax-free stipend of \$300-500 for each month during the school year.

### Uniforms and Texts

All Air Force ROTC texts and uniforms are furnished at no expense to the student.

## Miscellaneous Information

### Career Opportunities

To meet the challenges, keep up with technological advancements, and explore the opportunities of the ever-broadening horizons in the aerospace age, officers possessing a variety of skills are required by the Air Force. Interested students should contact the Aerospace Studies Department for information on the Air Force career opportunities related to their academic major.

## Aerospace Studies Faculty

### Professor

*Lt. Colonel Robert E. Herndon, Jr.*

### Assistant Professors

*Major Kirstin L. Plagge, Commandant of Cadets*  
*Captain Gregg A. Smith, Unit Admissions Officer*

### Information Manager

*Technical Sergeant Holly A. Unger*

### Personnel Specialist

*Technical Sergeant Allan L. Arcia*

## Course Descriptions

Aerospace Studies (AS), pages 505-506

# Department of Agricultural Systems Technology and Education

**Department Head:** Bruce E. Miller  
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**WWW:** <http://www.usu.edu/aste/>

**Agricultural Systems Technology, Agricultural Education, and Agricultural Machinery Technology Advisor:**  
Eric B. Worthen, ASTE 113, (435) 797-7091, eric.worthen@usu.edu

**Family and Consumer Sciences Education Advisor:**  
Luella Oaks, Family Life 303A, (435) 797-1565,  
luella.oaks@usu.edu  
fcseadvising@aggiemail.usu.edu

**Degrees offered:** Bachelor of Science (BS) in Agricultural Education; BS in Agricultural Communication and Journalism (offered jointly with Journalism and Communication Department); BS, Master of Science (MS) in Agricultural Systems Technology; BS in Family and Consumer Sciences Education; Associate of Applied Science (AAS) in Agricultural Machinery Technology; One-year Certificate in Agricultural Machinery Technology

**Undergraduate emphases:** BS—*Agricultural Systems Technology*: Agribusiness and Agricultural Mechanization

**Graduate specializations:** MS—*Agricultural Extension Education*, Agricultural Mechanization, Family and Consumer Sciences Education and Extension, International Agricultural Extension, and Secondary and Postsecondary Agricultural Education

## Undergraduate Programs

### Objectives

The programs offered in the Agricultural Systems Technology and Education Department are for students who are preparing for positions as family and consumer sciences or agricultural education teachers, as well as for positions in family and consumer sciences education or agricultural extension, agricultural mechanization, agribusiness and communication, and agricultural production and management.

The facilities for these programs include laboratories with specially designed equipment for practical instruction in agricultural systems and mechanization, including computer applications, agribusiness, agricultural buildings, engines, electricity, hydraulics, machinery, and repair welding. Family and Consumer Sciences Education students use laboratories equipped for instruction in secondary education, clothing production, textile science, early childhood education, nutrition, and interior design.

### Requirements

#### Departmental Admission Requirements

Admission requirements for the Department of Agricultural Systems Technology and Education are the same as those described for the University on pages 30-35. Students in good standing may apply for admission to the department.

#### Bachelor of Science in Agricultural Education

Preparation in Agricultural Education includes technical agriculture, economics, and business. Students selecting the teaching option will also enroll in principles and techniques of teaching courses.

Students interested in teaching agricultural production and processing, agricultural mechanics, horticulture, or natural resources will be guided into areas of their major interest. Agricultural backgrounds or summer agricultural experiences are necessary for teacher certification.

An application for admission to teacher education should ordinarily be completed before the junior year (see Emma Eccles Jones College of Education and Human Services requirements, page 128). Approval for admission to teacher education is a prerequisite to enrollment in education and psychology courses. A 2.75 GPA is required for admission to the teacher education program.

Requirements for the **Bachelor of Science in Agricultural Education** are listed briefly. For more detailed information on courses and the recommended sequence for taking them, see the major requirement sheet available from the Agricultural Systems Technology and Education Department.

The Agricultural Education major involves four teaching areas, which correspond with the Utah agricultural education program model design. Students must complete the University Studies requirements (see pages 67-75). In addition, students must complete the following courses in preparation for teacher licensure:

#### Professional Education (14 credits)

<b>SCED 3100</b> Motivation and Classroom Management (F,Sp) .....	3
<b>SCED 3210 (CI/DSS)</b> Educational and Multicultural Foundations (F,Sp).....	3
<b>SCED 4200 (CI)</b> Reading, Writing, and Technology (F,Sp) .....	3
<b>SCED 4210</b> Cognition and Evaluation of Student Learning (F,Sp) .....	3
<b>SPED 4000</b> Education of Exceptional Individuals (F,Sp,Su) .....	2

#### Agricultural Education (26 credits)

<b>ASTE 2710</b> Orientation to Agricultural Education (F).....	2
<b>ASTE 3100</b> Leadership Applications in Agricultural Science, Management, and Development (Sp) .....	2
<b>ASTE 3240 (CI)</b> Teaching in Laboratory Settings (Sp).....	3
<b>ASTE 3300</b> Clinical Experience I in Agricultural Education (Sp).....	1
<b>ASTE 3620</b> Managing the FFA and SAE Programs (Sp).....	2
<b>ASTE 4150 (CI)</b> Methods of Teaching Agriculture (F) .....	3
<b>ASTE 4300</b> Clinical Experience II in Agricultural Education (F).....	1
<b>ASTE 5500</b> Agricultural Education Secondary Curriculum Seminar (Sp).....	2
<b>ASTE 5630</b> Agricultural Education Student Teaching in Secondary Schools (Sp).....	10

All students in the Agricultural Education major will complete a core of technical agricultural courses to include:

<b>ASTE 3050 (CI)</b> Technical and Professional Communication Principles in Agriculture (F,Sp) .....	3
<b>ASTE 3080</b> Compact Power Units for Agricultural and Turfgrass Applications (Sp) .....	3
<b>ADVS 1110</b> Introduction to Animal Science (F,Sp).....	4
<b>BIOL 1610</b> Biology I (F).....	4
<b>CHEM 1110 (BPS)</b> General Chemistry I (F,Sp).....	4
<b>SOIL 3000</b> Fundamentals of Soil Science (F,Sp).....	4

Students are required to designate a program emphasis for the following areas: Production and Processing; Agricultural Systems; Horticulture; and Natural Resources. Approximately 50 credits in a technical agriculture specialization are required in each of the four program area choices.

# Department of Agricultural Systems Technology and Education

## Emphasis Areas (52-57 credits)

These emphasis areas will *not* appear on a student's transcript. They are emphasis areas approved by the Utah State Office of Education.

### Production and Processing (52-53 credits)

ADVS 1110 Introduction to Animal Science (F,Sp)	4
ADVS 4560 (QI) Principles of Animal Breeding (F)	3
ADVS course	2-3
APEC 3010 Introduction to Agricultural Economics and Agribusiness (Sp) (3 cr) <b>or</b>	
APEC 3020 Firm Finance and Records Analysis (Sp) (3 cr)	3
ASTE 2200 Electricity in Agricultural Systems (Sp)	3
ASTE 2830 Agribusiness Sales and Marketing (F)	3
ASTE 3030 Metal Welding Processes and Technology in Agriculture (F)	3
ASTE 3040 (QI) Fabrication Practices in Agricultural Buildings (Sp)	2
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (F,Sp)	3
ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications (Sp)	3
BIOL 1610 Biology I (F)	4
CHEM 1110 (BPS) General Chemistry I (F,Sp)	4
PLSC 3050 Greenhouse Management and Crop Production (Sp)	4
PLSC 3700 Plant Propagation (F)	4
PLSC course	3
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4

### Horticulture (55 credits)

ADVS 1110 Introduction to Animal Science (F,Sp)	4
ASTE 2830 Agribusiness Sales and Marketing (F)	3
ASTE 3040 (QI) Fabrication Practices in Agricultural Buildings (Sp)	2
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (F,Sp)	3
ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications (Sp)	3
BIOL 1610 Biology I (F)	4
CHEM 1110 (BPS) General Chemistry I (F,Sp)	4
PLSC 2200 Pest Management Principles and Practices (Sp)	3
PLSC 2600 Annual and Perennial Plant Materials (F)	3
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F)	3
PLSC 3010 Basic Flower Arranging (F) (offered through Distance Education <i>only</i> )	2
PLSC 3050 Greenhouse Management and Crop Production (Sp)	4
PLSC 3300 Residential Landscapes (Sp)	3
PLSC 3700 Plant Propagation (F)	4
PLSC 3800 Turfgrass Management (F)	3
PLSC 4500 Fruit Production (Sp)	3
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4

### Agricultural Systems (54 credits)

ADVS 1110 Introduction to Animal Science (F,Sp)	4
APEC 3010 Introduction to Agricultural Economics and Agribusiness (Sp) (3 cr) <b>or</b>	
APEC 3020 Firm Finance and Records Analysis (Sp) (3 cr)	3
ASTE 1010 Introduction to Agricultural Systems Technology (F)	3
ASTE 1640 Agricultural Equipment and Parts Marketing and Communications (F)	3
ASTE 2200 Electricity in Agricultural Systems (Sp)	3
ASTE 3030 Metal Welding Processes and Technology in Agriculture (F)	3
ASTE 3040 (QI) Fabrication Practices in Agricultural Buildings (Sp)	2
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (F,Sp)	3

ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications (Sp)	3
ASTE 3200 Irrigation Principles and Practices (Sp)	3
ASTE 3600 (QI) Management of Agricultural Machinery Systems (Sp)	3
ASTE 4100 Agricultural Structures and Environment (Sp)	3
ASTE 5260 (CI) Environmental Impacts of Agricultural Systems (F)	3
CHEM 1110 (BPS) General Chemistry I (F,Sp)	4
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration	4
PLSC 4280 Field Crops (F)	3
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4

### Natural Resources (54 credits)

ADVS 1110 Introduction to Animal Science (F,Sp)	4
ASTE 3040 (QI) Fabrication Practices in Agricultural Buildings (Sp)	2
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (F,Sp)	3
ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications (Sp)	3
ASTE 5260 (CI) Environmental Impacts of Agricultural Systems (F)	3
BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	4
BIOL 2220 General Ecology (F,Sp)	3
CHEM 1110 (BPS) General Chemistry I (F,Sp)	4
ENVS 2340 (BSS) Natural Resources and Society (F,Sp)	3
ENVS 3600 Living with Wildlife (Sp)	3
SOIL 3000 Fundamentals of Soil Science (F,Sp) (4 cr) <b>or</b>	
SOIL 4000 Soil and Water Conservation (F) (4 cr)	4
WILD 3600 Wildland Plant Ecology and Identification (F)	4
WILD 3610 Wildland Animal Ecology and Identification (F)	4
WILD 4000 Principles of Rangeland Management (Sp)	3
WILD 4900 Managing Dynamic Ecological Systems (Sp)	3

## Bachelor of Science in Agricultural Systems Technology (AST)

This major has two emphases: *Agribusiness and Agricultural Mechanization*. Preparation in either emphasis includes technical agriculture, economics, and business. The agricultural mechanization emphasis requires additional courses in technical electives and communication skills development.

The Bachelor of Science in Agricultural Systems Technology includes the following courses:

### Technical Requirements (20 credits)

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
APEC 3010 Introduction to Agricultural Economics and Agribusiness (Sp)	3
APEC 3020 Firm Finance and Records Analysis (Sp)	3
CHEM 1110 (BPS) General Chemistry I (F,Sp)	4
ECN 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4

### Communications Intensive Courses (6 credits)

ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (F,Sp)	3
ASTE 5260 (CI) Environmental Impacts of Agricultural Systems (F)	3

# Department of Agricultural Systems Technology and Education

## Agricultural Systems Courses (minimum of 24 credits)

ASTE 1010 Introduction to Agricultural Systems Technology (F).....	3
ASTE 2200 Electricity in Agricultural Systems (Sp) .....	3
ASTE 2830 Agribusiness Sales and Marketing (F) .....	3
ASTE 3030 Metal Welding Processes and Technology in Agriculture (F).....	3
ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications (Sp) .....	3
ASTE 3090 Computer Applications in Agriculture (F).....	3
ASTE 4100 Agricultural Structures and Environment (Sp).....	3
ASTE 4900 Senior Project Research and Creative Opportunity (Sp).....	1-6

## Designated Electives (minimum of 24 credits)

Select 24 credits from the following courses. Twelve of these credits must be selected from upper-division (3000-level and above) courses.

ASTE 1610 Agricultural Machinery Engines (F).....	3
ASTE 1615 Agricultural Machinery Engine Laboratory (F).....	3
ASTE 1620 Agricultural Machinery Power Trains (Sp).....	3
ASTE 1625 Agricultural Machinery Power Trains Laboratory (Sp).....	3
ASTE 3040 (QI) Fabrication Practices in Agricultural Buildings (Sp)....	2
ASTE 3100 Leadership Applications in Agricultural Science, Management, and Development (Sp) .....	2
ASTE 3200 Irrigation Principles and Practices (Sp).....	3
ASTE 3600 (QI) Management of Agricultural Machinery Systems (Sp).....	3
ASTE 3670 Agricultural Equipment Business Management, Marketing, and Communications (Sp) .....	3
ASTE 3900 Special Problems in Agricultural Systems Technology and Education (F,Sp,Su) .....	1-6
ASTE 4250 Occupational Experiences in Agriculture (F,Sp,Su) .....	1-6
ASTE 5100 Electrical Controls and Motors for Agri-Industrial Applications (Sp) .....	3
ADVS courses .....	6-12
ACCT courses .....	6-12
APEC courses .....	6-12
FIN and MGT courses .....	12-24
MIS courses.....	6-12
PLSC courses.....	6-12
SOIL courses .....	6-12

Students will complete a minor in Business or Agribusiness. Additional requirements in Animal Science; Plant and Soil Sciences; and Wildland Resources must also be met. In addition, students must complete the University Studies Requirements (see pages 67-75). Students must complete elective credits to meet the University's requirement of at least 120 credits.

## Agricultural Systems Technology and Agribusiness Composite Major

### Applied Economics and Economics Courses (21 credits)

APEC/ECN 2010 (BSS) Introduction to Microeconomics (F,Sp,Su) .....	3
APEC 3010 Introduction to Agricultural Economics and Agribusiness (Sp) .....	3
APEC 3020 Firm Finance and Records Analysis (Sp) .....	3
APEC 5010 (QI) Firm Marketing and Price Analysis (F) .....	3
APEC 5015 Firm Management, Planning, and Optimization (F).....	3
ECN 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
ECN 3010 (DSS) Managerial Economics (F,Sp) .....	3

## Agricultural Systems Courses (24 credits)

ASTE 1010 Introduction to Agricultural Systems Technology (F).....	3
ASTE 2200 Electricity in Agricultural Systems (Sp) .....	3
ASTE 3030 Metal Welding Processes and Technology in Agriculture (F) (3 cr) or	
ASTE 4100 Agricultural Structures and Environment (Sp) (3 cr) .....	3
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (F,Sp) .....	3
ASTE 3090 Computer Applications in Agriculture (F).....	3
ASTE 3200 Irrigation Principles and Practices (Sp) (3 cr) or	
ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications (Sp) (3 cr) .....	3
ASTE 3600 (QI) Management of Agricultural Machinery Systems (Sp).....	3
ASTE 5260 (CI) Environmental Impacts of Agricultural Systems (F) ....	3

## Technical Requirements (27 credits)

ACCT 2010 Survey of Accounting I (F,Sp,Su).....	3
ACCT 2020 Survey of Accounting II (F,Sp,Su).....	3
CHEM 1010 (BPS) Introduction to Chemistry (F,Sp).....	3
MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
MATH 1100 (QL) Calculus Techniques (F,Sp,Su) .....	3
MGT 2050 Legal and Ethical Environment of Business (F,Sp,Su) .....	3
SOIL 4000 Soil and Water Conservation (F).....	4
STAT 2300 (QL) Business Statistics (F,Sp,Su) .....	4

## University Studies Requirements

### (not met as part of above requirements) (18 credits)

Communications Literacy (CL1 and CL2) courses .....	6
Breadth Creative Arts (BCA) course.....	3
Breadth Humanities (BHU) course .....	3
Breadth Life Sciences (BLS) course.....	3
Depth Humanities and Creative Arts (DHA) course.....	3
Computer and Information Literacy (CIL) Exam.....	0

## General Electives (24 credits)

Total Credits for Graduation.....	120
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## Bachelor of Science in Agricultural Communication and Journalism

To develop a well-rounded agricultural communication professional, the BS degree in Agricultural Communication and Journalism combines courses in journalism with courses in agriculture. Students take coursework in a variety of technical agricultural disciplines, including animal science, plant science, agricultural economics, textiles, and biotechnology. This training provides students with the basic knowledge to draw from as they communicate the importance of the food and fiber industry. This program is designed so that students may complete a dual major in Journalism.

## University Studies—Competency

ENGL 1010 (CL1) Introduction to Writing: Academic Prose (F,Sp,Su) .....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su).....	3
(Note: Alternatively, the CL1 and CL2 requirements may be fulfilled through testing. See page 67 for further information.)	
MATH 1050 (QL) College Algebra (F,Sp,Su).....	4



# Department of Agricultural Systems Technology and Education

## University Studies—Breadth

Students must complete a minimum of 18 credits in breadth courses, including one course from each of the six categories (BAI, BCA, BHU, BLS, BPS, and BSS). At least two of these six courses must have a USU prefix. The following courses are suggested for students in the Agricultural Communication and Journalism major.

<b>CHEM 1010 (BPS)</b> Introduction to Chemistry (F,Sp).....	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>JCOM 1500 (BSS)</b> Introduction to Mass Communication (F,Sp) .....	3
<b>USU 1350 (BLS)</b> Integrated Life Science (F,Sp,Su).....	3
Breadth Creative Arts (BCA) course.....	3
Breadth Humanities (BHU) course.....	3

## University Studies—Depth

Two Communications Intensive (CI) courses and one Quantitative Intensive (QI) course are required. Students in the Agricultural Communication and Journalism major must also take one Depth Humanities and Creative Arts (DHA) course and one Depth Social Sciences (DSS) course. The CI requirement may be fulfilled with two of ASTE 3050, 5260, and JCOM 2610 (required for the major). JCOM 4030 (taken as part of the major) will fulfill the DSS requirement.

## Technical Agriculture Courses (18 credits)

<b>ADVS 1110</b> Introduction to Animal Science (F,Sp).....	4
<b>APEC 3010</b> Introduction to Agricultural Economics and Agribusiness (Sp) .....	3
<b>FCSE 3030 (QI)</b> Textile Science.....	4
<b>NFS 2040</b> Introduction to Biotechnology (Sp).....	1
<b>PLSC 4300</b> World Food Crops and Cropping Systems: The Plants That Feed Us (F).....	3
Upper-division College of Agriculture elective course .....	3

## Agricultural Communication Courses (23 credits)

<b>ASTE 1710</b> Introduction to Agricultural Communication (F).....	3
<b>ASTE 2830</b> Agribusiness Sales and Marketing (F) .....	3
<b>ASTE 2900 (BSS)</b> Humanity in the Food Web (F,Sp).....	3
<b>ASTE 3050 (CI)</b> Technical and Professional Communication Principles in Agriculture (F,Sp) .....	3
<b>ASTE 3090</b> Computer Applications in Agriculture (F).....	3
<b>ASTE 3100</b> Leadership Applications in Agricultural Science, Management, and Development (Sp) .....	2
<b>ASTE 4900</b> Senior Project: Agricultural Publications (Sp) .....	3
<b>ASTE 5260 (CI)</b> Environmental Impacts of Agricultural Systems (F)....	3

## Journalism and Communication (15 credits)

<b>JCOM 1130</b> Beginning Newswriting for the Mass Media (F,Sp,Su) .....	3
<b>JCOM 1500 (BSS)</b> Introduction to Mass Communication (F,Sp) .....	3
<b>JCOM 2010 (BSS)</b> Media Smarts: Making Sense of the Information Age (F,Sp).....	3
<b>JCOM 2160 (CI)</b> Introduction to Online Journalism (F,Sp).....	3
<b>JCOM 4030 (DSS)</b> Mass Media Law (F,Sp).....	3

## Public Relations/Corporate Communication Concentration (example)

**Note:** Agricultural Communication and Journalism students may elect to concentrate their coursework within one of the three Journalism major emphases (broadcast/electronic media, print journalism, or public relations/corporate communication), or they may construct an individually designed concentration with the approval of the Journalism and Communication Department faculty.

<b>JCOM 2300</b> Introduction to Public Relations (F,Sp).....	3
<b>JCOM 2310 (CI)</b> Writing for Public Relations (F,Sp) .....	3
<b>JCOM 3300 (DSS)</b> Strategic Research Methods in Public Relations (F,Sp) .....	3
<b>JCOM 5300 (CI)</b> Case Studies in Public Relations (F,Sp).....	3
Elective skills course .....	3

## Non-Agriculture/Communication Electives

Additional elective courses in fields *other than* agriculture and communication must be taken to complete the remainder of the minimum 120 credits required for graduation.

## Associate of Applied Science Degree in Agricultural Machinery Technology

The Associate of Applied Science Degree in Agricultural Machinery Technology consists of a minimum of 6 credits of University Studies courses, 45 credits in the major (Agricultural Systems Technology and Education), 9 credits in business or related elective coursework, for a total of not less than 60 credits. The suggested breakdown of coursework is listed below.

### University Studies (6 credits)

Classes will be selected from a minimum of two areas for a total of 6 credits. ENGL 1010, Introduction to Writing: Academic Prose (or an equivalent writing or communications class) must be completed as one of these classes.

### Core Classes (45 credits)

The following 45 credits are required:

<b>ASTE 1010</b> Introduction to Agricultural Systems Technology (F).....	3
<b>ASTE 1120</b> Forage and Harvest Equipment (F).....	3
<b>ASTE 1130</b> Planting and Tillage Equipment (Sp).....	3
<b>ASTE 1610</b> Agricultural Machinery Engines (F).....	3
<b>ASTE 1615</b> Agricultural Machinery Engine Laboratory (F).....	3
<b>ASTE 1620</b> Agricultural Machinery Power Trains (Sp).....	3
<b>ASTE 1625</b> Agricultural Machinery Power Trains Laboratory (Sp).....	3
<b>ASTE 2200</b> Electricity in Agricultural Systems (AC) (Sp).....	3
<b>ASTE 3030</b> Metal Welding Processes and Technology in Agriculture (F).....	3
<b>ASTE 3080</b> Compact Power Units for Agricultural and Turfgrass Applications (Sp) .....	3
<b>ASTE 3090</b> Computer Applications in Agriculture (F).....	3
<b>ASTE 3600</b> Management of Agricultural Machinery Systems (Sp).....	3
<b>ASTE 3670</b> Agricultural Equipment Business Management, Marketing, and Communications (Sp) .....	3
<b>ASTE 3710</b> Agricultural Machinery Hydraulic Systems and Diagnosis (F) .....	3
<b>ASTE 3720</b> Agricultural DC Electrical Systems and Diagnosis (F).....	3

### Business or Related Elective Classes (select 9 credits)

<b>ADVS 1110</b> Introduction to Animal Science (F,Sp).....	4
<b>ASTE 2250</b> Occupational Experience in Agriculture (F,Sp).....	5
<b>ASTE 2830</b> Agribusiness Sales and Marketing (F) .....	3
<b>ASTE 2900 (BSS)</b> Humanity in the Food Web (F,Sp).....	3
<b>ASTE 2930</b> Individualized Projects in Agricultural Mechanics (F,Sp).1-3	
<b>ASTE 3040</b> Fabrication Practices in Agricultural Buildings (Sp) .....	2
<b>ASTE 3050</b> Technical and Professional Communication Principles in Agriculture (F,Sp).....	3
<b>ASTE 3090</b> Computer Applications in Agriculture (F).....	3
<b>ASTE 3100</b> Leadership Applications in Agricultural Science, Management, and Development (Sp) .....	2
<b>ASTE 3200</b> Irrigation Principles and Practices (Sp).....	3
<b>ASTE 3900</b> Special Problems in Agricultural Systems Technology and Education (F,Sp,Su) .....	1-6
<b>ASTE 4100</b> Agricultural Structures and Environment (Sp).....	3

# Department of Agricultural Systems Technology and Education

<b>ASTE 5100</b> Electrical Controls and Motors for Agri-Industrial Applications (Sp) .....	3
<b>ASTE 5260</b> Environmental Impacts of Agricultural Systems (F) .....	3
<b>BIOL 1610</b> Biology I (F).....	4
<b>CHEM 1110 (BPS)</b> General Chemistry I (F,Sp).....	4
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>NR 1010 (BSS)</b> Humans and the Changing Global Environment.....	3
<b>PHYS 1200 (BPS)</b> Introduction to Physics by Hands-on Exploration ...	4
<b>PLSC 2200</b> Pest Management Principles and Practices (Sp).....	3
<b>PLSC 2620</b> Woody Plant Materials: Trees and Shrubs for the Landscape (F) .....	3
<b>PLSC 3050</b> Greenhouse Management and Crop Production (Sp) .....	4
<b>PLSC 3300</b> Residential Landscapes (Sp).....	3
<b>PLSC 3400</b> Landscape Management Principles and Practices (F) .....	3
<b>PLSC 3800</b> Turfgrass Management (F) .....	3
<b>PLSC 5550</b> Weed Biology and Control (F).....	4
<b>WATS 1200 (BLS)</b> Biodiversity and Sustainability (F,Sp).....	3
<b>WILD 4000</b> Principles of Rangeland Management (Sp).....	3

## Elective Courses

Students should select credits approved by the Agricultural Systems Technology and Education Department for flexibility in strengthening areas of insufficient background.

A total of 60 credits are required.

## Agricultural Machinery Technology Certificate

This one-year agricultural program meets the needs of persons interested in employment opportunities with agricultural dealerships and companies in the areas of parts and service, as well as with farm suppliers, feed and fertilizer agencies, corporate farms and ranches, and other related industries. The vocationally oriented agricultural technology program includes a cooperative occupational experience placement at the end of the first year of instruction.

Requirements for the one-year program include a minimum of 31 credits, with the following breakdown of suggested coursework:

### Fall Semester

<b>ASTE 1010</b> Introduction to Agricultural Systems Technology .....	3
<b>ASTE 1120</b> Forage and Harvest Equipment .....	3
<b>ASTE 1610</b> Agricultural Machinery Engines.....	3
<b>ASTE 1615</b> Agricultural Machinery Engine Laboratory .....	3
<b>ASTE 3090</b> Computer Applications in Agriculture .....	3
<b>ASTE 3710</b> Agricultural Machinery Hydraulic Systems and Diagnosis.....	3

### Spring Semester

<b>ASTE 1130</b> Planting and Tillage Equipment.....	3
<b>ASTE 1620</b> Agricultural Machinery Power Trains.....	3
<b>ASTE 1625</b> Agricultural Machinery Power Trains Laboratory .....	3
<b>ASTE 2250</b> Occupational Experience in Agriculture .....	1-6
<b>ASTE 3080</b> Compact Power Units for Agricultural and Turfgrass Applications .....	3

See major requirement sheet, available from the department, for more information.

## Minor in Agricultural Systems Technology

A minimum of 18 credits approved by a faculty advisor are required.

## Bachelor of Science in Family and Consumer Sciences Education (FCSE)

This major provides professional preparation for teaching Family and Consumer Sciences Education and Occupational Family and Consumer Sciences Education in public schools, or for employment as a family and consumer scientist in business or government agencies, and extension. Many states, including Utah, require a master's degree to work for extension.

This composite major includes study in nutrition and food sciences, family and human development, interior design, apparel and textiles, and consumer sciences, plus professional education courses.

Student teaching in secondary public schools is required. Internships in extension or business are available.

The following courses are required for the Family and Consumer Sciences Education Major.

### Required Support Courses and Prerequisites

<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>CHEM 1110 (BPS)</b> General Chemistry I (F,Sp).....	4
<b>CHEM 1120 (BPS)</b> General Chemistry II (Sp).....	4

### Major Required Courses (90 credits)

A grade of C or better must be earned in these courses

<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp)...	3
<b>FCHD 2400 (BSS)</b> Marriage and Family Relationships (F,Sp).....	3
<b>FCHD 2100</b> Family Resource Management (F,Sp) .....	3
<b>FCHD 2610</b> Child Guidance (F,Sp) .....	3
<b>FCHD 3350 (DSS)</b> Family Finance (F,Sp,Su) .....	3
<b>FCHD 4550</b> Preschool Methods and Curriculum (F,Sp).....	3
<b>FCSE 2040</b> Clothing Production Principles (F,Sp) .....	3
<b>FCSE 2510</b> Orientation to Family and Consumer Sciences Education (Sp).....	3
<b>FCSE 3030 (DSC/QL)</b> Textile Science (Sp) .....	4
<b>FCSE 3040</b> Advanced Clothing Production Principles (F).....	3
<b>FCSE 3080 (DHA)</b> Dress and Humanity (F,Sp).....	3
<b>FCSE 3300</b> Family and Consumer Sciences Education Clinical Experience I (40 hrs. minimum) (Sp).....	1
<b>FCSE 3400</b> Family and Consumer Sciences Education Methods I (Sp).....	3
<b>FCSE 3790</b> Housing and Interior Design Teaching Methods (F,Sp,Su) .....	3
<b>FCSE 4250</b> Internship in Family and Consumer Sciences Education (F,Sp,Su).....	2
<b>FCSE 4300</b> Family and Consumer Sciences Education Clinical Experience II (40 hrs. minimum) (F).....	1
<b>FCSE 4400</b> Family and Consumer Sciences Education Methods II (F) .....	3
<b>FCSE 5500</b> Student Teaching Seminar (2 weeks) (Sp) .....	2
<b>FCSE 5630</b> Student Teaching in Secondary Schools (13 weeks, full-time) (Sp) .....	10
<b>ID 1750 (BCA)</b> Design in Everyday Living (Su).....	3
<b>INST 3500</b> Technology Tools for Secondary Teachers (F,Sp,Su).....	1
<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition (F,Sp,Su) .....	3
<b>NFS 1240</b> Culinary Basics (F,Su).....	3
<b>NFS 2020</b> Nutrition Throughout the Life Cycle (Sp) .....	3
<b>NFS 3070</b> Science of Food Preparation (Sp).....	4
<b>SCED 3100</b> Motivation and Classroom Management (F,Sp) .....	3
<b>SCED 3210 (DSS/CI)</b> Educational and Multicultural Foundations (F,Sp).....	3
<b>SCED 4200 (CI)</b> Reading, Writing, and Technology (F,Sp) .....	3
<b>SCED 4210</b> Cognition and Evaluation of Student Learning (F,Sp) .....	3
<b>SPED 4000</b> Education of Exceptional Individuals (F,Sp,Su) (May be taken anytime).....	2

# Department of Agricultural Systems Technology and Education

## Suggested Four-year Plans

Suggested semester-by-semester four-year plans for students working toward a Bachelor of Science degree in majors within the Department of Agricultural Systems Technology and Education can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For further information about undergraduate programs and requirements in the Department of Agricultural Systems Technology and Education, see the major requirement sheets, which can be obtained from the department, or accessed online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admission Requirements

See general admission requirements, pages 36-37. Applications will be considered throughout the year. However, students who wish to be considered for financial aid must apply by February 1 for the coming academic year. No application will be considered until all required information arrives at the office of the School of Graduate Studies.

### Course Requirements

#### Master of Science

The MS program requires the completion of a minimum of 33 credits beyond the bachelor's degree. These credits must be approved by a supervisory committee. However, to optimize a student's academic experiences, 36 credits are recommended. A 15-credit core curriculum is required and includes courses in research/statistics and completion of a Plan A thesis for 6 credits or a Plan C program with a minimum of 37 credits. Students are also expected to select and complete an area of specialization.

In the Family and Consumer Sciences Education and Extension specialization, a Plan B option is available. This plan involves 33 credits of instruction (includes 3 thesis credits) and the development and presentation of a creative project.

The following four specializations are available for the MS in Agricultural Education:

The **Agricultural Extension Education** specialization provides a program for individuals interested in cooperative extension work. The curriculum for the program includes coursework related to managing people; planning, implementing, and evaluating programs to promote technology transfer (adult education); understanding research techniques relevant to agricultural education; and the managing of fiscal affairs.

Electives are selected from each of the following departments: Agricultural Systems Technology and Education; Applied Economics; Animal, Dairy and Veterinary Sciences; Economics and Finance; Biology; Plants, Soils, and Climate; Wildland Resources; and Instructional Technology and Learning Sciences.

The **Secondary and Postsecondary Agricultural Education** specialization is designed for persons desiring to improve their competencies as educators. This specialization provides teachers with opportunities to acquire additional knowledge in professional education and in their teaching specialties. The master's degree *does not* result in a teaching license for public schools.

The purpose of the **Family and Consumer Sciences Education and Extension** specialization is to expand academic preparation in an area of study such as family studies, housing, textiles and clothing, nutrition and food sciences, and management of personal resources. This specialization places emphasis on teaching and curriculum/program development and/or Extension. Students are prepared for community professions, including secondary teaching (since students earn a teaching license), urban and rural extension, social science, and business. Study may lead to supervisory and administrative positions in business, technical schools, and applied technology colleges, or to consulting positions in mass media and industry. The master's degree *does not* result in a teaching license for public schools.

The **International Agricultural Extension** specialization was developed to prepare agriculturally educated people to perform administrative and supervisory roles in less-developed countries. The curriculum for this program includes coursework related to managing people; planning, implementing, and evaluating programs to promote technology transfer; and managing fiscal affairs. Electives are selected from each of the following departments: Agricultural Systems Technology and Education; Animal, Dairy and Veterinary Sciences; Applied Economics; Economics and Finance; Biology; Plants, Soils, and Climate; and Instructional Technology and Learning Sciences.

### Research

The Utah Agricultural Experiment Station, a component of the College of Agriculture, supports graduate work in several areas of Agricultural Systems Technology and Education. Other state and federal agencies also support research in agricultural systems.

# Department of Agricultural Systems Technology and Education

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## Financial Assistance

Both departmental and formal grant support are available to graduate students and are awarded on a competitive basis. Students requesting financial support should apply to the department.

Research assistantships are available through faculty members who have ongoing projects with the Utah Agricultural Experiment Station or who hold special research grants from the University, private companies, or state-federal agencies. Acceptance to pursue graduate study does not guarantee the student financial assistance.

## Requirement Changes

Graduation requirements described in this catalog are subject to change. Students should check with their departments concerning possible changes.

## Agricultural Systems Technology and Education Faculty

### Professors

*Bruce E. Miller*, agricultural systems and mechanization  
*Gary S. Straquadine*, agricultural education/extension

### Adjunct Professor

*Kevin C. Kesler*, 4-H and youth development programs

### Professors Emeritus

*Gilbert A. Long*, agricultural education  
*Weldon S. Sleight*, extension education

### Associate Professors

*F. Richard Beard*, research and extension, agricultural engineering  
*Rhonda L. Miller*, sustainable agriculture/agricultural systems  
*Rudy S. Tarpley*, agricultural education, teacher preparation

### Assistant Professors

*Brian K. Warnick*, agricultural education, teacher preparation  
*Lindsey Shirley*, family and consumer sciences education,  
teacher preparation

### Lecturers

*Royce Hatch*, agricultural machinery technology  
*Luella Oaks*, apparel and textiles  
*Afifa Sabir*, education and outreach, Biotechnology Center  
*Eric B. Worthen*, agricultural systems  
*Julie P. Wheeler*, family and consumer sciences education

### Academic Advisors

*Luella Oaks*, Family and Consumer Sciences Education  
*Eric B. Worthen*, Agricultural Systems Technology and Education

## Course Descriptions

Agricultural Systems Technology and Education (ASTE),  
pages 506-508

Family and Consumer Sciences Education (FCSE), pages 564-565

# Department of Animal, Dairy and Veterinary Sciences

**Department Head:** Kenneth L. White

**Location:** Agricultural Science 230

**Phone:** (435) 797-2162

**FAX:** (435) 797-2118

**E-mail:** advsdept@adv.susu.edu

**WWW:** <http://www.advs.susu.edu>

**Associate Department Head of Academic Programs:**

Thomas D. Bunch, Agricultural Science 228, (435) 797-2148,  
[tom.bunch@susu.edu](mailto:tom.bunch@susu.edu)

**Associate Department Head of Extension and Outreach:**

Dale R. ZoBell, Agricultural Science 246, (435) 797-2144,  
[dale.zobell@susu.edu](mailto:dale.zobell@susu.edu)

**Undergraduate Advisor:**

Tami Spackman, Agricultural Science 242, (435) 797-2150,  
[tami.spackman@susu.edu](mailto:tami.spackman@susu.edu)

**Degrees offered:** Bachelor of Science (BS) in Animal, Dairy and Veterinary Sciences; Master of Science (MS) in Animal Science, Bioveterinary Science, Dairy Science; Doctor of Philosophy (PhD) in Animal Science and Bioveterinary Science; MS and PhD degrees in Toxicology are available through the Interdepartmental Toxicology program

**Undergraduate Emphases:** Animal and Dairy Science, Biotechnology, Bioveterinary Science, and Equine Science and Management

**Graduate Specializations:** *Animal/Dairy Science*—Animal Nutrition, Breeding and Genetics, Molecular Biology, Reproductive Biology, Animal or Dairy Management (MS only)

**Certificate Program:** Dairy Herdsman

## Undergraduate Programs

### Objectives

Bachelor's degree students majoring in Animal, Dairy and Veterinary Sciences may choose a program from four career emphasis areas: **Animal and Dairy Science, Biotechnology, Bioveterinary Science, and Equine Science and Management.**

The curricula in the **Animal and Dairy Science Emphasis** is designed to prepare students for a variety of rewarding careers in the dynamic disciplines of animal and dairy agriculture. Teaching and research facilities, as well as the USU livestock herds and flocks, are available for hands-on practical laboratory experiences, along with faculty-mentored research projects. Graduates from this emphasis may seek careers in animal or dairy production and management; in state or federal government agricultural agencies; and in fields that support or interact with animal agriculture, such as corporate agribusiness, wholesale and retail marketing and sales, commodity trading, animal product processing, agricultural cooperatives, and producer/commodity associations. This emphasis may also prepare students for advanced degrees in areas such as animal research in genetics, reproductive biology, nutrition, and management. An especially close student-advisor relationship is required to help students develop, schedule, and accelerate their personal undergraduate degree program and is essential for professional success in these areas.

The **Biotechnology Emphasis** is designed to prepare students who earn a bachelor's degree for careers in the expanding biotechnology

industry or for graduate study in related fields. Nationwide there are more than 1,200 biotechnology/biopharmaceutical companies with additional start-ups developing every year. Increases in federal funding for research in animal biotechnology, along with heightened private sector activity, have led to unprecedented career prospects in molecular biology, genomics, bioinformatics, developmental biology, and associated areas. USU has made a major commitment to biotechnology since 1986. The ADVS Department is heavily involved in biotechnology research and teaching, and the resources of the Center for Integrated BioSystems are also available to support this emphasis.

The ADVS Department offers a strong program in preveterinary study leading to the BS degree in the **Bioveterinary Science Emphasis**. This is not a college of veterinary medicine, but a preveterinary program. The degree is a nonterminal program designed primarily for those students who intend to apply to veterinary school. This program consists of three to four years of study, after which the student is eligible to apply to several veterinary schools. The preveterinary program can be individually tailored to maximize a student's chances of gaining acceptance into a school of veterinary medicine. If a student is uncertain of his or her interests and aptitudes for veterinary medicine, the program is an excellent opportunity to gain experience and make career choices. The student who wants to test his or her potential in a veterinary career should first enroll in the preveterinary program and then later can simultaneously develop a major in another field. Students should consult with the ADVS academic advisor and the preveterinary program coordinator to develop a program of study which best meets their needs and requirements.

There are many exciting career paths in the equine industry, and the ADVS Department has the resources and courses to prepare students to determine their path. The **Equine Science and Management Emphasis** provides an education that will place students among the most sought-after graduates in the equine industry. The program offers courses, internships, volunteer activities, and clubs that prepare students specifically for careers in various aspects of the equine industry. Students will be able to obtain hands-on experiences in the classroom, arena, and stabling facilities. Opportunities will be available in horsemanship, training, managing horses of all ages, stallion handling and breeding, and mare and foal care.

Instruction in the ADVS Department also encompasses a diversified co-curricular program including allied clubs, intercollegiate livestock judging and rodeo teams, and involvement with their respective professional societies.

### Preveterinary Program

Preveterinary students take courses required by veterinary schools. Classes should be planned to assure meeting the current requirements for the veterinary schools to which the student plans to apply for admission. In most cases, preveterinary preparation requires a major portion of three academic years. Students accepted into veterinary school prior to completion of their BS degree may transfer credits back to USU for completion of their BS degree in Bioveterinary Science.

Utah participates in WICHE (Western Interstate Commission for Higher Education) which provides state subsidization of Utah resident (5 years or longer at the time of application) students entering any veterinary school that is a WICHE-participating school. At present this includes Colorado State University, Washington State University, and Oregon State University. The State of Utah also provides some support for a limited number of resident students who enroll at non-WICHE veterinary schools in the continental United States. Students may also apply to other veterinary schools as out-of-state applicants.

# Department of Animal, Dairy and Veterinary Sciences

## Vocational Subbaccalaureate Program

### Dairy Herdsman Certificate

Students completing the required courses and experience in the Dairy Herdsman's curriculum usually find employment with a commercial or family dairy. Some enter dairy-related businesses. Students desiring to continue their dairy education may complete a BS degree in three additional years with proper planning and suitable academic performance.

## Requirements

### Departmental Admission Requirements

Undergraduate admission requirements for the Animal and Dairy Science, Biotechnology, and Equine Science and Management emphases are the same as those described for the University. Students in good standing may apply for admission to the department. New freshmen admitted to USU in good standing qualify for admission to the Bioveterinary Science emphasis. Students with less than 60 semester credits transferring from other institutions need a 2.2 transfer GPA, and students with less than 60 semester credits transferring from other USU majors need a 2.0 GPA for admission to the Bioveterinary Science emphasis. All students with 60 or more semester credits need a 2.75 total GPA to be admitted to advanced standing in Bioveterinary Science.

### Departmental Standards

The following minimum requirements apply to all students working toward a bachelor's degree in Animal, Dairy and Veterinary Sciences. Bachelor's degree candidates must comply with these requirements in order to graduate: (1) courses required for the major may be repeated only once to improve a grade, and (2) courses required for the major may not be taken for pass-fail credit. In addition to these requirements, candidates must attain a grade point average of at least 2.50 in the ADVS courses specified as requirements in their emphasis curricula to graduate. Animal and Dairy Science, Biotechnology, and Equine Science and Management emphases candidates must attain an overall GPA of at least 2.25 to graduate. Bioveterinary Science emphasis candidates must attain an overall GPA of at least 3.0 to graduate.

## Academic Advising

Successful completion of a bachelor's degree program in the ADVS Department requires that a very close student-academic advisor relationship be established and continued through each student's bachelor's degree program. Each student must take the responsibility of establishing this close working relationship with his or her advisor. Doing this soon after a student's acceptance into the department can keep academic problems to a minimum.

## Graduation Requirements

Courses required and recommended for meeting BS degree graduation requirements in the various emphases available in the department are as follows.

## Animal and Dairy Science Emphasis

### Freshman Year

#### Fall Semester

ADVS 1110 Introduction to Animal Science.....	4
ADVS 1910 Orientation to Animal and Dairy Science.....	0.5
ADVS 2120 <sup>1</sup> Swine Production Practices (2 cr) <b>or</b>	
ADVS 2130 <sup>1</sup> Dairy Production Practices (3 cr) <b>or</b>	
ADVS 2190 <sup>1</sup> Horse Production Practices (2 cr) .....	2 or 3
MATH 1050 (QL) College Algebra.....	4
University Studies Breadth Course.....	3

#### Spring Semester

ADVS 2200 Anatomy and Physiology of Animals.....	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
ADVS 2080 <sup>1</sup> Beef Production Practices (2 cr) <b>or</b>	
ADVS 2090 <sup>1</sup> Sheep Production Practices (2 cr).....	2
STAT 1040 (QL) Introduction to Statistics (3 cr) <b>or</b>	
STAT 2000 (QI) Statistical Methods (3 cr).....	3
University Studies Breadth Course.....	3

### Sophomore Year

#### Fall Semester

CHEM 1210 Principles of Chemistry I.....	4
CHEM 1215 Chemical Principles Laboratory I .....	1
Two University Studies Breadth Courses .....	6
Directed Elective Course .....	3

#### Spring Semester

CHEM 1220 (BPS) Principles of Chemistry II .....	4
CHEM 1225 Chemical Principles Laboratory II .....	1
ADVS 3000 Animal Health and Hygiene .....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode .....	3
Directed Elective Course .....	3

### Junior Year

#### Fall Semester

BIOL 1610 Biology I .....	4
ADVS 3500 Principles of Animal Nutrition .....	3
ADVS 4910 Preprofessional Orientation .....	0.5
Two Directed Elective Courses.....	6
University Studies Depth Course.....	3

#### Spring Semester

BIOL 1620 (BLS) Biology II.....	4
ADVS 3510 (QI) Applied Animal Nutrition .....	3
ADVS 4200 (CI) Physiology of Reproduction and Lactation .....	4
Directed Elective Course .....	3

### Senior Year

#### Fall Semester

ADVS 4560 (QI) Principles of Animal Breeding.....	3
ADVS 4920 (CI) Undergraduate Seminar .....	2
ADVS 5120 <sup>2</sup> Swine Management.....	3
ADVS 4250 Internship in Animal Industry (3 cr) <b>or</b>	
ADVS 4800 Undergraduate Research or Creative Opportunity (3 cr) .....	3
Directed Elective Course .....	3

# Department of Animal, Dairy and Veterinary Sciences

## Spring Semester

<b>ADVS 5080<sup>2</sup></b> Beef Management (3 cr) <b>or</b>	
<b>ADVS 5090<sup>2</sup></b> Sheep Management and Wool Technology (4 cr) <b>or</b>	
<b>ADVS 5130<sup>2</sup></b> Dairy Cattle Management (3 cr) <b>or</b>	
<b>ADVS 5190<sup>2</sup></b> Horse Management (3 cr) .....	3-4
Two Directed Elective Courses.....	6
University Studies Depth Course.....	3

## Directed Electives

Students must choose eight courses from the following:

<b>ACCT 2010<sup>3</sup></b> Survey of Accounting I (F,Sp,Su) .....	3
<b>ADVS 3650</b> Live Animal and Carcass Evaluation (F).....	3
<b>ADVS 5030</b> Sustainable Agricultural Production Systems with Animals (F).....	3
<b>ADVS 5530</b> Nutritional Management of Farm Animals (Sp).....	3
<b>ADVS 5860</b> Poisonous Range Plants Affecting Livestock (Sp).....	3
One additional management course (ADVS 5080, 5090, 5120, 5130, or 5190) .....	3-4
<b>APEC/ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su) .....	3
<b>APEC 3010<sup>3</sup></b> Introduction to Agricultural Economics and Agribusiness (Sp) .....	3
<b>APEC 3020<sup>3</sup></b> Firm Finance and Records Analysis (Sp).....	3
<b>APEC 5010 (QI)</b> Firm Marketing and Price Analysis (F) .....	3
<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su) .....	4
<b>BIOL 3300</b> General Microbiology (F,Sp) .....	4
<b>BUS 3400 (QI)</b> Finance Fundamentals .....	3
<b>BUS 3500</b> Marketing Principles.....	3
<b>BUS 3700</b> Operations Management Fundamentals.....	3
<b>CHEM 2310<sup>4</sup></b> Organic Chemistry I (F) .....	4
<b>CHEM 2315<sup>4</sup></b> Organic Chemistry Laboratory I (F) .....	1
<b>CHEM 2320<sup>4</sup></b> Organic Chemistry II (Sp) .....	4
<b>CHEM 3700<sup>4</sup></b> Introductory Biochemistry (Sp) .....	3
<b>ECN 3010 (DSS)</b> Managerial Economics (F,Sp) .....	3
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su) (3 cr) <b>or</b>	
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su) (4 cr) .....	3-4
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su) .....	3
<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su).....	3
<b>NFS 4900</b> Special Problems: Dairy Processing .....	4
<b>NFS 5020</b> Meat Technology and Processing (F).....	4
<b>PLSC 4320</b> Forage Production and Pasture Ecology (F).....	3
<b>SOIL 2000 (BPS)</b> Soils, Waters, and the Environment (Sp) (3 cr) <b>or</b>	
<b>SOIL 3000</b> Fundamentals of Soil Science (F,Sp) (4 cr) .....	3-4
<b>WILD 2200 (BLS)</b> Ecology of our Changing World (F,Sp) .....	3
<b>WILD 3600</b> Wildland Plant Ecology and Identification (F).....	4
<b>WILD 4000</b> Principles of Rangeland Management (Sp).....	3
<b>WILD 4850</b> Vegetation and Habitat Management (F) .....	3

<sup>1</sup>Students must take two courses selected from: ADVS 2080, 2090, 2120, 2130, and 2190.

<sup>2</sup>Students must take one course selected from: ADVS 5080, 5090, 5120, 5130, and 5190.

<sup>3</sup>Students may obtain an Agribusiness Management Minor by taking APEC 3010, 3020; ECN 1500 (BAI); and ACCT 2010.

<sup>4</sup>Students may obtain a Chemistry Minor by taking CHEM 2310, 2315, 2320, and 3700.

## Biotechnology Emphasis

### Freshman Year

#### Fall Semester

<b>ADVS 1110</b> Introduction to Animal Science.....	4
<b>CHEM 1210</b> Principles of Chemistry I .....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I .....	1
<b>MATH 1050 (QL)</b> College Algebra.....	4
<b>ENGL 1010 (CL1)</b> Introduction to Writing: Academic Prose .....	3

### Spring Semester

<b>ADVS 2040</b> Introduction to Biotechnology .....	1
<b>ADVS 2200</b> Anatomy and Physiology of Animals.....	4
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II .....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II .....	1
<b>STAT 2000 (QI)</b> Statistical Methods .....	3
University Studies Breadth Course.....	3

### Sophomore Year

#### Fall Semester

<b>BIOL 1610</b> Biology I .....	4
<b>CHEM 2310</b> Organic Chemistry I .....	4
<b>CHEM 2315</b> Organic Chemistry Laboratory I .....	1
Two University Studies Breadth Courses .....	6

#### Spring Semester

<b>BIOL 1620 (BLS)</b> Biology II.....	4
<b>CHEM 2320</b> Organic Chemistry II .....	4
<b>ADVS 3000</b> Animal Health and Hygiene .....	3
<b>ENGL 2010 (CL2)</b> Intermediate Writing: Research Writing in a Persuasive Mode .....	3
University Studies Breadth Course.....	3

### Junior and Senior Years

#### Required Classes

<b>ADVS 3020</b> Biotechnology in Agriculture (F).....	3
<b>ADVS 3200</b> Ethical Issues in Genetic Engineering and Biotechnology (Sp) .....	3
<b>ADVS 4260</b> Internship in Animal Biotechnology Industry (F,Sp,Su) (2-12 cr) <b>or</b>	
<b>ADVS 4800</b> Undergraduate Research or Creative Opportunity (F,Sp,Su) (1-6 cr) .....	3-12
<b>ADVS 4910</b> Preprofessional Orientation (F) .....	0.5
<b>ADVS 4920 (CI)</b> Undergraduate Seminar (F).....	2
<b>ADVS 5160</b> Methods in Biotechnology: Cell Culture (Sp).....	3
<b>ADVS 5260</b> Methods in Biotechnology: Molecular Cloning (F).....	3
<b>ADVS 5280</b> Animal Molecular Biology (Sp).....	3
<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su) .....	4
<b>BIOL 3300</b> General Microbiology (F,Sp) .....	4
<b>CHEM 3700</b> Introductory Biochemistry (Sp).....	3
Two University Studies Depth Courses .....	6

#### Directed Electives

Students must select at least 18 credits from the following. At least one course with a Communications Intensive (CI) designation must be included.

<b>ADVS 3500</b> Principles of Animal Nutrition (F) .....	3
<b>ADVS 3510 (QI)</b> Applied Animal Nutrition (Sp).....	3
<b>ADVS 4200 (CI)</b> Physiology of Reproduction and Lactation (Sp) .....	4
<b>ADVS 4560 (QI)</b> Principles of Animal Breeding (F).....	3
<b>ADVS 5690</b> Animal Histology (F) .....	3
<b>ADVS 5700 (CI)</b> General Animal Pathobiology (Sp) .....	3
<b>ADVS 5820</b> Animal Cytogenetics and Gene Mapping (F).....	3
<b>BIOL 5150</b> Immunology (Sp).....	3
<b>BIOL 5210</b> Cell Biology (F) .....	3
<b>BIOL 5230</b> Developmental Biology (Sp) .....	3
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su) .....	3
<b>PHYS 2110</b> The Physics of Living Systems I .....	4
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II .....	4

# Department of Animal, Dairy and Veterinary Sciences

## Bioveterinary Science Emphasis Curriculum (3.0 minimum total GPA required)

This is a four-year program, preparing students for application and admittance to veterinary school or graduate school. In recent years, **nearly all students who have been accepted to veterinary school have had at least a 3.4 GPA.**

### Advanced Standing Requirements

To attain Advanced Standing in Bioveterinary Science, students must have completed or must be currently registered for a minimum of 60 semester credits, and must have earned an overall GPA of at least 2.75 for all credits, including transfer credits, taken up to the time the petition for Advanced Standing is made.

Students' records will be checked when they reach a total of 60 semester credits. Those who do not meet advanced standing requirements will be notified to meet with their advisor.

### Freshman Year

#### Fall Semester

ADVS 1110 Introduction to Animal Science.....	4
ADVS 1920 Orientation to Bioveterinary Science .....	1
CHEM 1210 Principles of Chemistry I .....	4
CHEM 1215 Chemical Principles Laboratory I .....	1
MATH 1100 (QL) Calculus Techniques .....	3
University Studies Breadth Course.....	3

#### Spring Semester

ADVS 2200 Anatomy and Physiology of Animals.....	4
CHEM 1220 (BPS) Principles of Chemistry II .....	4
CHEM 1225 Chemical Principles Laboratory II .....	1
ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
STAT 2000 (QI) Statistical Methods .....	3

#### Summer Semester

ADVS 3920, Internship in Veterinary Medicine, is a recommended option. Students may count up to 2 credits of ADVS 3920 as elective upper-division credits toward graduation.

### Sophomore Year

#### Fall Semester

BIOL 1610 Biology I .....	4
CHEM 2310 Organic Chemistry I .....	4
CHEM 2315 Organic Chemistry Laboratory I .....	1
Two University Studies Breadth Courses .....	6

#### Spring Semester

BIOL 1620 (BLS) Biology II.....	4
CHEM 2320 Organic Chemistry II .....	4
BIOL 3060 (QI) Principles of Genetics .....	4
University Studies Breadth Course.....	3

### Junior Year

#### Fall Semester

ADVS 3500 Principles of Animal Nutrition.....	3
ADVS 4930 Undergraduate Seminar in Veterinary Medicine.....	2
BIOL 3300 General Microbiology .....	4
PHYS 2110 The Physics of Living Systems I .....	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3

#### Spring Semester

ADVS 3000 Animal Health and Hygiene .....	3
PHYS 2120 (BPS) The Physics of Living Systems II .....	4
CHEM 3700 Introductory Biochemistry .....	3
Two Upper-division University Studies Depth and Communications Intensive (CI) Courses.....	6

### Senior Year

Students must complete at least 120 semester credits for the BS degree, of which at least 40 credits must be in upper-division courses. The student must complete two courses which are designated Communications Intensive (CI), and one course which is designated Quantitative Intensive (QI). Students must include at least 15 credits from the following list. An additional 10 elective credits are needed to complete the 120 credits required for graduation. Other upper-division life sciences courses may be applied to this requirement, if approved by the ADVS academic advisor.

ADVS 3510 (QI) Applied Animal Nutrition (Sp).....	3
ADVS 4200 (CI) Physiology of Reproduction and Lactation (Sp) .....	4
ADVS 4560 (QI) Principles of Animal Breeding (F).....	3
ADVS 5690 Animal Histology (F) .....	3
ADVS 5700 (CI) General Animal Pathobiology (Sp) .....	3
BIOL 5150 Immunology (Sp).....	3
BIOL 5210 Cell Biology (F) .....	3
BIOL 5230 Developmental Biology (Sp) .....	3
BIOL 5330 Virology (Sp) .....	3

## Equine Science and Management Emphasis

### Freshman Year

#### Fall Semester

ADVS 1110 Introduction to Animal Science.....	4
ADVS 1910 Orientation to Animal and Dairy Science .....	0.5
ADVS 2190 Horse Production Practices .....	2
ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
MATH 1050 (QL) College Algebra.....	4
University Studies Breadth Course.....	3

#### Spring Semester

ADVS 1600 Riding Fundamentals I.....	2
ADVS 2200 Anatomy and Physiology of Animals.....	4
STAT 1040 (QL) Introduction to Statistics .....	3
Two University Studies Breadth Courses .....	6

### Sophomore Year

#### Fall Semester

ADVS 2300 Stable Management I .....	3
ADVS 2650 <sup>5</sup> Riding Fundamentals II—Hunter .....	2
BIOL 1010 (BLS) <sup>6</sup> Biology and the Citizen .....	3
CHEM 1110 (BPS) <sup>7</sup> General Chemistry I .....	4
University Studies Breadth Course.....	3

#### Spring Semester

ADVS 2310 Stable Management II .....	3
ADVS 2600 <sup>6</sup> Riding Fundamentals II—Western .....	2
CHEM 1120 (BPS) <sup>7</sup> General Chemistry II .....	4
ADVS 3000 Animal Health and Hygiene .....	3
Directed Elective Course .....	3

### Junior Year

#### Fall Semester

ADVS 3100 Equine Evaluation I.....	2
ADVS 3500 Principles of Animal Nutrition .....	3
ADVS 3600 Equine Behavior and Training I .....	2
ADVS 4910 Preprofessional Orientation .....	0.5
Three Directed Elective Courses.....	9

#### Spring Semester

ADVS 3520 Equine Nutrition .....	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
Two Directed Elective Courses.....	6
Depth Course .....	3



# Department of Animal, Dairy and Veterinary Sciences

## Senior Year

### Fall Semester

ADVS 4270 Internship in Equine Industry.....	3
ADVS 4300 Stable Management III.....	3
ADVS 4560 (QI) Principles of Animal Breeding.....	3
ADVS 4920 (CI) Undergraduate Seminar.....	2
Directed Elective Course.....	3
Depth Course.....	3

### Spring Semester

ADVS 4200 (CI) Physiology of Reproduction and Lactation.....	4
ADVS 4310 Stable Management IV.....	3
ADVS 5190 Horse Management.....	3
Two Directed Elective Courses.....	6

### Directed Electives

Students must choose five courses from the following list:

ADVS 3150 Equine Evaluation II (Sp).....	2
ADVS 3690 Equine Behavior and Training II (Sp).....	2
ADVS 3910 ST: Horseshoeing.....	3
ADVS 5030 Sustainable Agricultural Production Systems with Animals (F).....	3
ADVS 5530 Nutritional Management of Farm Animals (Sp).....	3
ADVS 5860 Poisonous Range Plants Affecting Livestock (Sp).....	3
PLSC 4320 Forage Production and Pasture Ecology (F).....	3
SOIL 2000 (BPS) Soils, Waters, and the Environment (Sp).....	3
WILD 4000 Principles of Rangeland Management (Sp).....	3

Students must choose four courses from the following list:

ACCT 2010 <sup>8</sup> Survey of Accounting I (F,Sp,Su).....	3
APEC/ECN 2010 (BSS) Introduction to Microeconomics (F,Sp,Su).....	3
APEC 3010 <sup>8</sup> Introduction to Agricultural Economics and Agribusiness (Sp).....	3
APEC 3020 <sup>8</sup> Firm Finance and Records Analysis (Sp).....	3
APEC 5010 (QI) Firm Marketing and Price Analysis (F).....	3
BUS 3400 (QI) Finance Fundamentals.....	3
BUS 3500 Marketing Principles.....	3
BUS 3700 Operations Management Fundamentals.....	3
ECN 3010 (DSS) Managerial Economics (F,Sp).....	3
MGT 2050 Legal and Ethical Environment of Business (F,Sp,Su).....	3
MGT 3110 (DSS) Managing Organizations and People (F,Sp,Su).....	3

<sup>8</sup>Students must choose one course from the following: ADVS 2600 or 2650.

<sup>9</sup>Students may take BIOL 1610 and 1620 if they desire to pursue a postbaccalaureate degree.

<sup>7</sup>Students may take CHEM 1210, 1215, 1220, and 1225 if they desire to pursue a postbaccalaureate degree.

<sup>8</sup>Students may obtain an Agribusiness Management Minor by taking APEC 3010, 3020; ECN 1500 (BAI); and ACCT 2010.

## Dairy Herdsman Program

### The Program

The Dairy Herdsman Program is a one-year course of study in practical dairy knowledge and skills. Through lectures, laboratory exercises, and actual on-the-farm experiences, students are taught to be dairy herdsman, with highly employable skills. A high school education is highly recommended, but is not a requirement to be admitted to the program.

The classroom and laboratory experiences are directed by Utah State University staff members, extension personnel, and specially qualified guest speakers. Coursework covers such areas as nutrition and feeding, management, physiology, milk production, breeding and selection, and buildings and equipment. Students also gain practical experience and know-how by working with a commercial dairyman in Cache Valley. Many students are now selecting the new degree option, which allows students to take the dairy herdsman classwork and then continue on for a degree in dairy science.

All students may participate in judging at regional and national levels, showing at state and area shows, working with area sales, and field trips to the Western International Dairy Expo, the Dairy Herd Improvement Laboratory, and progressive dairy enterprises. These activities provide a well-rounded background and improve employment opportunities.

Students in this program have access to all privileges available to Utah State University students: athletic and entertainment events, campus housing and food services, the University library, the bookstore, and recreational facilities.

### Career Opportunities

Students who complete this program will have a good working knowledge of how to care for and make decisions about various dairy animals and will understand and be able to use various types of equipment. These skills, as well as an understanding of the management process involved, can greatly improve the chances of being employed by a dairy or dairy-related industry.

### Required Coursework for Dairy Herdsman Program

#### Fall Semester (16 credits)

ADVS 1010 Artificial Insemination and Reproduction.....	2
ADVS 1020 Dairy Cattle Nutrition and Feeding.....	3
ADVS 1050 Dairy Genetics.....	3
ADVS 1250 Applied Agricultural Computations.....	2
ADVS 2130 Dairy Production Practices.....	3
ADVS 2250 Cooperative Work Experience.....	3

#### Spring Semester (16 credits)

ADVS 1030 Lactation and Milking Systems.....	3
ADVS 1040 Records and Financial Aspects of Dairy Herd Operations.....	3
ADVS 1060 Applied Feeding and Management of Dairy Calves and Basic Construction of Facilities.....	3
ADVS 1720 Dairy Cattle Evaluation and Judging.....	1
ADVS 2250 Cooperative Work Experience.....	6

### Honors

There is also an Honors Plan for students desiring a BS degree "with Honors" in Animal, Dairy and Veterinary Sciences. For details, students should contact their academic advisor.

### ADVS Minors

A minor can be valuable when associated with a major in agricultural education, agricultural economics, plant science, nutrition and food science, business, economics, computer science, rangeland resources, and in other disciplines where the animal industry has direct or indirect involvement.

Requirements for specialty or emphasis area minors are listed below. The same departmental standards applying to the Animal, Dairy and Veterinary Sciences major also apply to all minors (see page 157).

### Requirements for Minors

The following is a listing of courses for the various minor emphasis areas. A specific course may not be used to fulfill the requirements of more than one ADVS minor.

#### Animal and Dairy Science

ADVS 1110; choose one or more courses from ADVS 2080, 2090, 2120, 2130, and 2190; 10 elective ADVS credits with approval of the ADVS academic advisor.

# Department of Animal, Dairy and Veterinary Sciences

## **Bioveterinary Science**

ADVS 2200, 3000; 7 elective ADVS credits with approval of the ADVS academic advisor. A minimum grade of C is required in all courses applied toward this minor.

## **Equine**

ADVS 1110, 1600, 2190, 2300, 3100, 3600; ADVS 2600 or 2650; one other ADVS course with approval of the ADVS academic advisor.

## **Dairy Herdsman**

ADVS 1020, 1030, 1040, 1050, 1060.

Transfer students must have a minimum of one 3-credit upper-division course in residency with the approval of the ADVS academic advisor.

## **Undergraduate Program Assessment**

The ADVS Department assessment plan defines learning objectives for each of its undergraduate emphases. These learning objectives are mapped to each of the required courses in each emphasis, so that they may be evaluated for their contribution to emphasis goals. Outcome measures have also been defined for each emphasis, and a process has been implemented to conduct exit interviews with all graduating students in Animal, Dairy and Veterinary Sciences. Rate of admission to a professional veterinary medical program has been identified as the critical outcome measure for the Bioveterinary Science emphasis. The ADVS Department Curriculum Committee oversees the assessment process, with input from the ADVS Department Internship and Placement Committee. The ADVS Curriculum Committee reports its assessment findings to the ADVS department head, as well as to faculty members, and incorporates these findings in its regular ongoing and periodic comprehensive reviews and revisions of the ADVS Department undergraduate emphases.

## **Learning Objectives**

### **Animal and Dairy Science Emphasis**

The following *Disciplinary Knowledge* objectives apply:

1. Attain knowledge in mathematics and basic sciences required for disciplinary competency.
2. Know the nature, intent, and scope of animal and dairy science.
3. Attain depth in two subfields of animal and dairy science.
4. Achieve understanding in the disciplines of animal genetics, health, nutrition, and reproduction.
5. Integrate knowledge from the various disciplines to effectively conduct livestock operations.

*Skills and Career Competencies* objectives are as follows:

1. Comprehend reading materials appropriate to course levels.
2. Communicate effectively in oral and written forms.
3. Conduct library research using modern methods.
4. Use a computer for written work, presentations, and research.
5. Attain proficiency in basic techniques of animal management.

### **Biotechnology Emphasis**

The following *Disciplinary Knowledge* objectives apply:

1. Attain a working knowledge of biological mechanisms, including genetics, reproduction, and microbiology.
2. Acquire a working knowledge of mathematics, including calculus and statistics.
3. Achieve a working knowledge of chemistry, including inorganic, organic, and biochemistry.
4. Attain a basic knowledge of animal biotechnology and ethics.

*Skills and Career Competencies* objectives are as follows:

1. Understand and perform molecular cloning.
2. Understand and perform cell culture procedures.
3. Understand and perform protein purification.
4. Communicate effectively in oral and written forms.
5. Achieve quantitative competency.
6. Conduct scientific-literature searches using modern methods.

### **Bioveterinary Science Emphasis**

The following *Disciplinary Knowledge* objectives apply:

1. Attain a working knowledge of biological mechanisms, including molecular genetics.
2. Acquire a working knowledge of mathematics, including calculus and statistics.
3. Achieve a working knowledge of chemistry, including inorganic, organic, and biochemistry.
4. Acquire a basic knowledge of general physics.
5. Attain a basic knowledge of animal production, including breeding, nutrition, and reproduction.
6. Achieve a basic understanding of health and disease mechanisms.
7. Understand the ethics and profession of veterinary medicine.

*Skills and Career Competencies* objectives are as follows:

1. Communicate effectively in oral and written forms.
2. Achieve quantitative competency.
3. Conduct scientific literature searches using modern methods.

### **Equine Science and Management Emphasis**

The following *Disciplinary Knowledge* objectives apply:

1. Attain knowledge in mathematics and basic sciences required for disciplinary competency.
2. Know the nature, intent, and scope of equine science and management.

# Department of Animal, Dairy and Veterinary Sciences

3. Attain depth in two subfields of equine science and management.
4. Achieve understanding in the disciplines of equine behavior, health, nutrition, and reproduction of horses.
5. Integrate knowledge from the various disciplines to effectively conduct equine operations.

*Skills and Career Competencies* objectives are as follows:

1. Comprehend reading materials appropriate to course levels.
2. Communicate effectively in oral and written forms.
3. Conduct library research using modern methods.
4. Use a computer for written work, presentations, and research.
5. Attain proficiency in basic techniques of equine science and management.

## Undergraduate Research Opportunities

Students interested in pursuing undergraduate research opportunities in the ADVS Department should contact Tami Spackman, Agricultural Science 242, tami.spackman@usu.edu, (435) 797-2150, for information and referrals.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school.

ADVS students qualify for acceptance into the departmental honors program by having a cumulative GPA of 3.3 or better at the time of application. The program of study requires the completion of 15 credits of upper-division (3000-level or above) classwork as follows: One credit of HONR 4800, Thesis/Project Seminar; 3 to 6 credits of HONR 4900, Senior Thesis/Project; and 8 to 11 credits of upper-division Honors coursework by contract (3 credits may be taken outside the ADVS Department). Completion of the degree requires a cumulative GPA of 3.3 and a 3.5 GPA in upper-division Honors classes. Examples of departmental classes which may be suitable as Honors courses by contract are ADVS 3000, 3200, 3500, 3510, 4200, 4560, 5160, 5240, 5260, 5350, 5400, 5520, 5530, 5690, 5700, and 5820. Students should plan their Honors Program early, so that their thesis project can be completed during the first semester of their senior year, and their last semester can be used to write and present their thesis.

Interested students should contact the Honors Program, Main 15, (435) 797-2715, honors@usu.edu. Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information and Updates

For more information about Bachelor of Science requirements and the sequence in which courses should be taken, see major requirement sheets. For more information on ADVS Department minors, see minor requirement sheet. These are available from the ADVS Department advisor's office (AG S 242). Major requirement sheets can also be found online at: <http://www.usu.edu/majorsheets/>

For updated information on ADVS programs and course offerings, check the departmental home page at: <http://www.advs.usu.edu>

## Safety and Liability in Classes and Laboratories

Certain classes and laboratories involve a risk of bodily injury or of damage to clothing. Students should take appropriate precautions and wear suitable protective clothing. Some of the risks include handling or being near animals, slick floors or corrals, use of toxic or corrosive substances, and the use of sharp or breakable instruments and equipment. Students should take precautions to avoid fainting during demonstrations or work with animal tissues or operative procedures. Students must assume their own liability protection for travel to and from classes, laboratories, and field trips. The University and its employees assume no liability in the performance of classroom or laboratory instruction or on scheduled field trips, or for other dangerous activities. The student, by voluntarily participating in these classes and activities, agrees to assume the risk and not hold USU or its staff liable.

## Financial Support

In addition to the scholarships and other financial aid available through the University, the department awards designated scholarships to qualified students. The department employs students on a part-time basis to assist with its research and operate its animal facilities. The department also coordinates cooperative education and internship employment opportunities for students. For more information, contact the department.

## Graduate Programs

**Graduate Programs Coordinator:** Thomas D. Bunch  
**Location:** Agricultural Science 228  
**Phone:** (435) 797-2148  
**FAX:** (435) 797-2118  
**E-mail:** tom.bunch@usu.edu

## Admission Requirements

In addition to the general admission requirements (see pages 36-37), applicants should have satisfactory (3.0 GPA or better) grades in completion of previous degree programs. The GRE exam, as well as verbal and quantitative test scores at or above the 40th percentile, is required.

Applicants to the bioveterinary science graduate program should have a degree in bioveterinary science, biology, microbiology, chemistry, or one of the animal sciences. Preveterinary students oriented towards graduate research studies are strongly encouraged to apply.

# Department of Animal, Dairy and Veterinary Sciences

## Degree Programs

### Master of Science

The MS is available to qualified students with bachelor's degrees. MS degrees are offered by the department in animal science and dairy science, with five specializations in each, and in bioveterinary science.

### Doctor of Philosophy

The PhD degree in animal science is offered with four specializations. It is available to qualified students with degrees in related disciplines. Exceptionally well-qualified applicants may be considered for admission to a postbaccalaureate PhD program. The PhD degree in bioveterinary science is available to qualified students holding a DVM or a master's degree in a related discipline, or exceptionally well-qualified postbaccalaureate applicants. The PhD is a terminal research degree that is awarded upon successful completion of a comprehensive program of coursework and original research in an approved area of specialization.

### Course Requirements

Course requirements are determined by the student in consultation with and upon agreement by his or her supervisory committee. Depending on the research emphasis selected and the student's background, these requirements may be different for each student. Students working toward an MS or PhD degree must complete appropriate graduate-level statistics courses, as well as participate in the Animal, Dairy and Veterinary Sciences departmental seminar.

## Specializations in Animal/Dairy Science

### Animal Nutrition

This specialization involves studies in biochemistry, principles of nutrition, animal management, nutritional physiology, and animal feedstuffs. Cooperation with producers, feed industry groups, other departments of the University, and USDA collaborators, along with research funding from private industry, strengthens the graduate program in this area.

### Breeding and Genetics

This specialization involves studies in quantitative genetics, applied animal genetics, statistics, and animal management. Cooperation with other departments, particularly the Department of Biology and the Department of Mathematics and Statistics, and collaboration with other research institutions, livestock producers, and commercial animal breeding companies broadens the resources of this graduate program.

### Molecular Biology

This specialization involves studies in molecular genetics, biochemistry of nucleic acids, cell biology, reproductive physiology, and bioveterinary science. Cooperation with other departments, particularly the Department of Biology and the Department of Chemistry and Biochemistry, the Biotechnology Center, and collaborators at other research institutions allows for a strong graduate program in this area.

### Reproductive Biology

This specialization involves studies in physiology and endocrinology of reproduction; embryo technology, including collection, culture, manipulation, storage, and transfer of embryos; disease transmission, cytogenetics and molecular genetics; and environmental and

toxicological influences on reproductive processes and fetal development. Cooperation with other departments and research centers of the University and with USDA collaborators allows for a strong graduate program in this area.

### Animal or Dairy Management (MS only)

This specialization involves studies in the applications of the principles of genetics, reproductive biology, and nutrition to animal or dairy management at an advanced level. Appropriate emphasis is also placed on statistics, economics and business administration, and range management. The management specialization offers the option of degree programs with or without thesis (Plan A or Plan B). Graduates in management from a program including thesis (Plan A) may pursue advanced studies in more specialized fields. The MS in management without a thesis (Plan B) is considered a terminal degree.

## Bioveterinary Science

This degree program involves studies in biochemistry, statistics, pathology, toxicology, virology, parasitology, pharmacology, and microbiology. Advanced techniques in laboratory procedures and animal health research are emphasized. Cooperation with other departments and research centers of the University and with federal collaborators and agencies allows for a strong graduate program in bioveterinary science.

## Research

The ADVS department conducts a broad range of basic and applied research in the areas of animal reproduction, animal nutrition, livestock and dairy management, animal health, virology, parasitology, toxicology, animal behavior, cytogenetics, and molecular genetics. Department facilities include over 30 research laboratories on campus and at local and regional animal research facilities. There are research herds and flocks of beef and dairy cattle, sheep, and swine housed close to the University. There are additional research units housing beef cattle, sheep, and turkeys located throughout the state. Research in the department is funded by a multimillion dollar budget derived from support by the Utah Agricultural Experiment Station and by substantial outside contracts and grants. Cooperation with other departments and research centers of the University and with federal collaborators enhances the ADVS research and graduate programs. Significant in this regard are the University Center for Integrated BioSystems, the Utah State Animal Disease Diagnostic Laboratories, the Laboratory Animal Research Center, the Center for Environmental Toxicology, the Center for the Genetic Improvement of Livestock, and the on-campus USDA Poisonous Plant Laboratory.

## Financial Assistance

Both departmental and research grant support are available to matriculated graduate students on a competitive basis. The department funds graduate assistantships, which are available on a competitive basis to matriculated graduate students who are U.S. citizens, nationals, or residents. Students interested in departmental assistantships may request an application form from the department or download the form at: <http://www.advs.usu.edu/academics/grad/> Applications for assistantships for the following academic year must be submitted by March 15.

Acceptance to graduate study in the ADVS Department does not constitute a guarantee of financial assistance.

# Department of Animal, Dairy and Veterinary Sciences

## Career Opportunities

Career opportunities are available for students who have earned graduate degrees in the MS and PhD programs offered by the ADVS Department as described below.

### Animal and Dairy Science Graduate Degree Programs

#### Animal Nutrition

Career opportunities exist in extension, university and private research, the commercial animal feedstuffs industry, private consulting firms, and international programs.

#### Breeding and Genetics

Career opportunities exist in extension university and private research, commercial animal breeding and genetic engineering enterprises, and international programs.

#### Molecular Biology

Career opportunities exist in university, federal, and private research organizations, and in commercial applications in the rapidly growing area of biotechnology.

#### Reproductive Biology

Career opportunities exist in extension; university and private research; the pharmaceutical, embryo transfer, and artificial insemination industries; private consultation; and international programs.

#### Animal or Dairy Management

Career opportunities include extension, private consultation firms, farm and ranch management, sales and service to agricultural producers, agricultural finance, and international programs.

### Bioveterinary Science Graduate Degree Programs

Career opportunities in this area exist in research, management, and submanagement positions in public and private health research and testing organizations, and in commercial industries in the health field. Graduates from the MS program may seek admission to advanced degree programs in the biological sciences or veterinary medicine.

## Animal, Dairy and Veterinary Sciences Faculty

#### Professors

*Thomas D. Bunch*, cytogenetics, embryo biology  
*Noelle E. Cockett*, molecular genetics, identification of genetic markers  
*Roger A. Coulombe, Jr.*, veterinary toxicology, molecular biology  
*Howard M. Deer*, pesticides, environmental toxicology  
*Jeffery O. Hall*, veterinary pathology, toxicology  
*Lyle G. McNeal*, sheep production, wool science  
*Kenneth L. White*, reproductive physiology, developmental biology  
*Dale R. ZoBell*, beef cattle production, management

#### Research Professors

*John D. Morrey*, virology, transgenic animals  
*Kamal A. Rashid*, in vitro mutagenesis and DNA repair  
*Donald F. Smee*, viral chemotherapy

#### Adjunct Professors

*J. Talmage Huber*, dairy nutrition  
*Amrit K. Judd*, medicinal chemistry as applied to treatment of viral diseases  
*Kip E. Panter*, animal science/toxicology  
*R. Dean Plowman*, dairy genetics, management  
*Rex S. Spendlove*, microbiology

#### Professors Emeritus

*Stanley D. Allen*, veterinary medicine, laboratory animal management  
*Clive W. Arave*, behavior, dairy genetics  
*Clell V. Bagley*, veterinary medicine  
*John E. Butcher*, ruminant nutrition  
*Jay W. Call*, veterinary medicine  
*Warren C. Foote*, reproductive physiology  
*Robert C. Lamb*, dairy genetics  
*James LeGrande Shupe*, veterinary science, comparative clinical medicine  
*Robert W. Sidwell*, virology  
*Ross A. Smart*, veterinary diagnostic pathology  
*Norris J. Stenquist*, livestock production, nutrition  
*Wallace R. Taylor*, dairy breeding, dairy herd improvement  
*Don W. Thomas*, veterinary medicine

#### Associate Professors

*Thomas J. Baldwin*, veterinary diagnostic pathology  
*David D. Frame*, poultry extension  
*Lee S. Rickords*, molecular genetics, developmental biology  
*Kerry A. Rood*, extension veterinarian  
*Allen J. Young*, dairy management, reproduction

#### Adjunct Associate Professors

*Dale R. Gardner*, chemistry/toxicology  
*Stephen T. Lee*, analytical chemistry  
*Bryan L. Stegelmeier*, pathology  
*Shiquan Wang*, cytogenetics, reproductive physiology  
*J. Christopher Wilson*, veterinary medicine, fisheries

#### Associate Professors Emeritus

*Larry M. Slade*, equine nutrition, management  
*Randall D. Wiedmeier*, beef cattle nutrition, management

#### Research Associate Professors

*Dale L. Barnard*, virology  
*Christopher J. Davies*, immunogenetics

#### Assistant Professors

*Jong-Su Eun*, ruminant nutrition  
*Patricia A. Evans*, equine management  
*Jessie D. Trujillo*, infectious disease, diagnoses and vaccine  
*David J. Wilson*, dairy cattle, mastitis

#### Adjunct Assistant Professors

*Benedict Green*, animal physiology  
*Breck D. Hunsaker*, veterinary immunology  
*Kevin Welch*, toxicology

#### Research Assistant Professors

*Brian B. Gowen*, immunology, virology  
*Justin G. Julander*, virology, microbiology  
*Bart E. Tarbet*, virology, microbiology

# Department of Animal, Dairy and Veterinary Sciences

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## Clinical Assistant Professors

*E. Jane Kelly*, veterinary diagnostics

*Ramona T. Skirpstunas*, bacterial diseases of fish, veterinary pathology, veterinary laboratory diagnostic medicine

*Rusty D. Stott*, clinical veterinarian, animal health

## Research Assistant Professor Emeritus

*Robert E. Warnick*, turkey nutrition

## Extension Associate Professor

*Scott S. McKendrick*, animal science production

## Lecturers

*Brett R. Bowman*, animal science/nutrition

*Colette F. Floyd*, equine science and management

*Parl Galloway*, animal science, manager of Animal Science Farm

*Justin A. Jenson*, dairy herdsman coordinator, dairy youth specialist

*Rebecca A. Lewis*, equine science and management

## Course Descriptions

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# Department of Applied Economics

**Department Head:** Paul M. Jakus

**Location:** Business 615

**Phone:** (435) 797-2310

**FAX:** (435) 797-2701

**WWW:** <http://apec.usu.edu/>

## Graduate Program Director:

Arthur J. Caplan, Business 620, (435) 797-0775,

[arthur.caplan@usu.edu](mailto:arthur.caplan@usu.edu)

**Degrees offered:** Bachelor of Science (BS) in Agribusiness; Bachelor of Arts (BA) in International Agribusiness; BS in Agricultural Economics; Master of Science (MS) in Applied Economics; Doctor of Philosophy (PhD) in Economics; the department also participates in the International MBA in Food and Agribusiness (offered through the Royal Agricultural College in Cirencester, England). The Agribusiness major is structured to facilitate a dual major with companion majors with the Huntsman School of Business.

**Graduate specializations:** *MS in Applied Economics*—Agricultural Economics, Natural Resource Economics, and Regional Economic Development

## Undergraduate Programs

### Objectives

Economics is the study of allocating our scarce resources among humankind's seemingly endless variety of needs and wants. This places economists and economic analysis at the center of virtually every important discussion and debate about how nations, firms, and people should organize resources to address these needs and wants. As a result, economics offers an exciting and dynamic field of study and research for students, preparing them well to become tomorrow's decision makers.

Undergraduate economics provides students with the basic intellectual framework to understand and analyze economic problems and to make informed decisions. A basic understanding of economics is essential to becoming a well-informed citizen, as well as a successful business or public leader.

### Admission Requirements

Freshmen who meet the admission requirements and are accepted in good standing by the University are eligible for admission to the Department of Applied Economics. All transfer students, whether transferring from within Utah State University or from other colleges and universities, must have an overall minimum GPA of 2.5 to be accepted as majors in the department. Additional requirements may apply for students who seek to be admitted to a dual major.

New students wishing to major in the Department of Applied Economics may do so by listing one of the departmental majors on their application when they apply for admission to USU. Students enrolled at USU may change to a departmental major by applying directly to the Department of Applied Economics.

## Graduation Requirements

To receive a bachelor's degree in Agribusiness, Agricultural Economics, or International Agribusiness, students must complete all University requirements and the college and departmental requirements for their specific major as noted below.

### Agribusiness Major

The Agribusiness major provides a foundation for employment in the agricultural sector and in businesses and institutions serving agriculture and rural regions, such as banks and financial institutions, production, marketing and buying cooperatives, value-added food producers, real estate and land management, agricultural chemical production and sales, and farms and ranches. Graduates of this program are employed in a variety of agribusiness operations throughout the United States. Agribusiness graduates have achieved prominence in positions in wholesale and retail sales and service, stock and commodity brokerage, real estate appraisal, banking and farm credit, insurance, and in farm and ranch operations. Classwork provides training in basic business and economics, as well as the specific management tools required for agricultural enterprises.

To graduate with a bachelor's degree in Agribusiness, a student must have a major GPA of 2.5 or higher, as well as a grade of C or better in each course required for the major. A C grade or better in ECN 1500, MATH 1100, and STAT 2300 and an overall GPA of 2.67 or higher is required for admission into some required FIN and MGT courses. Agribusiness majors with a dual major must satisfy the admission and graduation requirements of both majors. All required courses must be taken for a letter grade.

### Agribusiness Major Requirements

All courses required for the Agribusiness Major should be taken for a letter grade. Students must earn a grade of C or better in each course.

#### Required Courses:

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>APEC/ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su) .....	3
<b>APEC 3010</b> Introduction to Agricultural Economics and Agribusiness (Sp) .....	3
<b>APEC 3012</b> Introduction to Natural Resource and Regional Economics (F) .....	3
<b>APEC 3020</b> Firm Finance and Records Analysis (Sp) .....	3
<b>APEC 3310</b> Mathematics in Agricultural and Resource Economics (F) .....	3
<b>APEC 4020</b> Macroeconomics and Trade (Sp) .....	3
<b>APEC 5010 (QI)</b> Firm Marketing and Price Analysis (F) .....	3
<b>APEC 5015</b> Firm Management, Planning, and Optimization (F).....	3
<b>APEC 5020</b> Strategic Firm Management (Sp) .....	3
<b>ASTE 3090</b> Computer Applications in Agriculture (F) (3 cr) <b>or</b> <b>MIS 2100</b> Principles of Management Information Systems (F,Sp,Su) (3 cr) .....	3
<b>ASTE 3050 (CI)</b> Technical and Professional Communication Principles in Agriculture (F,Sp) (3 cr) <b>or</b> <b>MIS 2200 (CI)</b> Business Communication (F,Sp,Su) (3 cr) .....	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>APEC/ECN 4010</b> Intermediate Microeconomics (Sp) (3 cr) <b>or</b> <b>ECN 3010 (DSS)</b> Managerial Economics (F,Sp) (3 cr).....	3
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su) .....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su) .....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su) .....	4
College of Agriculture electives <sup>1</sup> .....	12

# Department of Applied Economics

## Agribusiness Major, Business Option

All courses required for the Agribusiness Major, Business Option should be taken for a letter grade. Students must earn a grade of C or better in each course. Students may be eligible for a second major in Business. For further information, contact an advisor. **Note:** Student transcripts and diplomas will list *only* the Agribusiness Major, not the Business Option.

### Required Courses:

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>APEC/ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>APEC 3010</b> Introduction to Agricultural Economics and Agribusiness (Sp).....	3
<b>APEC 3012</b> Introduction to Natural Resource and Regional Economics (F).....	3
<b>APEC 3020</b> Firm Finance and Records Analysis (Sp).....	3
<b>APEC 3310</b> Mathematics in Agricultural and Resource Economics (F).....	3
<b>APEC 4020</b> Macroeconomics and Trade (Sp).....	3
<b>APEC 5010 (QI)</b> Firm Marketing and Price Analysis (F).....	3
<b>APEC 5015</b> Firm Management, Planning, and Optimization (F).....	3
<b>APEC 5020</b> Strategic Firm Management (Sp).....	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>APEC/ECN 4010</b> Intermediate Microeconomics (Sp) (3 cr) <b>or</b>	
<b>ECN 3010 (DSS)</b> Managerial Economics (F,Sp) (3 cr).....	3
<b>ECN 3400 (DSS)</b> International Economics for Business (F,Sp,Su).....	3
<b>FIN 3400 (QI)</b> Corporate Finance (F,Sp,Su).....	3
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su).....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su).....	3
<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su).....	3
<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su).....	3
<b>MGT 3700</b> Operations Management (F,Sp,Su).....	3
<b>MIS 2100</b> Principles of Management Information Systems (F,Sp,Su).....	3
<b>MIS 2200 (CI)</b> Business Communication (F,Sp,Su).....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su).....	4

## Agribusiness Major, Agricultural Systems Option

All courses required for the Agribusiness Major, Agricultural Systems Option should be taken for a letter grade. Students must earn a grade of C or better in each course. Students who complete this option are eligible to earn a dual major in Agricultural Systems Technology. Note: Student transcripts and diplomas will list only the Agribusiness Major, not the Agricultural Systems Option.

### Required Courses:

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>APEC/ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>APEC 3010</b> Introduction to Agricultural Economics and Agribusiness (Sp).....	3
<b>APEC 3012</b> Introduction to Natural Resource and Regional Economics (F).....	3
<b>APEC 3020</b> Firm Finance and Records Analysis (Sp).....	3
<b>APEC 3310</b> Mathematics in Agricultural and Resource Economics (F).....	3
<b>APEC 4020</b> Macroeconomics and Trade (Sp).....	3
<b>APEC 5010 (QI)</b> Firm Marketing and Price Analysis (F).....	3
<b>APEC 5015</b> Firm Management, Planning, and Optimization (F).....	3
<b>APEC 5020</b> Strategic Firm Management (Sp).....	3
<b>ASTE 1010</b> Introduction to Agricultural Systems Technology (F).....	3
<b>ASTE 2200</b> Electricity in Agricultural Systems (Sp).....	3

<b>ASTE 3030</b> Metal Welding Processes and Technology in Agriculture (F) (3 cr) <b>or</b>	
<b>ASTE 4100</b> Agricultural Structures and Environment (Sp) (3 cr).....	3
<b>ASTE 3050 (CI)</b> Technical and Professional Communication Principles in Agriculture (F,Sp).....	3
<b>ASTE 3080</b> Compact Power Units for Agricultural and Turfgrass Applications (Sp) (3 cr) <b>or</b>	
<b>ASTE 3200</b> Irrigation Principles and Practices (Sp) (3 cr).....	3
<b>ASTE 3090</b> Computer Applications in Agriculture (F).....	3
<b>ASTE 3600 (QI)</b> Management of Agricultural Machinery Systems (Sp).....	3
<b>ASTE 5260 (CI)</b> Environmental Impacts of Agricultural Systems (F).....	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>APEC/ECN 4010</b> Intermediate Microeconomics (Sp) (3 cr) <b>or</b>	
<b>ECN 3010 (DSS)</b> Managerial Economics (F,Sp) (3 cr).....	3
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su).....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su).....	3
<b>SOIL 4000</b> Soil and Water Conservation (F).....	4
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su).....	4

## Agricultural Economics Major

The Agricultural Economics major emphasizes the development of quantitative skills in and a deeper understanding of economic theory. While this program provides a solid base for individuals desirous of careers in agricultural businesses, it is also an excellent preparation for graduate studies in economics, agricultural economics, natural resources, business, or law. The Agricultural Economics degree provides an excellent background for work in federal, state, and local government, as well as in the private sector. Graduates of this program are now working in positions involving the analysis of prices and markets, preparation of economic feasibility studies, and preparing economic forecasts.

To graduate with a bachelor's degree in Agricultural Economics, a student must have a major GPA of 2.5 or higher, as well as a grade of C or better in each course required for the major. All required courses must be taken for a letter grade.

### Agricultural Economics Major Requirements

All courses required for the Agricultural Economics Major should be taken for a letter grade. Students must earn a grade of C or better in each course.

#### Required Courses:

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>APEC/ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>APEC 3010</b> Introduction to Agricultural Economics and Agribusiness (Sp).....	3
<b>APEC 3012</b> Introduction to Natural Resource and Regional Economics (F).....	3
<b>APEC 3310</b> Mathematics in Agricultural and Resource Economics (F).....	3
<b>APEC/ECN 4010</b> Intermediate Microeconomics (Sp).....	3
<b>APEC 4020</b> Macroeconomics and Trade (Sp).....	3
<b>APEC 5015</b> Firm Management, Planning, and Optimization (F).....	3
<b>APEC/ECN 5330 (QI)</b> Applied Econometrics (Sp).....	3
<b>APEC 5560</b> Natural Resource and Environmental Economics (Sp).....	3
<b>ASTE 3090</b> Computer Applications in Agriculture (F) (3 cr) <b>or</b>	
<b>MIS 2100</b> Principles of Management Information Systems (F,Sp,Su) (3 cr).....	3



# Department of Applied Economics

<b>ASTE 3050 (CI)</b> Technical and Professional Communication Principles in Agriculture (F,Sp) (3 cr) <b>or</b>	
<b>MIS 2200 (CI)</b> Business Communication (F,Sp,Su) (3 cr)	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
<b>ECN 3400 (DSS)</b> International Economics for Business (F,Sp,Su)	3
<b>APEC 5950</b> Senior Project (F, Sp)	3
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su)	4
<b>MATH 1100 (QL)</b> <sup>2</sup> Calculus Techniques (F,Sp,Su)	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su)	4

## International Agribusiness Major

The International Agribusiness major combines training in business, language skills, and economics courses that emphasize the role of the trade and development issues that are critical to operating in the increasingly internationalized agribusiness sector. The program provides a foundation for employment in agricultural and agribusiness sectors and in banks and financial institutions, production, marketing and buying cooperatives, value-added food producers, agricultural chemical production and sales, and farms and ranches in domestic and international settings. Classwork provides training in basic business and economics, as well as the specific management tools required for agricultural enterprises.

To graduate with a bachelor's degree in International Agribusiness, a student must have a major GPA of 2.5 or higher, as well as a grade of C or better in each course required for the major. All required courses must be taken for a letter grade.

### International Agribusiness Major Requirements

For this major, students must score three or better on the Federal FSI Test or complete a language minor. All the following courses should be taken for a letter grade. Students must earn a grade of C or better in each course.

#### Required Courses:

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su)	3
<b>APEC/ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su)	3
<b>APEC 3010</b> Introduction to Agricultural Economics and Agribusiness (Sp)	3
<b>APEC 3012</b> Introduction to Natural Resource and Regional Economics (F)	3
<b>APEC 3310</b> Mathematics in Agricultural and Resource Economics (F)	3
<b>APEC 4020</b> Macroeconomics and Trade (Sp)	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
<b>APEC/ECN 4010</b> Intermediate Microeconomics (Sp) (3 cr) <b>or</b>	
<b>ECN 3010 (DSS)</b> Managerial Economics (F,Sp) (3 cr)	3
<b>ECN 3400 (DSS)</b> International Economics for Business (F,Sp,Su)	3
<b>ECN 4020</b> Intermediate Macroeconomics (F,Sp)	3
<b>ECN 5400</b> International Trade Theory (F)	3
<b>ECN 5950 (CI)</b> Senior Project (Sp)	3
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su)	4
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su)	3
<b>MIS 2100</b> Principles of Management Information Systems (F,Sp,Su)	3
<b>NFS 5510</b> Food Laws and Regulations (Sp)	2
<b>POLS 5120</b> Economics of Russia and Eastern Europe, 9th Century to 21st Century (F)	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su)	4

## Minor Requirements

### Agribusiness Management Minor:

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su)	3
<b>APEC 3010</b> Introduction to Agricultural Economics and Agribusiness (Sp)	3
<b>APEC 3020</b> Firm Finance and Records Analysis (Sp)	3
<b>APEC 3310</b> Mathematics in Agricultural and Resource Economics (F)	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3

### Agricultural Economics Minor:

<b>APEC/ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su)	3
<b>APEC 3310</b> Mathematics in Agricultural and Resource Economics (F)	3
<b>APEC 4020</b> Macroeconomics and Trade (Sp)	3
<b>APEC 5010 (QI)</b> Firm Marketing and Price Analysis (F)	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
<b>APEC/ECN 4010</b> Intermediate Microeconomics (Sp)	3

<sup>1</sup>These 12 credits must be selected from courses offered by departments within the College of Agriculture, excluding courses offered by the Department of Applied Economics. Six of the 12 credits must be chosen from upper-division courses (i.e., courses numbered 3000 or above).

<sup>2</sup>The regular calculus series (MATH 1210 and 1220) is recommended for students contemplating graduate studies in economics. MATH 1210 will fulfill the MATH 1100 requirement.

## Four-year Degree Plans (8 semesters)

Four-year degree plans for majors offered by the Department of Applied Economics can be found at:

<http://www.usu.edu/degreeplans/>

Students will need to meet with their advisor periodically to ensure all requirements are being met.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://honors.usu.edu/>

## Financial Support

The Department of Applied Economics and the College of Agriculture award scholarships in addition to those available through the University Financial Aid Office. Information and application forms may be obtained from the college or departmental offices.

## Additional Information

For more information about undergraduate programs in the Department of Applied Economics, see the major requirement sheet, available from the department, or accessed online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

The MS in Applied Economics and the PhD in Economics are offered by the Department of Applied Economics. The International MBA in Food and Agribusiness is offered through the Royal Agricultural College (RAC), Cirencester, England.

## Objectives

Graduate training in the Department of Applied Economics emphasizes economic theory, critical thinking, and quantitative analysis. This foundation is a means to an end, not an end in itself: theory and quantitative methods are tools used in applied courses, in theses and dissertations, and in other research and extension activities carried out in the department.

The **MS in Applied Economics** is a terminal degree that prepares students for positions in industry; private consulting firms; local, regional, and national policy-making agencies; private not-for-profit organizations; and community/regional economic planning and development agencies. The **Doctor of Philosophy in Economics** is intended to prepare students for faculty and research positions with dual fields in Trade and Development and Natural Resource and Environmental Economics. All PhD students are required to complete these "field" sequences. Students interested in other specialties are discouraged from applying.

## Admission Requirements

Applicants must have earned a bachelor's degree from an accredited college or university, maintained a grade point average of at least 3.0 for the last 60 semester credits earned, and score in at least the 40th percentile on the Graduate Record Exam (GRE). The Graduate Management Admission Test (GMAT) is required for the International MBA in Food and Agribusiness. In addition, international applicants from non-English-speaking countries must score at least 550 on the Test of English as a Foreign Language (TOEFL). Satisfaction of these minimum admission requirements does not guarantee admission. Applications for graduate study from students trained in disciplines other than economics are welcomed. However, all applicants are expected to have: (1) an understanding of intermediate microeconomic and macroeconomic theory, (2) preparation in mathematical economics, and (3) preparation in probability and statistics. In addition, applicants are expected to have strong written and oral communications skills.

## Degree Requirements

### Master of Science in Applied Economics

To complete an MS degree in Applied Economics, students are required to: (1) complete the applied core (APEC 6000, 6100, 6300, 6330); (2) complete a specialization in: (a) agricultural economics (ACCT 6350; APEC 6030, 6040, 6250; ECN 5300; MGT 5640, 6520), (b) natural resource economics (APEC 6500 and 6510), or (c) regional economic development (APEC 6700 and 6710); (3) submit and orally defend a thesis (Plan A) or research report (Plan B); and (4) complete

elective class or thesis research credits to meet Plan A, B, or C graduation requirements. Plan A requires at least 30 credits and must include at least 6 thesis research credits. Plan B requires at least 30 credits and must include 2 to 3 thesis research credits. Plan C has no research component and requires at least 33 credits. (No more than 6 undergraduate credits may be used in meeting degree requirements.)

### Doctor of Philosophy in Economics

PhD students are required to: (1) complete the first-year core (APEC 7130, 7140, 7230, 7240, 7310, 7320, 7350, 7360); (2) perform successfully on a written qualifying examination based on the first-year core; (3) complete the advanced core (APEC 7150, 7330); (4) complete the International Trade and Development and Natural Resource and Environmental Economics field sequences (APEC 7400, 7500, 7510); (5) complete a research dissertation and give an oral defense of the dissertation; and (6) meet University requirements for dissertation research and total credit hours.

### International MBA in Food and Agribusiness

The Department of Applied Economics participates with the Royal Agricultural College (RAC) in Cirencester, England to offer this degree. The degree is awarded by the RAC. Students study at USU during fall semester, and then study spring semester at the RAC. Students complete a team project and a thesis. The degree is designed to prepare students to be agribusiness managers in an international environment. Applicants for admission to the International MBA are expected to have completed a common body of knowledge core at an AACSB accredited program. The common body of knowledge includes: ACCT 2010, 2020; ECN 1500, 2010; FIN 3400; MGT 2050, 3110, 3500; MGT 3080 or 3700; MATH 1100; MIS 2100; and STAT 2300. Required courses to be completed at USU include: ACCT 6350; APEC 6030, 6040, 6330; and MGT 4590. During spring semester, courses in finance, marketing and advertising, human resource management, macroeconomics, business strategy, agricultural food policy, and food chain industry are taught at the RAC. Participating students pay USU tuition and are expected to complete the program in 12-18 months.

## Research

The Department of Applied Economics maintains an active and productive research program. The results of this research are published in professional journals, books, and technical reports. Financial support for the departmental research program is provided by the Utah Agricultural Experiment Station, the College of Agriculture, the Office of the Vice President for Research, and by a combination of public and private extramural sources. The Economics Research Institute provides support and coordination for some of the department's research activities. Graduate students are an integral part of departmental research programs.

## Financial Assistance and Assistantships

The Department of Applied Economics offers teaching and research assistantships to qualified graduate students. These are awarded on a competitive basis, and all accepted students are considered eligible. However, while the department makes every effort to assist students in obtaining financial assistance, acceptance into department programs does not guarantee financial assistance.

Financial assistance is not provided to PhD students who fail to pass the written qualifying exam nor to graduate students who fail to make satisfactory progress toward completion of their degrees.

# Department of Applied Economics

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## Applied Economics Faculty

### Professors

*DeeVon Bailey*, agricultural economics

*Dillon M. Feuz*, production and finance, marketing and price analysis

*Paul M. Jakus*, Department Head; natural resource and environmental economics, nonmarket valuation

*Kenneth S. Lyon*, economic theory

*Donald L. Snyder*, agricultural and resource economics

### Associate Professors

*Arthur J. Caplan*, environmental economics and applied microeconomic theory

*Gholamreza Oladi*, international economics, econometrics

*Ruby A. Ward*, agribusiness management and operations research

### Adjunct Associate Professor

*John P. Gilbert*, international trade theory and policy, applied general equilibrium modeling, development economics

### Human Resources Specialist

*Marion T. Bentley*, manpower economics

### Professors Emeritus

*Roice H. Anderson*

*Larry K. Bond*

*Rondo A. Christensen*

*Lynn H. Davis*

*Reed R. Durtschi*

*Herbert H. Fullerton*

*E. Bruce Godfrey*

*Gary B. Hansen*

*John E. Keith*

*Allen D. LeBaron*

*Darwin B. Nielsen*

*Morris D. Whitaker*

### Associate Professor Emeritus

*Glenn F. Marston*

## Course Descriptions

Applied Economics (APEC), pages 499-501

**Department Head:** Carolyn Cárdenas

**Location:** Fine Arts Visual 122

**Phone:** (435) 797-3460

**FAX:** (435) 797-3412

**E-mail:** carolyn.cardenas@usu.edu

**WWW:** <http://www.art.usu.edu/>

**Assistant Head and Graduate Program Director:**

Alan Hashimoto, Fine Arts Visual 116 (435) 764-1913,  
alan.hashimoto@gmail.com

**Assistant Head and Undergraduate Program Director:**

Christopher T. Terry, Fine Arts Visual 216, (435) 797-3409,  
chris.terry@usu.edu

**Art Department Advisor:**

Marcia Roberts, University Reserve 107, (435) 797-3883,  
marcia.roberts@usu.edu

**Art Education Undergraduate Advisor:**

Dennise Gackstetter, University Reserve 110, (435) 797-1542,  
denniseg@gmail.com.

**Degrees offered:** Bachelor of Arts (BA), Bachelor of Science (BS), Bachelor of Fine Arts (BFA), Master of Arts (MA), and Master of Fine Arts (MFA) in Art

**Undergraduate emphases:** Art Education, Art History, Ceramics, Drawing and Painting, Graphic Design, Photography, Printmaking, Sculpture

**Graduate specializations:** Ceramics, Drawing, Graphic Design, Illustration, Painting, Photography, Printmaking, Sculpture

## Undergraduate Programs

### Objectives

The Department of Art's primary goal is to prepare undergraduate students for careers in art history, art education, and studio art, as well as the applied and fine arts. Requirements in eight different emphasis areas address the specific needs of each career. The Department of Art also serves the University community by offering courses in the University Studies program and by offering training for students in related degree programs.

### Departmental Admission Requirements

Admission to the Art major is competitive. New freshmen admitted to USU in good standing may apply for admission to the Art major by submitting a portfolio of digital images on CD-ROM of their best work. Details are available from the Art Department. Entrance to the BFA program in the emphasis areas in studio art is accomplished by formal application after completion of the department's foundation courses. Students applying for this degree program should have a GPA of at least 2.75. Application to the emphasis area is done by portfolio review and should be made during the spring semester in which the prerequisites will be completed. Transfer students should make application during the spring semester prior to their entrance to USU to arrange for the portfolio review of their work prior to acceptance in the department. Participation in the BA program in Art History is limited to students with at least a 2.5 GPA.

## Degrees Offered

### Bachelor of Science Degree

The BS degree is a general art degree for the student who is not interested in specializing in one area of art. This degree requires 50 semester credits in Art courses, 27-28 credits in University Studies courses, and allows for 40 elective credits. A GPA of 2.5 is required for the BS degree. No grade less than C is acceptable in any art class. Art classes may be retaken for a higher grade. This degree does not fulfill the requirements for entrance into graduate schools of art.

### Bachelor of Arts Degree

This degree is available primarily to students selecting an emphasis in Art History at USU. BA degree candidates should complete the majority of University Studies lower-division requirements, the modern language requirement, and the foundation curriculum by the end of the sophomore year. This will allow concentration in an area of specialization during the junior and senior years.

In addition, BA candidates must either complete requirements for the Art History Emphasis, as listed below, or the general art requirements as listed under the BS degree. The major professor may also prescribe other courses to serve the particular needs of different students. A minimum of 36 semester credits in art is required for a BA degree in Art with an Art History Emphasis. Students who desire to receive a BA degree in Art *without an emphasis*, must earn a minimum of 50 semester credits in art.

### Bachelor of Fine Arts Degree

The BFA is a professional art degree requiring above-average accomplishment in art. Only students demonstrating considerable promise will be accepted for this more demanding professional degree program. Admission to the Art Department BS program *does not* guarantee admission to the BFA program. Entrance to the BFA program is by application only. Each emphasis area specifies classes that must be completed, along with the common foundation courses, prior to application to the BFA program. For most students, this will occur at the end of their sophomore year. Transfer students may make application during the spring semester prior to their planned entrance into the department.

To graduate with a BFA degree, students must meet the following minimum requirements:

1. A **career total** GPA of at least 2.75 must be attained.
2. Students must maintain a minimum GPA of at least 2.75 in the Art Foundation and Art Basic Core classes.
3. No grade lower than a C will be accepted in any art class.
4. In any emphasis area class, no grade lower than a B- is acceptable. Emphasis classes may be retaken for a higher grade.

A minimum of 70 semester credits in art must be completed for the BFA degree. This includes 6 credits of upper-division art history. During the spring semester of their senior year, students must take ART 4910 (Senior BFA Exhibition). Students must also fulfill the standard University Studies requirement of 27-28 credits, as well as complete 20 credits of electives. Any student unable to complete the necessary requirements for the BFA may still qualify for the BS degree.

# Department of Art

## Department of Art Curriculum

### Foundation Courses

Students in the BS, BA, and BFA degree programs (except for students in the Art History emphasis) need to complete the following foundation curriculum. (Art History students should *instead* complete the BA foundation courses, which are listed in the *Art History* section.)

#### Suggested Sequence:

*Freshman year—first semester:*

<b>ART 1020</b> Drawing I (3 cr) <b>or</b>	
<b>ART 1110</b> Drawing I (Art Majors Only) (3 cr) .....	3
<b>ART 1120</b> Two-dimensional Design (3 cr) <b>or</b>	
<b>ART 1150</b> Two-dimensional Design (Art Majors Only) (3 cr) .....	3
<b>ARTH 2710 (BHU)</b> Survey of Western Art: Prehistoric to Medieval.....	3

*Freshman year—second semester:*

<b>ART 1130</b> Three-dimensional Design (3 cr) <b>or</b>	
<b>ART 1160</b> Three-dimensional Design (Art Majors Only) (3 cr) .....	3
<b>ART 2110</b> Drawing II.....	3
<b>ARTH 2720 (BHU)</b> Survey of Western Art: Renaissance to Post-Modern.....	3

Subsequent curriculum requirements are specific to these individual emphasis areas:

### Art Education

**Minimum GPA for Admission:** 2.75, USU; 2.75 Career  
**Additional Admission Requirement:** admission granted by art education instructor

**Minimum GPA for Graduation:** 2.75, core/foundation courses; 2.75, major; 2.75, USU; 2.75 Career

**Minimum Grade Accepted:** B- in emphasis courses; C in remaining ART courses

The art education curriculum prepares students to teach art in the public schools. Students graduate with a Bachelor of Fine Arts (BFA) degree in art and obtain a secondary education teaching license. The BFA degree requires 70 credits in Art courses. A minimum of 45 credits must be completed in the core and broadening area:

<b>ART 1020</b> Drawing I (3 cr) <b>or</b>	
<b>ART 1110</b> Drawing I (Art Majors Only) (3 cr) .....	3
<b>ART 1120</b> Two-dimensional Design (3 cr) <b>or</b>	
<b>ART 1150</b> Two-dimensional Design (Art Majors Only) (3 cr) .....	3
<b>ART 1130</b> Three-dimensional Design (3 cr) <b>or</b>	
<b>ART 1160</b> Three-dimensional Design (Art Majors Only) (3 cr) .....	3
<b>ART 2110</b> Drawing II.....	3
<b>ART 2200</b> Painting I.....	3
<b>ART 2230</b> Basic Printmaking.....	3
<b>ART 2400</b> Computers and Art (Art Majors Only) .....	3
<b>ART 2600</b> Basic Sculpture.....	3
<b>ART 2650</b> Introduction to Ceramics.....	3
<b>ARTH 2710 (BHU)</b> Survey of Western Art: Prehistoric to Medieval.....	3
<b>ARTH 2720 (BHU)</b> Survey of Western Art: Renaissance to Post-Modern .....	3
<b>ART 1050</b> Introduction to Photography (3 cr) <b>or</b>	
<b>ART 2810</b> Photography I (3 cr).....	3

In addition, 6 credits are required in upper-division art history courses. A minimum of 25 art credits must be taken in a specialization area. The secondary education teaching license requires the following courses:

<b>ART 3000</b> Secondary Art Methods I (Alt F) .....	3
<b>ART 3300</b> Clinical Experience I (Alt F) .....	1
(ART 3000 and 3300 must be taken concurrently.)	

<b>ART 4000</b> Secondary Art Methods II (Alt F).....	3
<b>ART 4300</b> Clinical Experience II (Alt F).....	1
(ART 4000 and 4300 must be taken concurrently.)	
<b>ART 5500</b> Student Teaching Seminar .....	2
<b>ART 5630</b> Student Teaching in Secondary Schools.....	10
<b>INST 3500</b> Technology Tools for Secondary Teachers .....	1
<b>SCED 3100</b> Motivation and Classroom Management.....	3
<b>SCED 3210 (DSS/CI)</b> Educational and Multicultural Foundations .....	3
<b>SCED 4200 (CI)</b> Reading, Writing, and Technology .....	3
<b>SCED 4210</b> Cognition and Evaluation of Student Learning .....	3
<b>SPED 4000</b> Education of Exceptional Individuals .....	2

### Art History (52 total credits)

**Minimum GPA for Admission:** 2.5, USU; 2.5 Career

**Minimum GPA for Graduation:** 2.5, major requirements; 2.5, USU; 2.5 Career

**Minimum Grade Accepted:** C in all major requirements

For the BA degree in Art with an emphasis in Art History, all students must take the following required foundation courses (15 credits):

<b>ARTH 2710 (BHU)</b> Survey of Western Art: Prehistoric to Medieval (F) 3	
<b>ARTH 2720 (BHU)</b> Survey of Western Art: Renaissance to Post-Modern (Sp) .....	3
<b>HIST 1100 (BHU)</b> Foundations of Western Civilization: Ancient and Medieval (F,Sp,Su) .....	3
<b>HIST 1110 (BHU)</b> Foundations of Western Civilization: Modern (F,Sp,Su) .....	3

One studio art course of student's choice (note prerequisites where necessary)

All majors must choose between the following two tracks, and must meet with their advisor to determine a concentration and special area by the beginning of their sophomore year. In addition, the student should have produced two research papers of 10-15 pages each by the senior year.

**Track I (18 credits):** Students must complete six upper-division courses in art history, consisting of three interrelated courses (e.g., by period) and three distributed widely (i.e., a concentrator in a modern period of art history would select courses from the ancient or medieval, renaissance, and Baroque periods to achieve the wide distribution).

**Track II (Interdisciplinary Track) (18 credits):** Students must complete three upper-division courses in Art History and two upper-division courses outside the department that make up a special field (these may be combined from area studies, such as the British Commonwealth, French Studies, American Studies, Folklore, or Anthropology; or may consist of a selection of courses that deal with post-colonialism, Women and Gender Studies, and the intersections between art and the history of science, for example; or may include courses that deal with a certain period). The student must formally apply, in consultation with his or her advisor, to determine the concentration and special area. One additional course in Art History (outside the special field) must also be completed.

All majors are required to take ARTH 4790, Art History Seminar and Special Problems (3 credits, offered every year). Students will be advised to take this seminar after they have written a research paper. Students are required to produce a self-assessment portfolio. During the second semester, senior majors must provide a portfolio of their work in art history. No credit is granted for the portfolio (which is not a class). The portfolio consists of a two-page self-assessment of the student's work and progress in the major; a list of classes taken in art

history, studio art, and any related fields that have contributed to the student's understanding of art history; and examples of the student's work in art history at all levels, including study-abroad work and internship experiences.

**Foreign Language (16 credits):** Four semesters of one foreign language are required. (French and German are especially recommended for students who plan to go on to graduate school, but a student may petition to have another foreign language count toward this goal.)

Including foundation, foreign language, and major classes, the Art History emphasis requires a total of 52 credits.

## Ceramics

**Minimum GPA for Admission:** 2.75, USU; 2.75 Career  
**Additional Admission Requirement:** portfolio and application review  
**Minimum GPA for Graduation:** 2.75, major; 2.75, USU; 2.75 Career  
**Minimum Grade Accepted:** B- in emphasis courses;  
 C in remaining ART courses

Contemporary ceramics represents the extension and synthesis of clay sculpture and vessel traditions. Students are acquainted with the technology of ceramic materials and firing processes, while developing sound craftsmanship as a means to personal expression. Enrichment is provided through the ceramics collection of the Nora Eccles Harrison Museum, numerous ceramics exhibitions, and visiting guest artists. Juniors and seniors in the program may compete for one of the Ellen Stoddard Eccles Scholarships, an endowed scholarship fund set aside especially for undergraduate ceramics majors. Students must complete the following courses for a Ceramics emphasis:

ART 2600 Basic Sculpture (F,Sp).....	3
ART 2650 Introduction to Ceramics (F,Sp,Su) .....	3
ART 3610 Intermediate Sculpture (F) .....	3
ART 3650 Intermediate Ceramics: Handbuilding (F) .....	3
ART 3660 Intermediate Ceramics: Throwing on the Potter's Wheel (Sp).....	3
ART 4640 <sup>1</sup> Technology of Ceramic Art (F,Sp,Su) .....	6
ART 4650 <sup>2</sup> Advanced Ceramic Studio (F,Sp,Su) .....	12
ART 4910 Senior BFA Exhibition (Sp).....	2
Two upper-division Art History courses .....	6
<b>CHEM 1010 (BPS)</b> Introduction to Chemistry (F,Sp) (3 cr) <b>or</b>	
<b>CHEM 1110 (BPS)</b> General Chemistry I (4 cr) (F,Sp).....	3 or 4
<b>GEO 1010 (BPS)</b> Introduction to Geology: Geology of National Parks (F,Su) (3 cr) <b>or</b>	
<b>GEO 1110 (BPS)</b> The Dynamic Earth: Physical Geology (F,Sp) (4 cr) .....	3 or 4

<sup>1</sup>ART 4640 is repeatable for credit, and must be taken during at least two semesters.  
<sup>2</sup>ART 4650 is repeatable for credit, and must be taken during at least four semesters.

## Drawing and Painting

**Minimum GPA for Admission:** 2.75, USU; 2.75 Career  
**Additional Admission Requirement:** portfolio and application review  
**Minimum GPA for Graduation:** 2.75, major; 2.75, USU; 2.75 Career  
**Minimum Grade Accepted:** B- in emphasis courses;  
 C in remaining ART courses

The drawing and painting emphasis includes the two-dimensional study of form and space, as well as the exploration of drawing and painting media, graphic elements, and visual dynamics. It is an essential discipline for all artists, as it provides the fundamental visual skills needed in their search for a personal idiom. At the same time,

drawing and painting are also vehicles of creative expression, visual adventure, and self-discovery. The curriculum emphasizes an analysis of historical approaches to drawing and painting, and the exploration of new ideas, techniques, and materials. Basic courses are designed to foster a respect for the craft of drawing and painting, and subsequent courses encourage application of the craft to expressive goals. Central to the focus of drawing and painting study at USU is the development of a personal portfolio reflecting the specific interests of the individual. Students must complete the following courses for a drawing and painting emphasis:

ART 1050 Introduction to Photography (F) (3 cr) <b>or</b>	
ART 2810 Photography I (F,Sp) (3 cr).....	3
ART 2200 Painting I (F).....	3
ART 2230 Basic Printmaking (F).....	3
ART 2400 Computers and Art (Art Majors Only) (F) .....	3
ART 2600 Basic Sculpture (F,Sp) (3 cr) <b>or</b>	
ART 2650 Introduction to Ceramics (F,Sp,Su) (3 cr).....	3
ART 3200 Painting II (Sp) .....	3
ART 4200 Advanced Drawing and Painting Studio (F,Sp,Su).....	6
ART 4210 Figure Painting (Sp) .....	3
ART 4260 <sup>3</sup> Life Drawing (F) .....	3
ART 4910 Senior BFA Exhibition (Sp).....	2
ARTH 4750 Twentieth Century Art .....	3
One additional upper-division Art History course (required).....	3

One course must be chosen from:

ART 3230 Lithography (F).....	3
ART 3240 Intaglio (Sp).....	3
ART 3250 Relief Prints (F) .....	3

The remainder of the 70 semester credits can be taken as electives.

<sup>3</sup>ART 4260 is repeatable for credit, and must be taken during at least two semesters.

## Graphic Design

**Minimum GPA for Admission:** 2.75, USU; 2.75 Career  
**Additional Admission Requirement:** portfolio and application review  
**Minimum GPA for Graduation:** 2.75, major; 2.75, USU; 2.75 Career  
**Minimum Grade Accepted:** B- in emphasis courses;  
 C in remaining ART courses

Graphic design is the study of visual communications and the art of presenting information. Visual elements, such as animation, photography, illustration, symbols, and type, are designed or arranged using various techniques and materials. Materials range from traditional ink, paper, and printing presses to video and the Internet, using the latest computer software and hardware. Students in graphic design complete a variety of courses that involve working with symbols, trademarks, typography, layout, and all formats of print and publication design. Illustration, digital imaging, motion graphics, animation, and interactive media are also part of the graphic design curriculum. Seniors may specialize in one or more of these areas of study and create a professional portfolio specific to their interests. Graphic Design emphasis students should complete the following courses:

ART 2400 Computers and Art (F) (Art Majors Only) .....	3
ART 3400 Typography (Sp).....	3
ART 3420 <sup>4</sup> Communication Arts Seminar (F,Sp).....	1
ART 4410 Graphic Interface Design I (F).....	3
ART 4420 Brand Identity Design (F) .....	3
ART 4440 Type, Image, and Visual Continuity (Sp).....	3
ART 4450 Portfolio Preparation (F).....	3

# Department of Art

Additional Art courses.....9  
 Two upper-division Art History courses (3000- or 4000-level).....6

<sup>4</sup>ART 3420 is repeatable for credit, and must be taken during a minimum of three semesters.

## Photography

**Minimum GPA for Admission:** 2.75, USU; 2.75 Career  
**Additional Admission Requirement:** portfolio and application review  
**Minimum GPA for Graduation:** 2.75, major; 2.75, USU; 2.75 Career  
**Minimum Grade Accepted:** B- in emphasis courses;  
 C in remaining ART courses

Found throughout all of contemporary life, photographic images shape the way we document, interpret, and direct our lives. As an art form, photography constantly reinvents our concept of beauty, reality, and culture. Within the program in photography, students learn the aesthetic and technical skills of the medium. The fundamentals of craft and the “hands on” application of knowledge at each level enables the student to pursue a variety of photographic professions. Requirements for the Photography emphasis include:

**ART 2810** Photography I (F,Sp) .....3  
**ART 3810** Photography II (Sp) .....3  
**ART 4810** Digital Photography (F) .....3  
**ART 4820** Nineteenth Century Photography Printing Processes (F) ....3  
**ART 4830** Independent Projects in Photography (F,Sp,Su) .....6  
**ART 4840** Color Photography I (F).....3  
**ART 4850** Color Photography II (Sp) .....3  
**ART 4860** Photographic Studio (F) .....3  
**ART 4870** Photographic Portfolio (Sp).....3  
**ART 4910** Senior BFA Exhibition (Sp).....2  
**ARTH 3820** History of Early Photography (Sp).....3  
**ARTH 3830** History of Contemporary Photography (Sp) .....3

## Printmaking

**Minimum GPA for Admission:** 2.75, USU; 2.75 Career  
**Additional Admission Requirement:** portfolio and application review  
**Minimum GPA for Graduation:** 2.75, major; 2.75, USU; 2.75 Career  
**Minimum Grade Accepted:** B- in emphasis courses;  
 C in remaining ART courses

Students in the printmaking emphasis have the opportunity to explore all aspects of traditional and contemporary printmaking. After an introduction to the basics of intaglio, lithographic, silkscreen, and relief processes, students are encouraged to continue their development in a specific area of interest. Independent studio projects will investigate the wide field of printmaking, providing a framework for the student to become engaged in a creative pursuit involving both technical and aesthetic considerations. Requirements for the Printmaking emphasis include:

**ART 1050** Introduction to Photography (F) (3 cr) or  
**ART 2810** Photography I (F,Sp) (3 cr).....3  
**ART 2230** Basic Printmaking (F).....3  
**ART 3230<sup>5</sup>** Lithography (F) .....3  
**ART 3240<sup>5</sup>** Intaglio (Sp) .....3  
**ART 3250<sup>5,6</sup>** Relief Prints (F).....3  
**ART 4250** Advanced Printmaking Studio (F,Sp).....9  
**ART 4910** Senior BFA Exhibition (Sp).....2  
 Two additional upper-division Art History courses, 3000-level and above (required) .....6

<sup>5</sup>A total of 12 credits must be taken in a combination of ART 3230, 3240, and 3250.  
<sup>6</sup>ART 3250 may be repeated for credit.

## Sculpture

**Minimum GPA for Admission:** 2.75, USU; 2.75 Career  
**Additional Admission Requirement:** portfolio and application review  
**Minimum GPA for Graduation:** 2.75, major; 2.75, USU; 2.75 Career  
**Minimum Grade Accepted:** B- in emphasis courses;  
 C in remaining ART courses

Sculpture is the three-dimensional expression of ideas. Its range extends from discrete, permanent objects to ephemeral, multi-media environments. Students in the sculpture emphasis develop a base of knowledge in traditional approaches to the creation of form. After gaining competency in figure modeling, as well as in stone or wood carving, they explore both site-specific sculpture and sculptural installations. Intermediate and advanced students investigate specific problems involving technical, aesthetic, and conceptual considerations, while developing their own direction, based on both experience with form, materials, and techniques, and an understanding of traditional concerns and contemporary issues in the vast field encompassed today by sculpture.

The following courses are required for students in the sculpture emphasis:

**ART 1050** Introduction to Photography (F) (3 cr) or  
**ART 2810** Photography I (F,Sp) (3 cr).....3  
**ART 2600** Basic Sculpture (F,Sp).....3  
**ART 2650** Introduction to Ceramics (F,Sp,Su) .....3  
**ART 3610** Intermediate Sculpture (F) .....3  
**ART 4660** Advanced Sculpture Studio (Sp) .....9  
**ART 4910** Senior BFA Exhibition (Sp).....2  
 Two additional upper-division Art History courses (required) .....6

## Sample Four-year Plans

Sample semester-by-semester four-year plans for students working toward a bachelor’s degree within the Art Department can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Minor Requirements

### Art Minor

To plan a minor in Art, students should meet with an advisor. Generally, the minimum requirements include:

**ART 1020** Drawing I (F,Sp) .....3  
**ART 1120** Two-dimensional Design (F,Sp).....3  
**ART 1130** Three-dimensional Design (F,Sp).....3  
**ARTH 2710 (BHU)** Survey of Western Art: Prehistoric to Medieval (F) (3 cr) or  
**ARTH 2720 (BHU)** Survey of Western Art: Renaissance to Post-Modern (Sp) (3 cr).....3  
 Credits in any ART classes.....12

### Art History Minor

A minor in art history requires ARTH 2710 and 2720, plus 12 credits from the art history group (ARTH 3820, 3830, 4720, 4740, 4750, 4790).

USU does not offer an art teaching minor for secondary teachers. Students choosing to train for teaching art in secondary schools must complete the art education major listed under art specialties and must comply with all requirements listed by the Secondary Education Program of the School of Teacher Education and Leadership (TEAL).

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Students wishing to pursue departmental honors in art must have a cumulative GPA of 3.30 or higher, and must first be admitted to the BFA program. Once that process is completed, they should meet with the departmental honors advisor to complete an honors program of study contract form. Contact the Art Department at: Fine Arts Visual 122, (435) 797-3460.

The 15-credit requirement for Departmental Honors in Art is met in the following manner:

1. At least 6 credits in upper-division Art or Art History courses must be taken with an honors contract.
2. At least 3 credits must be completed in an Honors Depth Life and Physical Sciences (DSC) course or in an Honors Depth Social Sciences (DSS) course.
3. At least 3 credits of upper-division coursework must be completed in the emphasis area or from outside the department, and must be taken with an honors contract.
4. Students must complete ART 4910 (Senior BFA Exhibition, 2 credits), along with at least 1 credit in HONR 4900 (Senior Thesis/Project, 1-3 credits).

To qualify for departmental honors in art, students must graduate with a cumulative GPA of at least 3.30 in their upper-division coursework taken as part of their departmental honors contract, and must present their work in a public forum (such as the Senior BFA show and/or Student Showcase).

## Additional Information

For additional information about undergraduate requirements in the Department of Art, see the major requirement sheet, which can be obtained from the department, or accessed online at: <http://www.usu.edu/majorsheets/>

Additional information may also be found on the Art Department website at: <http://www.art.usu.edu/>

## Graduate Programs

The Department of Art offers two graduate degrees and cooperates with the Emma Eccles Jones College of Education and Human Services on another degree. The Master of Arts (MA) and the Master of Fine Arts (MFA) are offered by the Art Department. A Master of Education (MEd) with a specialization in art is offered through the Emma Eccles Jones College of Education and Human Services.

## Master of Arts

Students are selected for the MA program on the basis of a portfolio demonstrating artistic individuality and a level of development beyond the need of classroom instruction.

## Admission Requirements

All applicants are required to have earned a bachelor's degree in the visual arts or its equivalent. During the last two years of undergraduate work, the GPA in art courses must have been at least 3.0 on a 4 point scale. MAT scores should be at or above the 40th percentile. Applicants taking the GRE should have verbal and quantitative scores at or above the 40th percentile.

## Degree Requirements

Candidates for the MA must complete a minimum of 30 credits, to include: (1) 21 graduate studio credits, which may be divided into two or three areas of study at the graduate level; (2) 3 credits which may be earned in classes outside the department; (3) 3 credits of art history; and (4) 3 credits of Research and Thesis.

A total of 12 credits of art history, including undergraduate credits, is required for graduation, but only 3 credits earned as a matriculated graduate student at USU may be applied toward the 30-credit MA requirement. The additional 9 credits of art history may include credits earned at the undergraduate level.

A candidate must complete a minimum of two semesters in residency. Nine credits per semester is considered full-time graduate enrollment, while 12 credits are considered the maximum enrollment. A minimum of three semesters is thus required to complete the 30-credit program.

## Master of Fine Arts

The Master of Fine Arts degree is the terminal degree in the visual arts field. The MFA program is designed to allow students to mature to a level of professional competence in the making of art. Related studies augment a rigorous studio program. The prospective student must exhibit both academic excellence and a well-developed personal artistic vision.

## Admission Requirements

All applicants are required to have earned a BFA degree in the visual arts or its equivalent, including a minimum of 12 credits of art history. *Students must submit either MAT or GRE scores.* GPA in art courses must have been at least 3.0 on a 4-point scale. MAT scores should be at or above the 40th percentile. Applicants taking the GRE should have verbal and quantitative scores at or above the 40th percentile.

## Degree Requirements

Students must earn 60 credits, to include: (1) 43 credits of graduate-level studio art as determined by the student in consultation with his or her major professor, including a minimum of 6 credits outside of the emphasis area; (2) 6 credits of Graduate Seminar; (3) 2 credits of Graduate Interdisciplinary Critique; (4) 6 credits outside the Art Department as specified by the supervisory committee; and (5) 3 credits of Research and Thesis, which concludes with an MFA thesis exhibition and an oral defense. The MFA thesis is a visual presentation, the equivalent of a written dissertation in other disciplines. The thesis exhibition is the single most important feature of the MFA program; the culmination of at least two years, and often three or more years, of intensive study in a single discipline. The student must also submit a selection of digital images documenting the exhibition.

*The MFA program is a resident program; it is not possible to complete the requirements for graduation by correspondence. The program is predicated upon the assumption that students will live in the Logan area.* Students must complete a minimum of four semesters in residency. Nine credits per semester is considered full-time graduate enrollment, while 12 credits are considered the maximum enrollment. A minimum of five semesters is thus required to complete the 60-credit program; most students require three years.



# Department of Art

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## Application Procedures

Completed applications must include: (1) completed application forms; (2) a letter of intent; (3) transcripts of all previous graduate and undergraduate work; (4) three letters of recommendation from qualified professionals; (5) GRE or MAT scores; and (6) the \$50 application fee.

These materials must be sent directly to the School of Graduate Studies. When complete, applications will be forwarded by the School of Graduate Studies to the Art Department for review.

A portfolio of twenty digital images on CD-ROM of recent work must be mailed directly to: Graduate Coordinator, Department of Art, Utah State University, 4000 Old Main Hill, Logan UT 84322-4000.

Completed applications and slide portfolios must be received by **February 1**. Students should note that applications will be considered *only* at this time, and *only* completed applications will be reviewed. Admission will *only* be considered for fall semester. The deadlines for financial aid may be earlier than the admissions deadline. For further information about financial aid, visit the Financial Aid Office in Taggart Student Center 106; write to: Financial Aid Office, Utah State University, 1800 Old Main Hill, Logan UT 84322-1800; or phone (435) 797-0173.

Applications are reviewed by the Art Department faculty. Candidates are selected primarily on the basis of their **portfolio**, which should demonstrate a level of development beyond the need of classroom instruction and encouragement. The faculty will also look in the portfolio for evidence of significant personal exploration.

Secondary to the portfolio, but important nonetheless, the applicant's **letter of intent** and **letters of recommendation** will also be given careful consideration. In reviewing these letters, the faculty will look for, among other things, indications that the applicant will be capable of prolonged and concentrated effort, guided by realistic personal goals. Letters should address both academic and artistic accomplishments, as well as potential for further growth in both of these areas.

Applicants are strongly encouraged to visit the USU campus and meet with the faculty in their proposed field of study *well in advance* of the February 1 application deadline.

**Important Note.** Please note that the graduate programs in the Art Department have limited enrollment; admission is *very* competitive. Because only a small fraction of applicants can be accommodated,

there can be no guarantee that applicants who meet minimum admission requirements will be accepted into master's programs.

## Financial Assistance

Departmental support is available to graduate students on a competitive basis. Students requesting financial support should apply to the department by February 15. Other assistance is available through the University Financial Aid Office. Students should note that applications for Federal work-study should be mailed during the first week of February.

## Art Faculty

### Professors

*Carolyn Cárdenas*, drawing, painting  
*Craig J. Law*, photography  
*John Neely*, ceramics  
*Christopher T. Terry*, drawing, painting

### Professors Emeritus

*Jon I. Anderson*, graphic design  
*Glen L. Edwards*, illustration  
*Adrian Van Suchtelen*, drawing

### Associate Professors

*Jane S. Catlin*, art education, painting  
*Alan Hashimoto*, graphic design  
*Robert Winward*, graphic design

### Associate Professor Emeritus

*Marion R. Hyde*, printmaking, art education

### Assistant Professors

*Eileen Doktorski*, sculpture  
*JinMan Jo*, sculpture  
*J. Daniel Murphy*, ceramics  
*Alexa Sand*, art history  
*Woody Shepherd*, drawing, painting  
*Dave Smellie*, graphic design

## Course Descriptions

Art (ART), pages 501-504

Art History (ARTH), pages 504-505

# Asian Studies Major and Minor

Program Director: R. Edward Glatfelter, Main 333, (435) 797-1196,  
ed.glatfelter@usu.edu

## Major

### Requirements for Asian Studies Major (27 credits)

Minimum GPA for Admission: 2.5, USU; 2.2, Career

Minimum GPA for Graduation: 2.5, major requirements  
including foreign language; 2.0, USU

Minimum Grade Accepted: C- in all major requirements  
including foreign language

To graduate with a BA degree in Asian Studies, students must complete a minimum of 27 credits approved by the Asian Studies program director. The program must include a minimum of 18 credits selected from the Core Courses, and 9 credits from the General Electives, selected after consultation with the Asian Studies program advisor. In addition to the core and elective courses, proficiency at the 2020-level or higher in an Asian language is required for graduation.

### Core Courses

ECN 5400 International Trade Theory (F)	3
ENGL 3320 Period Studies in World Literature (when syllabus includes Asian literature) (F,Sp)	3
ENGL 4360 Studies in Drama/Film (when course subtitle is Asia) (Sp)	3
GEOG 4200 (CI) Regional Geography (when region covered is Asian) (F,Sp,Su)	3
HIST 1060 (BHU) Introduction to Islamic Civilization	3
HIST/ARTH 3110 (DHA/CI) Ancient Near East	3
HIST 3410 The Modern Middle East	3
HIST 3460 Comparative Asian History	3
HIST 3480 History of China	3
HIST 3490 Survey of Japanese History (F)	3
HIST 4821 (DHA) World War II in Asia (Sp)	3
HIST 4890 (DHA) Cold War in Asia (F,Sp)	3
LANG/ANTH/HIST 3550 (DHA) Culture of East Asia	3
MIS 4550 (CI) Principles of International Business Communications (Sp)	3
PHIL 3710 Philosophies of East Asia (F)	3
PHIL 4900 Special Topics (when syllabus includes Asian philosophies) (F,Sp)	3
POLS 3230 Middle Eastern Government and Politics (F)	3
POLS 3250 (DSS) Chinese Government and Politics (F)	3
POLS 4220 (CI) Ethnic Conflict and Cooperation (when syllabus includes Asian Conflicts) (Sp)	3
POLS 4260 Southeast Asian Government and Politics (Sp)	3
POLS 4470 Foreign Policy in the Pacific (Sp)	3
RELS/HIST 3010 Introduction to Buddhism	3
RELS/HIST 3020 Introduction to Hinduism	3
RELS/HIST 4010 Buddhism in the West	3
SOC 4710 Asian Societies (Sp)	3
SOC 4730 Women in International Development (Sp)	3

### General Electives

(required minimum of 9 credits):

ANTH 1010 (BSS) Cultural Anthropology (F,Sp)	3
ANTH 2010 (BSS) Peoples of the Contemporary World (Sp)	3
ANTH 3160 (DSS) Anthropology of Religion (F)	3
ANTH/LING 4100 The Study of Language (F,Sp)	3

ANTH 5100 (DSS) Anthropology of Sex and Gender (F,Sp)	3
ANTH/GEOG/SOC 5650 (DSS) Developing Societies (F)	3
APEC 5850 Regional and Community Economic Development (F)	3
ECN 3400 (DSS) International Economics for Business (F,Sp,Su)	3
ECN 5150 (DSS) Comparative Economic Systems (F)	3
FIN 4300 International Finance (F,Sp)	3
GEOG 1300 (BSS) World Regional Geography (F)	3
GEOG 1400 (BSS) Human Geography (Sp)	3
GEOG 2130 Population Geography (Sp)	3
GEOG 3430 Political Geography (Sp)	3
MGT 4590 Global Marketing Strategy (F,Sp)	3
NR 1010 (BSS) Humans and the Changing Global Environment	3
PLSC 4300 World Food Crops and Cropping Systems: The Plants That Feed Us (F even)	3
POLS 2100 Introduction to International Politics (F,Sp)	3
POLS 2200 (BSS) Comparative Politics (F,Sp)	3
POLS 5120 Economics of Russia and Eastern Europe, 9th Century to 21st Century (F)	3
POLS 5440 (DSS) Gender and World Politics (Sp)	3
SOC 3200 (DSS) Population and Society (F,Sp)	3
SOC 3600 Sociology of Urban Places (F)	3
SOC 6310 Sociology of Work and Occupations (Sp)	3
SPCH 3330 (DSS) Intercultural Communication (F)	3

### Languages

Demonstrated proficiency at the 2020-level or higher in one of the following Asian languages is required for the Asian Studies major. For students completing an Asian Studies minor, an Asian language is recommended.

CHIN 1010 Chinese First Year I (F)	5
CHIN 1020 Chinese First Year II (Sp)	5
CHIN 2010 Chinese Second Year I (F)	5
CHIN 2020 Chinese Second Year II (Sp)	5
CHIN 3010 Chinese Third Year I (F)	4
CHIN 3020 Chinese Third Year II (Sp)	4
CHIN 3100 Readings in Contemporary Chinese Culture (Sp)	3
CHIN 3510 Chinese Business Language (F)	3
JAPN 1010 Japanese First Year I (F)	5
JAPN 1020 Japanese First Year II (Sp)	5
JAPN 2010 Japanese Second Year I (F)	5
JAPN 2020 Japanese Second Year II (Sp)	5
JAPN 3010 Japanese Third Year I (F)	4
JAPN 3020 Japanese Third Year II (Sp)	4
JAPN/ART 3050 Japanese Calligraphy (Sp)	1
JAPN 3100 Readings in Contemporary Japanese Culture (F)	3
JAPN 3510 Japanese for the Business Environment (Sp)	3
JAPN 4250 Internship/Coop (Su)	3-9
KOR 1010 Korean First Year I (F)	5
KOR 1020 Korean First Year II (Sp)	5
KOR 2010 Korean Second Year I (F)	5
KOR 2020 Korean Second Year II (Sp)	5
KOR 3010 Korean Third Year I (F)	4
KOR 3020 Korean Third Year II (Sp)	4
KOR 3510 Business Korean (F)	3

# Asian Studies Major and Minor

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## Minor

### Requirements for Asian Studies Minor (20 credits)

Minors must complete a minimum of 12 credits selected from the Core Courses. The remaining 8 credits must be chosen from the General Electives or from the following language classes:

<b>CHIN 3010</b> Chinese Third Year I (F).....	4
<b>CHIN 3020</b> Chinese Third Year II (Sp) .....	4
<b>CHIN 3100</b> Readings in Contemporary Chinese Culture (Sp) .....	3
<b>CHIN 3510</b> Chinese Business Language (F) .....	3
<b>JAPN 3010</b> Japanese Third Year I (F) .....	4
<b>JAPN 3020</b> Japanese Third Year II (Sp) .....	4
<b>JAPN/ART 3050</b> Japanese Calligraphy (Sp) .....	1
<b>JAPN 3100</b> Readings in Contemporary Japanese Culture (F) .....	3
<b>JAPN 3510</b> Japanese for the Business Environment (Sp).....	3
<b>KOR 3010</b> Korean Third Year I (F).....	4
<b>KOR 3020</b> Korean Third Year II (Sp).....	4
<b>KOR 3510</b> Business Korean (F).....	3

### Sample Four-year Plan for Asian Studies Major

A sample semester-by-semester four-year plan for students working toward a Bachelor of Arts degree in Asian Studies can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

### Asian Language Course Descriptions

Chinese (CHIN), pages 529-530

Japanese (JAPN), pages 589-590

Korean (KOR), page 593

# Department of Biological and Irrigation Engineering

**Department Head:** Ronald C. Sims

**Location:** Engineering 402G

**Phone:** (435) 797-2785

**FAX:** (435) 797-1248

**E-mail:** bie@usu.edu

**WWW:** <http://www.bie.usu.edu>

## **Undergraduate Advising:**

Engineering Advising Center, Engineering 314A, (435) 797-2705,  
isobel.roskelley@usu.edu

## **Degrees offered:**

Bachelor of Science (BS), Master of Science (MS), and Doctor of Philosophy (PhD) in Biological Engineering; MS and PhD in Irrigation Engineering

**Undergraduate options:** BS—Biomedical; Bioprocess; Bioenvironmental; and Soil and Water Resource Systems Engineering

**Graduate areas of interest:** Biomedical Engineering; Biosensors; Biofuels; Sustainable Energy; Bioprocess Engineering; Biophotonics; Bioenvironmental Engineering; Irrigation Conveyance and Control Structures; Surface, Sprinkle, and Trickle Irrigation Methods; Irrigation Project Planning, Design, and Operation and Management; Agricultural Hydrology; Crop Water-Yield Analysis; Evapotranspiration; On-Farm Water Management; Remote Sensing and Geographical Information Systems; Groundwater Management and Simulation

## **Mission**

The mission of the Department of Biological and Irrigation Engineering (BIE) is to teach students preparing to become biological engineers how to apply engineering principles and the knowledge of biological sciences to the design, control, and analysis of biological-engineered systems and to solutions of biotechnology problems. The department also prepares students for entry into other professions, including biomedical engineering, environmental engineering, medicine, and law.

## **Scope and Objectives**

The scope of the Biological Engineering Program involves engaging students to learn to manipulate biological materials for useful purposes, to understand the biological literature, and to be able to communicate with biological scientists. Students first learn to integrate biological sciences with conventional studies in mathematics and chemistry. These skills are broadened with a liberal exposure to humanities and social sciences, and then sharpened with the study of engineering topics that develop practical problem-solving abilities; expand sensitivity to the economic, social, and legal dimensions of technical problems; provide an understanding of ethics and professional responsibility; and stimulate a desire for lifelong learning. The scope involves applications in engineered biological systems, from nanoscale to watershed scale, as well as engineered life-support systems in above-earth and planetary space environments.

The objectives of the Biological Engineering program are as follows:

1. **Promote the effective application of knowledge.** Develop practical problem-solving and communication abilities to apply what is known and to convey the information to others that will contribute to biological engineering practice, advance knowledge, and contribute to society.
2. **Advance the desire and ability to grow professionally.** Expand the work ethic and drive to provide continuous self-improvement, and expand a professional sensitivity to the economic, social, and legal dimensions of technical problems, in order to ensure that engineering solutions will be more holistic and applicable.

3. **Teach students to adjust to a rapidly changing environment.**

Stimulate a desire for lifelong learning and for adaptation to a change in direction with a rapid response, as two means of extending engineering knowledge.

## **Outcomes**

Biological Engineering Program outcomes are aligned with the program outcomes of all academic engineering programs in the U.S. that are provided by the Accreditation Board for Engineering and Technology/Engineering Accreditation Commission (ABET/EAC). Six specific outcomes are identified below.

1. Students have proven themselves to be proficient in mathematics, the sciences, and engineering.
2. Students have shown a capacity for investigation and experimentation, including the analysis and interpretation of data, as well as the ability to design an effective biological or irrigation system, component, or device.
3. Students have exercised their engineering skills as part of a multi-disciplinary group, and have demonstrated the capability to communicate verbally, in writing, graphically, and through engineering media.
4. Students have demonstrated the ability to solve engineering analysis and design problems, utilizing both fundamental engineering principles and modern engineering technology and tools.
5. Students have demonstrated an understanding of the standards of professional conduct and ethical responsibility, in addition to understanding the role that an engineer plays in modern global society.
6. Students have manifested recognition of and commitment to the need for life-long learning as a professional, and have broadened the scope of their interests beyond engineering to include an awareness of the world around them.

## **Assessment and Evaluation**

The BIE Department is committed to an assessment process aimed at evaluating the effectiveness of BIE programs in preparing graduates as productive professionals. The foundation of departmental assessment is the undergraduate accreditation by the Engineering Accreditation Commission (EAC) of ABET.

The continuous improvement processes that are documented and implemented annually as part of the accreditation activities in support of the EAC/ABET requirements provide for formal and external review of the Biological Engineering Bachelor of Science program. Internal assessment and evaluation is formally conducted annually through BIE Department committees including: (1) the Curriculum Committee, and (2) the ABET Committee. This assessment and evaluation ensures that the USU program meets an overall objective and structure consistent with similar programs in the U.S. and Canada. The BIE Department Industry Advisory Board performs the role of external review of the academic program, graduating seniors, and selected program educational objectives and program outcomes.

The biological engineering program is continuously improved through integrating the results of this formal assessment with the day-to-day assessments obtained from both students and faculty. To ensure the overall quality of the program, the department conducts several specific assessments. These are:

# Department of Biological and Irrigation Engineering

1. Employer feedback soon after graduation and approximately three years after graduation.
2. BIE Department Industry Advisory Board activities, including interviews of graduating students.
3. Fundamentals of Engineering Examination performance.
4. Behavioral observations with regard to professional conferences and professional organizations membership.
5. Student coursework performance and Course Instructor Self-Evaluation.
6. Capstone Design performance.

## Undergraduate Programs

General biological engineering concepts include the properties of biological materials, electronics and bio-instrumentation, computer use and programming, engineering mechanics, thermodynamics, computer-aided drafting, bio-environmental transport phenomena, and fluid mechanics.

Students gain a strong foundation in biological, chemical, and physical sciences. Each student then selects an option within the field, based on personal interest. These areas of study are tailored for each student with 21 semester credits of technical electives and one-on-one academic advisement with a member of the faculty. Design is a major theme of both the student's general coursework and specialization, with most courses including open-ended design problems. The entire design experience is brought together in a capstone design course.

The Biological Engineering Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET).

**Passing the Fundamentals of Engineering examination**, the first step in becoming a licensed professional engineer, is desired for graduation. After students have made two credible attempts to pass the national exam, a departmental exam will be administered. When passed, this departmental exam will satisfy the graduation requirement.

## Requirements

### Admission and Graduation Requirements

The student who is majoring in or planning to major in Biological Engineering needs to be aware of the College of Engineering requirements concerning admission to the college, pre-engineering, admission to the professional engineering program, general education, and other academic requirements. Additional information concerning these items is given in the College of Engineering requirements on pages 131-134. It is the responsibility of the student to be aware of these rules and regulations.

### Biological Engineering Curriculum

Biological Engineering is divided into a preprofessional and a professional program involving either a four-year or a five-year schedule that will satisfy the requirements for a BS degree in Biological Engineering. Students receiving credit from the College Level Examination Program (CLEP) or from Advanced Placement (AP) may complete a BS degree program in less than four years. The academic work, particularly in the junior and senior years, is supplemented by hands-on laboratories which are required as part of the coursework. Modification in the program to meet special needs and priorities of a student may be obtained with the approval of the department head and advisor.

### Preprofessional Program:

<b>BIE 1880</b> Engineering Quantification of Biological Processes (Sp) .....	3
<b>BIE 2330</b> Engineering Properties of Biological Materials (Sp) .....	3
<b>CHEM 1210</b> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 2300</b> Principles of Organic Chemistry (F) .....	3
<b>CHEM 2315</b> Organic Chemistry Laboratory I (F) .....	1
<b>ENGR 1000</b> Introduction to Engineering Design (F) .....	2
<b>ENGR 2010</b> Engineering Mechanics Statics (F,Sp) .....	2
<b>ENGR 2030</b> Engineering Mechanics Dynamics (F,Sp) .....	3
<b>ENGR 2450</b> Engineering Numerical Methods (Sp) .....	2
<b>BIOL 1610 (BLS)<sup>1</sup></b> Biology I (F).....	4
<b>ENGL 2010 (CL2)</b> Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su).....	3
<b>ETE 2270</b> Computer Engineering Drafting (F,Sp,Su).....	2
<b>BIE 2400</b> Biological and Environmental Thermodynamics (Sp).....	3
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su) .....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su) .....	4
<b>MATH 2250 (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su) ..	4
<b>PHYS 2200</b> Elements of Mechanics.....	2
Communications Literacy .....	3

### Professional Program:

<b>BIE 3000</b> Instrumentation for Biological Systems (Sp).....	3
<b>BIE 3200</b> Introduction to Unit Operations in Biological Engineering (F).....	3
<b>BIE 3670</b> Transport Phenomena in Bio-Environmental Systems (Sp) ..	3
<b>BIE 3870</b> Biological Engineering Design I (F,Sp,Su).....	1
<b>BIE 4880 (CI)</b> Biological Engineering Design II (F,Sp,Su).....	3
<b>BIE 4890 (CI)</b> Biological Engineering Design III (F,Sp,Su).....	3
<b>BIE 5020</b> Biological Systems Modeling and Controls (F).....	3
<b>BIOL 3300 (BLS)<sup>1</sup></b> General Microbiology (F,Sp).....	4
<b>CEE 3500</b> Civil and Environmental Engineering Fluid Mechanics (F,Sp).....	3
<b>CHEM 3700</b> Introductory Biochemistry (Sp).....	3
<b>CHEM 3710</b> Introductory Biochemistry Laboratory (Sp) .....	1
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) .....	3
<b>ETE 2300 (QI)</b> Electronic Fundamentals (F,Su) .....	4
Biological Engineering Electives.....	6-21
Engineering Electives (0-15 cr) (9-21 cr total for Biological Engineering Electives <i>and</i> Engineering Electives combined) .....	9-21
Technical Electives (0-12 cr) (21 cr total for Biological Engineering Electives, Engineering Electives, <i>and</i> Technical Electives combined).....	0-12
University Studies (18 credits).....	18

## Biological Engineering Required Coursework

### Suggested Semester Schedule (126 credits)

#### Preengineering: Freshman and Sophomore

##### Freshman Year (32 credits)

##### Fall Semester (15 credits)

<b>BIOL 1610 (BLS)<sup>1,3</sup></b> Biology I .....	4
<b>CHEM 1210<sup>3</sup></b> Principles of Chemistry I.....	4
<b>CHEM 1215<sup>3</sup></b> Chemical Principles Laboratory I.....	1
<b>ENGR 1000<sup>3</sup></b> Introduction to Engineering Design.....	2
<b>MATH 1210 (QL)<sup>3</sup></b> Calculus I .....	4

##### Spring Semester (17 credits)

<b>BIE 1880<sup>3</sup></b> Engineering Quantification of Biological Processes.....	3
<b>ETE 2270<sup>3</sup></b> Computer Engineering Drafting.....	2
<b>MATH 1220 (QL)<sup>3</sup></b> Calculus II .....	4
<b>PHYS 2200<sup>3</sup></b> Elements of Mechanics .....	2
University Studies Breadth courses.....	6

# Department of Biological and Irrigation Engineering

## Sophomore Year (32 credits)

### Fall Semester (16 credits)

BIE 2330 <sup>3</sup> Engineering Properties of Biological Materials.....	3
CHEM 2300 <sup>3</sup> Principles of Organic Chemistry .....	3
CHEM 2315 <sup>3</sup> Organic Chemistry Laboratory I.....	1
ENGR 2010 <sup>3</sup> Engineering Mechanics Statics.....	2
ENGL 2010 (CL2) <sup>3</sup> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
MATH 2250 (QI) <sup>3</sup> Linear Algebra and Differential Equations.....	4

### Spring Semester (16 credits)

BIE 2400 <sup>3</sup> Biological and Environmental Thermodynamics .....	3
BIOL 3300 (BLS) <sup>1</sup> General Microbiology .....	4
ENGR 2030 <sup>3</sup> Engineering Mechanics Dynamics.....	3
ENGR 2450 <sup>3</sup> Engineering Numerical Methods.....	2
ETE 2210 Electrical Engineering for Nonmajors .....	4

## Professional Engineering: Junior and Senior

### Junior Year (32 credits)

#### Fall Semester (15 credits)

BIE 3200 Introduction to Unit Operations in Biological Engineering .....	3
CEE 3500 Civil and Environmental Engineering Fluid Mechanics .....	3
STAT 3000 (QI) Statistics for Scientists .....	3
Technical Elective course <sup>2</sup> .....	3
University Studies Breadth course .....	3

#### Spring Semester (17 credits)

BIE 3000 Instrumentation for Biological Systems .....	3
BIE 3670 Transport Phenomena in Bio-Environmental Systems .....	3
BIE 3870 Biological Engineering Design I.....	1
CHEM 3700 Introductory Biochemistry .....	3
CHEM 3710 Introductory Biochemistry Laboratory .....	1
Technical Elective course <sup>2,4</sup> .....	3
University Studies Breadth course .....	3

### Senior Year (32-34 credits)

#### Fall Semester (14-15 credits)

BIE 4880 (CI) Biological Engineering Design II.....	3
BIE 5020 Biological Systems Modeling and Controls .....	3
University Studies Depth Humanities and Creative Arts (DHA) course .....	2-3
Technical Elective courses <sup>2</sup> .....	6

#### Spring Semester (18-19 credits)

BIE 4890 (CI) Biological Engineering Design III.....	3
Technical Elective courses <sup>2</sup> .....	9
University Studies Breadth Physical Sciences (BPS) course.....	3-4
University Studies Depth Social Sciences (DSS) course .....	3

## Technical Elective Courses (select 21 or more credits)

Students must select 9-21 credits from the **Biological Engineering Electives** and **Engineering Electives** categories.

### Biological Engineering Electives (select 6-21 credits)

BIE 5010 Principles of Irrigation Engineering (F,Su).....	3
BIE 5110 Sprinkle and Trickle Irrigation (F).....	4
BIE 5150 Surface Irrigation Design (F,Su) .....	3
BIE 5250 Remote Sensing of Land Surfaces (Sp).....	4
BIE 5300 Irrigation Conveyance and Control Systems (F).....	3
BIE 5350 Drainage and Water Quality Engineering (Sp) .....	3
BIE 5520 Irrigation Project Operation and Maintenance (Sp).....	3
BIE 5550 Groundwater Systems Engineering I (F) .....	3
BIE 5600 Downstream Processes in Biological Engineering (Sp) .....	3
BIE 5610 Food and Bioprocess Engineering (F).....	3
BIE 5680 Soil-based Waste Management (Sp).....	2
BIE 5810 Biochemical Engineering (F) .....	3

BIE 5830 Management and Utilization of Biological Solids and Wastewater (F).....	3
BIE 5840 Introduction to Biophotonics (F).....	3
BIE 5850 Biomaterials Engineering (F).....	3
BIE 5890 Tissue Engineering (Sp).....	3
BIE 5910 Introduction to Biosensors (F) .....	3
BIE 5930 Special Studies: Metabolic Engineering I .....	4
BIE 5930 Special Studies: Synthetic Biological Engineering .....	3

### Engineering Electives (select 0-15 credits)

CEE 3430 Engineering Hydrology (Sp).....	3
CEE 3510 Civil and Environmental Engineering Hydraulics (F,Sp).....	3
CEE 3640 Water and Wastewater Engineering (Sp).....	4
CEE 4200 Engineering Economics (F).....	2
CEE 5430 Groundwater Engineering (F).....	3
CEE 5680 Soil-based Waste Management (Sp) .....	2
MAE 5620 Manufacturing Automation (F) .....	3

### Technical Electives (select 0-12 credits)

AV 4200 Composite Manufacturing Processes and Repair (Sp).....	3
BIE 4250 Cooperative Practice (F,Sp,Su) .....	3
BIOL 1620 (BLS) Biology II (Sp).....	4
BIOL 2320 Human Anatomy (Sp,Su) .....	4
BIOL 2420 Human Physiology (F,Sp,Su).....	4
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su).....	4
BIOL 3100 (CI) Bioethics (Sp).....	3
BIOL 5160 Methods in Biotechnology: Cell Culture (Sp) .....	3
BIOL 5210 Cell Biology (F) .....	3
BIOL 5230 Developmental Biology (Sp) .....	3
BIOL 5240 Methods in Biotechnology: Protein Purification Techniques (Sp) .....	3
BIOL 5260 Methods in Biotechnology: Molecular Cloning (F) .....	3
BIOL 5620 Medical Physiology (F).....	3
CEE 2240 Engineering Surveying (F,Su) .....	3
CEE/PUBH 3610 Environmental Management (F) .....	3
CEE/PUBH 3870 (CI) Professional/Technical Writing in Civil and Environmental Engineering (F).....	2
CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su) .....	4
CHEM 2320 Organic Chemistry II (Sp) .....	4
CHEM 2325 Organic Chemistry Laboratory II (Sp) .....	1
CHEM 3070 (QI) Physical Chemistry (Sp) .....	3
ECE 2250 Electrical Circuits (F,Sp).....	4
ECE 2700 Digital Circuits (F,Sp).....	4
ENGR 2140 Strength of Materials (F,Sp,Su).....	2
ETE 2020 Computer-Integrated Manufacturing Systems (Sp).....	3
MAE 2160 Material Science (F,Sp) .....	3
MAE 2650 Manufacturing Processes (Sp) .....	3
NFS 3100 (QI) Sensory Evaluation of Food (Sp) .....	3
NFS 4020 Advanced Nutrition (F).....	3
NFS 5110 (CI) Food Microbiology (Sp) .....	4
PEP 4200 (QI) Biomechanics (F,Sp,Su).....	4
PHYS 2110 The Physics of Living Systems I .....	4
PHYS 2120 (BPS) The Physics of Living Systems II .....	4
PHYS 2210 (QI) General Physics—Science and Engineering I.....	4
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II ..	4
SOIL 3000 Fundamentals of Soil Science (F) .....	4
SOIL 5650 Environmental Soil Physics (F) .....	4
WATS 4490 Small Watershed Hydrology (F) .....	4
WATS 4500 Limnology: Ecology of Inland Waters (Sp) .....	3
WATS 5660 Watershed and Stream Restoration (Su) .....	2

Other technical courses (especially science and engineering) may be accepted with prior written approval from the Department of Biological and Irrigation Engineering.

# Department of Biological and Irrigation Engineering

## Suggested Semester Schedule for Premedical Program

It is possible for students to combine premedical requirements with requirements for the Biological Engineering major. Some of the premedical requirements add to the total amount of credits required. This combination may be completed within five years, if the student is very diligent. Medical schools *do not* accept AP, CLEP, or ACT scores toward fulfillment of English Composition, Chemistry, or Biology requirements. The following schedule is designed to satisfy the requirements without time conflicts. Students who must deviate from this schedule should be sure to meet often with a College of Engineering advisor.

### Preengineering: First Three Years

#### First Year (31 credits)

##### Fall Semester (15 credits)

BIOL 1610 <sup>1,3</sup> Biology I.....	4
CHEM 1210 <sup>3</sup> Principles of Chemistry I.....	4
CHEM 1215 <sup>3</sup> Chemical Principles Laboratory I.....	1
ENGR 1000 <sup>3</sup> Introduction to Engineering Design.....	2
MATH 1210 (QL) <sup>3</sup> Calculus I.....	4

##### Spring Semester (16 credits)

BIE 1880 <sup>3</sup> Engineering Quantification of Biological Processes.....	3
BIOL 1620 (BLS) Biology II.....	4
CHEM 1220 (BPS) Principles of Chemistry II.....	4
CHEM 1225 Chemical Principles Laboratory II.....	1
MATH 1220 (QL) <sup>3</sup> Calculus II.....	4

#### Second Year (31 credits)

##### Fall Semester (15 credits)

PHYS 2210 (QI) <sup>3</sup> General Physics—Science and Engineering I.....	4
MATH 2250 (QI) <sup>3</sup> Linear Algebra and Differential Equations.....	4
ENGL 1010 (CL1) <sup>3,6</sup> Introduction to Writing: Academic Prose.....	3
ENGR 2010 <sup>3</sup> Engineering Mechanics Statics.....	2
ETE 2270 <sup>3</sup> Computer Engineering Drafting.....	2

##### Spring Semester (16 credits)

PHYS 2220 (BPS/QI) General Physics—Science and Engineering II ..	4
ENGL 2010 (CL2) <sup>3</sup> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
ENGR 2030 <sup>3</sup> Engineering Mechanics Dynamics.....	3
ENGR 2450 <sup>3</sup> Engineering Numerical Methods.....	2
BIOL 2320 <sup>5</sup> Human Anatomy.....	4

#### Third Year (31 credits)

##### Fall Semester (15 credits)

BIE 2330 <sup>3</sup> Engineering Properties of Biological Materials.....	3
CHEM 2310 <sup>3</sup> Organic Chemistry I.....	4
CHEM 2315 Organic Chemistry Laboratory I.....	1
BIOL 2420 <sup>5</sup> Human Physiology.....	4
University Studies Breadth American Institutions (BAI) course.....	3

##### Spring Semester (16 credits)

BIE 2400 <sup>3</sup> Biological and Environmental Thermodynamics.....	3
CHEM 2320 Organic Chemistry II.....	4
CHEM 2325 Organic Chemistry Laboratory II.....	1
BIOL 3060 (QI) <sup>5</sup> Principles of Genetics.....	4
ETE 2210 Electrical Engineering for Nonmajors.....	4

### Professional Engineering: Junior and Senior Years

#### Junior Year (30 credits)

##### Fall Semester (15 credits)

BIE 3200 Introduction to Unit Operations in Biological Engineering.....	3
CEE 3500 Civil and Environmental Engineering Fluid Mechanics.....	3
STAT 3000 (QI) Statistics for Scientists.....	3
University Studies Breadth Humanities (BHU) course.....	3
University Studies Breadth Social Sciences (BSS) course.....	3

#### Spring Semester (15 credits)

BIOL 3300 (BLS) <sup>1,3</sup> General Microbiology.....	4
BIE 3670 Transport Phenomena in Bio-Environmental Systems.....	3
BIE 3870 Biological Engineering Design I.....	1
CHEM 3700 Introductory Biochemistry.....	3
CHEM 3710 Introductory Biochemistry Laboratory.....	1
University Studies Breadth Creative Arts (BCA) course.....	3

Students should plan to take the MCAT during summer prior to their final year.

#### Senior Year (30 credits)

##### Fall Semester (15 credits)

BIE 4880 (CI) Biological Engineering Design II.....	3
BIE 5850 Biomaterials Engineering.....	3
BIE 5020 Biological Systems Modeling and Controls.....	3
BIOL 5210 <sup>5</sup> Cell Biology.....	3
BIE elective course.....	3

##### Spring Semester (15 credits)

BIE 3000 Instrumentation for Biological Systems.....	3
BIE 4890 (CI) Biological Engineering Design III.....	3
Engineering Elective.....	3
University Studies Depth Humanities and Creative Arts (DHA) course <sup>6</sup> .....	3
University Studies Depth Social Sciences (DSS) course.....	3

<sup>1</sup>The Breadth Life Sciences (BLS) area in the University Studies Program is satisfied by the combination of BIOL 1610 and 3300.

<sup>2</sup>To emphasize irrigation, bioprocesses, premedical, etc., contact department for suggested technical electives.

<sup>3</sup>This course is required for admission to the Professional Engineering Program (PEP).

<sup>4</sup>Irrigation engineers must take CEE 3430 this semester. It is a prerequisite to all senior irrigation classes

<sup>5</sup>These courses are highly recommended, but not required, for the premedical program. They fit in the schedule during the semesters shown. It is important for students to find out the requirements of the schools they desire to attend. Students should consult with the premedical advisor early in their program.

<sup>6</sup>AP English does not satisfy the two semesters of English Composition requirement. However, students may use AP English for ENGL 1010, and then take ENGL 2010 and ENGL 3040 (DHA) for the two semesters.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For more information about the Bachelor of Science requirements and the sequence in which courses should be taken, see major requirement sheet, available from the Biological and Irrigation Engineering Department, or online at:

<http://www.usu.edu/majorsheets/>

# Department of Biological and Irrigation Engineering

## Financial Support

Scholarships, assistantships, grants-in-aid, and work-study programs are available through the University. In addition, the department employs students to assist in engineering research and development. Cooperative education and industrial employment opportunities for students are coordinated by the University Placement Office and by the BIE Department.

## Concurrent BS/Master's Program

The concurrent BS/Master's program allows engineering students to begin taking graduate-level classes during their senior year. This permits them to complete requirements for *both* the BS degree *and* the master's degree concurrently during two years. Students in this program have a greater selection of graduate courses, since many graduate courses are taught during alternate years. In addition, the student's senior design project could be applicable to a graduate design project or thesis. After completing the BS degree coursework, students in the program can earn a master's degree in only one additional year. Both the BS and the master's degree can generally be earned with 150 total credits, although students should note that a Plan C MS requires 3 extra credits. Finally, students with a master's degree can expect a much higher starting salary following graduation. (For more information, see *College of Engineering* section of this catalog, pages 133-134.)

## Graduate Programs

### Admission Requirements

See general admission requirements identified in this catalog. Admission committees also consider experience, undergraduate record and curriculum, and formal recommendations. A student without an undergraduate engineering background will be required to complete selected undergraduate courses prior to or concurrently with enrollment in graduate courses.

### Prerequisites for Matriculation

Students who are admitted provisionally or who have been changed from matriculated to probationary matriculated status will have their records reviewed by a faculty committee when they have completed 12 credits of coursework (among which must be formal engineering courses) or at the end of their second semester at USU. Those students who have earned a 3.0 GPA at that time and desire to be matriculated may apply to the department to have their status changed. If they meet all other academic requirements of the School of Graduate Studies and the department, they will be matriculated and admitted to the degree program. When a student is admitted as a degree candidate, the committee may allow up to 12 credits taken while on nonmatriculated status to be transferred. Nonmatriculated students may continue to study at USU but without degree candidate status. At the end of their studies, nondegree students are granted a Certificate of Completion.

### Prerequisite Requirements

All students must have had **formal** courses in engineering and computer programming, as well as at least one year of calculus. Students without this background can satisfy these requirements by taking the appropriate undergraduate courses at USU. An additional year of calculus (MATH 1210, 1220, and 2250, or equivalent) is required for the MS degree in Irrigation Engineering and for all PhD programs. These background courses will not be counted toward the degree credit requirements.

## MS in Biological Engineering and in Irrigation Engineering

Students must have a BS from an ABET-accredited engineering program in the U.S. or its equivalent in their home countries or must take the make-up coursework required for a BS in engineering at USU. It is assumed that the bachelor's degree mathematical training includes courses in calculus, linear analysis, and differential equations.

Three MS options are available: research (Plan A), technical practice (Plan B), and training/extension (Plan C).

### Research Option

Students wishing to gain experience in research may select the research option, particularly if they have a long-term goal of PhD study. The minimum requirements for this option are 30 credits, of which 8 may be awarded for the thesis.

### Technical Practice Option

Some students may not be interested in pursuing a PhD degree or in doing the research necessary for a thesis. For such students, the technical practice (Plan B) option is offered. The requirements for the degree are similar to those for the research option, with the exception of the thesis. The 8 thesis credits are replaced by 4 credits for a significant engineering report or design project and 4 additional credits of coursework. The minimum course requirement for the technical practice option is 30 approved graduate credits.

### Training/Extension Option

Students expecting to terminate their graduate studies at the MS level and wishing to develop an emphasis in the training and/or extension fields of biological engineering or irrigation engineering, may choose the training/extension option (Plan C). The same engineering BS or equivalent requirements noted under the Plan A option apply. The minimum requirements for this degree are 30 approved graduate credits. No report or thesis is required. The degree requirements under this option can be met by taking courses.

## Doctor of Philosophy

Two PhD programs are offered in the department: (1) **Biological Engineering** and (2) **Irrigation Engineering**. Students who have completed an MS with a thesis (Plan A or equivalent) in an engineering discipline are eligible to apply for admission to a PhD program. Admission will be based on the students' prior academic records and, if they are graduates of USU, the recommendations of their graduate committees. It is assumed that students are adequately prepared in mathematics and engineering design courses to compete at the PhD level. If such is not the case, a program of courses to make up the deficiency will be required.

In addition to any prescribed review courses and seminars, the minimum requirements for a PhD program include 60 credits of approved graduate courses beyond a master's degree, satisfactory completion of comprehensive examinations or submission of an approved manuscript to a refereed archival journal, and the writing of a dissertation based on an original research project. The degree requirements beyond a master's degree can be met by taking courses in engineering design, synthesis, and systems; mathematics; and related sciences.

## Research

Graduate research projects in the BIE Department encompass two broad options: biological engineering and irrigation engineering. Specific research projects in the biological engineering option include tissue and biomedical engineering related to heart stents, biosensor design and development for biomedical and bioenvironmental



# Department of Biological and Irrigation Engineering

applications (genetic probes), microbial fermentations, biorefining (production of biofuels and bioplastics from biological feedstocks), nanobiotechnology (quantum dots), biophotonics (interactions of light with biological materials), and land-based bioenvironmental sustainable systems (land application of industrial and municipal residuals for recycling, vegetative growth, soil improvement, and groundwater protection).

Food engineering represents an area of emphasis under the biological engineering option. Land application of food processing wastes, extrusion of dairy-based food, multi-stage anaerobic digestion of biological materials, functional properties of foods, and biological detoxification of metals are some of the research topics supported in food engineering.

In the irrigation engineering area, USU has attained worldwide prestige through the successful professional contributions of its graduates during a period of 80 years. The BIE Department is substantially involved in overseas research and training activities, for example in the Dominican Republic, Armenia, and Tatarstan, concerned with managing irrigation systems, on-farm water management, water resource development, and soil assimilation and recycling of industrial residues. Specific research projects in the irrigation and drainage engineering option include hydraulics of surface irrigation, consumptive use, return flow quantity and quality of irrigation waters, transient flow in tile drainage systems, drain envelopes, sprinkler irrigation, trickle irrigation, crop production and water requirements, salt movement, regional groundwater modeling for optimizing sustainable yield, conveyance system modeling and control, and remote sensing.

## Financial Assistance

The large and diverse departmental research programs make it possible to offer graduate financial support in the form of research assistantships, traineeships, and teaching assistantships for qualified students. Research assistantships are provided by the BIE Department and by individual research projects. Teaching assistantships are provided by the School of Graduate Studies and by the College of Engineering. Traineeships and research assistantships carry tuition waivers. It is the goal of the BIE Department to provide research and/or teaching support for all qualified students.

## Additional Information

Two guides are available from the department to assist students: (1) *Report, Thesis, and Dissertation Format Guidelines and Policies*, and (2) *Policies and Procedures for Graduate Study*.

## Biological and Irrigation Engineering Faculty

### Professors

*Conly L. Hansen*, food engineering  
*Robert W. Hill*, irrigation and water resource extension  
*Gary P. Merkle*, conveyance systems  
*Christopher M. U. Neale*, remote sensing  
*Richard C. Peralta*, groundwater  
*Ronald C. Sims*, biological process engineering  
*Wynn R. Walker*, surface irrigation

### Research Professor

*Darwin L. Sorensen*, soil microbiology

### Adjunct Professors

*Richard Allen*, irrigation  
*Anne J. Anderson*, plant root-microbe interactions  
*Daryll B. DeWald*, cell biology  
*H. Scott Hinton*, biophotonics  
*Lawrence E. Hipps*, biometeorology  
*Kamal Rashid*, biotechnology  
*A. Ronald Torres*, genetics of autism

### Professors Emeritus

*George H. Hargreaves*, crop water requirements  
*Jack Keller*, sprinkle and drip irrigation  
*Glen E. Stringham*, surface irrigation

### Research Professor Emeritus

*L. Humberto Yap-Salinas*, drainage

### Associate Professor

*David W. Britt*, biomedical engineering

### Research Associate Professors

*Joan E. McLean*, soil chemistry  
*Judith L. Sims*, soil biology

### Adjunct Associate Professors

*Scott B. Jones*, soil physics  
*Michael J. McFarland*, biosolids

### Associate Professor Emeritus

*Edwin C. Olsen III*, international irrigation, water management

### Assistant Professors

*Soonjo Kwon*, tissue engineering  
*Charles D. Miller*, synthetic biological engineering  
*Sridhar Viamajala*, biofuels, downstream processing  
*Jixun Zhan*, metabolic engineering  
*Anhong Zhou*, nanobiotechnology

### Adjunct Assistant Professors

*David G. Chandler*, soil processes  
*Andrew A. Keller*, irrigation  
*Paul D. Schreuders*, biomedical engineering

### Adjunct Research Assistant Professors

*Hui Fang Dou*, electrical engineering  
*Arnulfo González-Meza*, irrigation system transfer

### Research Assistant Professor Emeritus

*R. Kern Stutler*, irrigation structures

### Principal Lecturer

*Timothy A. Taylor*, bioprocess engineering

## Course Descriptions

Biological and Irrigation Engineering (BIE), pages 511-514

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**Biology Advisor:**

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**Advisor for Prehealth Professions Programs:**

D. M. Andy Anderson, Veterinary Science and Bacteriology 231,  
(435) 797-1913, [andy@biology.usu.edu](mailto:andy@biology.usu.edu)

**Advisor for Public Health Major:**

David Wallace, Biology-Natural Resources 333, (435) 797-7155,  
[dwallace@biology.usu.edu](mailto:dwallace@biology.usu.edu)

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), and Doctor of Philosophy (PhD) in Biology; BS and BA in Composite Teaching—Biological Science; BS in Public Health; MS and PhD in Ecology; MS and PhD in Toxicology is available through the Interdepartmental Program in Toxicology.

**Undergraduate emphases:** *Biology BS, BA*—Biology, Cellular/Molecular, Ecology/Biodiversity, Environmental; *Public Health BS*—Industrial Hygiene, Environmental Health, Public Health Education

## Undergraduate Programs

### Learning Objectives

#### Biology

The Department of Biology offers programs leading to a Bachelor of Science or Bachelor of Arts degree. Majors will complete a core of courses which provide an understanding of biological principles. Upper-division courses provide integration, in-depth study, and an opportunity for specialization within the different degree emphases. Additional coursework in chemistry, physics, statistics, and mathematics provides knowledge and analytical skills in these important related fields. Biology degrees provide a foundation for graduate work or employment in research, industry, or governmental agencies. Biology majors can add a minor area of study, such as business or chemistry, to enhance their employment opportunities.

#### Prehealth Professions Programs

The Department of Biology supervises premedical, pre dental, and other prehealth professions programs. These programs satisfy entrance requirements for most medical and dental schools in the United States and Canada and are recognized for the high-quality preprofessional preparation they provide. After four years, the student receives a BS or BA degree in Biology or another major. **Advisor:** D. M. Andy Anderson, Veterinary Science and Bacteriology 231.

#### Composite Teaching—Biological Science

This major combines content training in biology and related fields (including chemistry, physics, geology, mathematics, and statistics) with education courses. Graduates are qualified to apply for a teaching license through the Utah State Office of Education. **Advisor:** Richard J. Mueller, Eccles Science Learning Center 245.

#### Public Health

The Department of Biology offers preprofessional training in public health. Individuals completing the BS degree have employment opportunities in such areas as environmental health, industrial hygiene, public health education, administration, nursing, nutrition, mental health, and social work. **Advisor:** David O. Wallace, Biology-Natural Resources 333.

The Department Head, the Director of Undergraduate Studies, and advisors in the Department of Biology are available to provide undergraduate majors with additional information regarding specific programs and career opportunities. The Biology Advising Center and the Director of Undergraduate Studies are located in Biology-Natural Resources 101. Program requirements, advising information, and an “Ask an Advisor” e-mail service are on the Department of Biology web page at: <http://www.biology.usu.edu>

Students with majors in the Department of Biology should consult with their advisors regularly as they plan their course of study. Students have the responsibility to keep themselves aware of major requirements and course prerequisites. For additional information, obtain an official Major Requirement Sheet from the Biology Advising Center or online at: <http://www.usu.edu/majorsheets/>. General requirements, specific course offerings, and the semesters that courses are taught may change.

Mathematics is an important and required skill to enhance one's success in the sciences. Proper course level placement in mathematics at the beginning of the degree program is essential. Students should consult with an advisor and, if necessary, take the Math Placement Exam to determine the appropriate level to begin their mathematics studies for meeting requirements and completion of their major.

### Assessment

The primary mission of the Department of Biology is to discover and advance knowledge in the biological sciences, and to make that knowledge available to students through a diverse set of educational experiences. To achieve this, three specific areas are being targeted: (1) A core program in the life sciences is aimed at providing the skills and knowledge base needed for a wide variety of employment and educational opportunities in biological and biotechnology fields; (2) a premedical, pre dental, and prehealth program has the specific goal of guiding students with respect to opportunities in the health professions; and (3) a public health program provides pre-professional training in such subjects as environmental health, industrial hygiene, and public health education. For full details about Program Learning Objectives, Undergraduate Program Assessment, Data-based Decisions, and more, go to <http://www.biology.usu.edu>

### Undergraduate Research in Biology

The Department of Biology offers a broad array of undergraduate research opportunities. Undergraduate research allows students to have a real-life experience in a faculty research lab. Many students publish their research in scientific journals and present their research at national scientific meetings. Students may do undergraduate research work under the supervision of selected faculty members.

# Department of Biology

To receive academic credit, a student must enroll in BIOL 5800, Undergraduate Research. Students doing Honors in Biology do undergraduate research and write a bachelor's thesis.

For complete information about undergraduate research, contact Yvonne Kobe, Biology Advisor, at yvonne@biology.usu.edu or (435) 797-2577.

## Requirements

### University Requirements

Students are responsible for meeting all University requirements for total credits, upper-division credits, credits of C- or better, and the University Studies Program. (See pages 67-79 in this catalog.)

### College of Science Requirements

All college requirements are met by completing the departmental degree requirements; no additional coursework is required.

### Admission Requirements for the Biology and Public Health Majors

New freshmen admitted to USU in good standing qualify for admission to the Biology and Public Health majors. Transfer students from other institutions need a 2.25 transfer GPA, and students transferring from other USU majors need a 2.25 cumulative GPA for admission to the Biology and Public Health majors in good standing. Admission requirements differ for the Composite Teaching—Biological Science Major, as explained below.

### Admission Requirements for the Composite Teaching—Biological Science Major

New freshmen admitted to USU in good standing qualify for admission to this major. To qualify for admission to the Secondary Teacher Education Program (STEP), students must acquire a cumulative 2.75 GPA and 60 credits of coursework. Transfer students from other institutions or other USU majors need a cumulative 2.75 GPA and 60 credits of coursework to be admitted to the major and the STEP. For information on additional admission criteria, students should contact the School of Teacher Education and Leadership (TEAL).

### GPA Requirement

To graduate, a candidate for any bachelor's degree offered by the Department of Biology must maintain a grade point average of 2.25 in all Department of Biology (BIOL or PUBH prefix) courses required for the major and a grade of C- or better in BIOL 1610 and 1620. The *Pass-Fail* option is not acceptable for any course required for the degree, but *D* grades are permitted within the restrictions of the 2.25 GPA. The Composite Teaching—Biological Science Major requires a cumulative overall GPA of 2.75 for admission and graduation. The 2.25 GPA requirement and the C- or better grade in BIOL 1610 and 1620 requirement apply to the Biology, Public Health, and BioMath minors.

### BS Degree in Biology

Four different emphases are available within the Biology degree. The **Biology Emphasis** is the most flexible option. Electives may be selected in any subdiscipline the student wishes to emphasize (e.g., botany, ecology, zoology, entomology, microbiology, etc.). The **Cellular/Molecular** and **Ecology/Biodiversity** emphases provide more directed training that is appropriate for research or other technical employment in academic institutions, government agencies, and the private sector. They also provide excellent preparation for graduate work. The **Environmental Emphasis** prepares students in the biological and physical sciences as they relate to environmental

problems and concerns. This degree serves as a foundation for graduate work and provides practical training for employment at the bachelor's degree level. Emphases will be listed on transcripts to indicate the student's specialization. The course requirements are as follows:

### Biology Emphasis

#### Required Biology Courses (21-22 credits)

BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	4
BIOL 2220 General Ecology (F,Sp)	3
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su)	4
BIOL 3300 General Microbiology (F,Sp) (4 cr) or	
BIOL 5210 Cell Biology (F) (3 cr)	3 or 4
BIOL 5250 (CI) Evolutionary Biology (F,Sp)	3

#### Field Course Requirement (2-3 credits)

Students must take one course from the following list:

BIOL 2410 Plants and Fungi in the Field (Su)	2
BIOL 3220 (QI) Field Ecology (F)	2
BIOL 4420 Plant Taxonomy (Sp,Su)	3
BIOL 4500 Applied Entomology (Sp)	3
BIOL 5530 Insect Systematics and Evolution (F)	3
BIOL 5550 Freshwater Invertebrates (Sp)	3
BIOL 5560 Ornithology (Sp)	3
BIOL 5570 Herpetology (Sp)	3

#### Physiology Course with Lab Requirement (4-5 credits)

Students must take from the following list one upper-division physiology course with an integrated or separate laboratory:

##### Courses with integrated laboratories:

BIOL 4400 (QI) Plant Physiology (F)	4
BIOL 5300 (QI) Microbial Physiology (Sp)	4

##### Courses with separate lecture and lab; one of the following three lecture courses and BIOL 5610 must be taken to meet the requirement:

BIOL 5100 Neurobiology (F) (3 cr) or	
BIOL 5600 Comparative Animal Physiology (Sp) (3 cr) or	
BIOL 5620 Medical Physiology (F) (3 cr)	3
And	
BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp)	2

#### Biology Electives (10 credits)

Students must select an additional 10 credits of 4000-level and above BIOL or PUBH prefix courses as electives. BIOL 3065 (Genetics Laboratory) may also be included toward these elective credits, even though it is a 3000-level course. A maximum of 4 credits from the following courses may be included among the 10 elective credits.

BIOL 4250 Internship/Co-op (F,Sp,Su)	1-2
BIOL 4710 Teaching Internship (F,Sp,Su)	1
BIOL 5800 Undergraduate Research (F,Sp,Su)	1-3
Seminar courses	1-2

#### Required Physical Science Courses (26 credits)

CHEM 1210 Principles of Chemistry I (F,Sp)	4
CHEM 1215 Chemical Principles Laboratory I (F,Sp)	1
CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su)	4
CHEM 1225 Chemical Principles Laboratory II (F,Sp)	1
CHEM 2300 Principles of Organic Chemistry (F)	3
CHEM 2315 Organic Chemistry Laboratory I (F)	1
CHEM 3700 Introductory Biochemistry (Sp)	3
CHEM 3710 Introductory Biochemistry Laboratory (Sp)	1

# Department of Biology

<b>PHYS 2110</b> The Physics of Living Systems I (4 cr) <b>and</b>	
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II (4 cr).....	8
<b>Or</b>	
<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I (4 cr) <b>and</b>	
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II (4 cr).....	8

## Mathematics and Statistics Requirement (7 credits)

<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su).....	3

## Cellular/Molecular Emphasis

### Required Biology Courses (30 credits)

<b>BIOL 1610</b> Biology I (F).....	4
<b>BIOL 1620 (BLS)</b> Biology II (Sp).....	4
<b>BIOL 2220</b> General Ecology (F,Sp).....	3
<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su).....	4
<b>BIOL 5190</b> Molecular Genetics (Sp).....	3
<b>BIOL 5210</b> Cell Biology (F).....	3
<b>BIOL 5230</b> Developmental Biology (Sp).....	3
<b>BIOL 5250 (CI)</b> Evolutionary Biology (F,Sp).....	3

### Choose one of the following Biotechnology courses:

<b>BIOL 5160</b> Methods in Biotechnology: Cell Culture (Sp).....	3
<b>BIOL 5240</b> Methods in Biotechnology: Protein Purification Techniques (Sp).....	3
<b>BIOL 5260</b> Methods in Biotechnology: Molecular Cloning (F).....	3

### Physiology Course with Lab Requirement (4-5 credits)

Students must take from the following list one upper-division physiology course with an integrated or separate laboratory:

#### Courses with integrated laboratories:

<b>BIOL 4400 (QI)</b> Plant Physiology (F).....	4
<b>BIOL 5300 (QI)</b> Microbial Physiology (Sp).....	4

Courses with separate lecture and lab; one of the following three lecture courses **and** **BIOL 5610** must be taken to meet the requirement:

<b>BIOL 5100</b> Neurobiology (F) (3 cr) <b>or</b>	
<b>BIOL 5600</b> Comparative Animal Physiology (Sp) (3 cr) <b>or</b>	
<b>BIOL 5620</b> Medical Physiology (F) (3 cr).....	3
<b>And</b>	
<b>BIOL 5610 (QI)</b> Animal Physiology Laboratory (F,Sp).....	2

### Biology Electives (9 credits)

Students must select an additional 9 credits of 4000-level and above BIOL prefix courses as electives. BIOL 3065 (Genetics Laboratory) and BIOL 3300 (General Microbiology) may also be included toward these elective credits (even though they are 3000-level courses). A maximum of 4 credits from the following courses may be included among the 9 elective credits:

<b>BIOL 4250</b> Internship/Co-op (F,Sp,Su).....	1-2
<b>BIOL 4710</b> Teaching Internship (F,Sp,Su).....	1
<b>BIOL 5800</b> Undergraduate Research (F,Sp,Su).....	1-3
Seminar courses.....	1-2

### Required Physical Science Courses (37 credits)

<b>CHEM 1210</b> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su).....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp).....	1
<b>CHEM 2310</b> Organic Chemistry I (F).....	4

<b>CHEM 2315</b> Organic Chemistry Laboratory I (F).....	1
<b>CHEM 2320</b> Organic Chemistry II (Sp).....	4
<b>CHEM 2325</b> Organic Chemistry Laboratory II (Sp).....	1
<b>CHEM 5700</b> General Biochemistry I (F).....	3
<b>CHEM 5710</b> General Biochemistry II (Sp).....	3
<b>CHEM 5720</b> General Biochemistry Laboratory (Sp).....	3

<b>PHYS 2110</b> The Physics of Living Systems I (4 cr) <b>and</b>	
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II (4 cr).....	8
<b>Or</b>	
<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I (4 cr) <b>and</b>	
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II (4 cr).....	8

## Mathematics and Statistics Requirement (7 credits)

<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su).....	3

## Ecology/Biodiversity Emphasis

### Required Biology Courses (24 credits)

<b>BIOL 1610</b> Biology I (F).....	4
<b>BIOL 1620 (BLS)</b> Biology II (Sp).....	4
<b>BIOL 2220</b> General Ecology (F,Sp).....	3
<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su).....	4
<b>BIOL 3220 (QI)</b> Field Ecology (F).....	2
<b>BIOL 3300</b> General Microbiology (F,Sp).....	4
<b>BIOL 5250 (CI)</b> Evolutionary Biology (F,Sp).....	3

### Physiology Course with Lab Requirement (4-5 credits)

Students must take one upper-division physiology course with an integrated or separate laboratory from the following list:

#### Courses with integrated laboratories:

<b>BIOL 4400 (QI)</b> Plant Physiology (F).....	4
<b>BIOL 5300 (QI)</b> Microbial Physiology (Sp).....	4

Courses with separate lecture and lab; one of the following three lecture courses **and** **BIOL 5610** must be taken to meet the requirement:

<b>BIOL 5100</b> Neurobiology (F) (3 cr) <b>or</b>	
<b>BIOL 5600</b> Comparative Animal Physiology (Sp) (3 cr) <b>or</b>	
<b>BIOL 5620</b> Medical Physiology (F) (3 cr).....	3
<b>And</b>	
<b>BIOL 5610 (QI)</b> Animal Physiology Laboratory (F,Sp).....	2

### Clusters (8-10 credits)

Students must take one course from each of the following three clusters.

#### Plant Biology:

<b>BIOL 2410</b> Plants and Fungi in the Field (Su).....	2
<b>BIOL 4420</b> Plant Taxonomy (Sp,Su).....	3

#### Animal Biology:

<b>BIOL 4500</b> Applied Entomology (Sp).....	3
<b>BIOL 5530</b> Insect Systematics and Evolution (F).....	3
<b>BIOL 5550</b> Freshwater Invertebrates (Sp).....	3
<b>BIOL 5560</b> Ornithology (Sp).....	3
<b>BIOL 5570</b> Herpetology (Sp).....	3
<b>BIOL 5580</b> Mammalogy (F).....	3

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## Ecology/Evolution:

BIOL 4060 (CI) Exploring Animal Behavior (Sp)	3
BIOL 5010 Biogeography (Sp)	3
BIOL 5020 (QI) Modeling Biological Systems (F)	3
BIOL 5380 Evolutionary Genetics (F)	4
BIOL 5590 Animal Community Ecology (Sp) (Alt. Years)	4
WILD 4600 Conservation Biology (Sp)	3

## Electives (2-3 credits)

Students must take one additional course from this list or the clusters above or other upper-division courses approved by advisor.

BIOL 3065 Genetics Laboratory (F)	2
BIOL 4410 Plant Structure (Sp)	3
BIOL 5310 Soil Microbiology (F) (Alt. Years)	3
BIOL 5800 Undergraduate Research (F,Sp,Su)	2-3

## Required Physical Science Courses (34 credits)

CHEM 1210 Principles of Chemistry I (F,Sp)	4
CHEM 1215 Chemical Principles Laboratory I (F,Sp)	1
CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su)	4
CHEM 1225 Chemical Principles Laboratory II (F,Sp)	1
CHEM 2300 Principles of Organic Chemistry (F)	3
CHEM 2315 Organic Chemistry Laboratory I (F)	1
CHEM 3700 Introductory Biochemistry (Sp)	3
CHEM 3710 Introductory Biochemistry Laboratory (Sp)	1
GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp)	4
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4

PHYS 2110 The Physics of Living Systems I (4 cr) and PHYS 2120 (BPS) The Physics of Living Systems II (4 cr)	8
Or PHYS 2210 (QI) General Physics—Science and Engineering I (4 cr) and PHYS 2220 (BPS/QI) General Physics—Science and Engineering II (4 cr)	8

## Mathematics and Statistics Requirement (7 credits)

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3

## Environmental Emphasis

### Required Biology Courses (24 credits)

BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	4
BIOL 2220 General Ecology (F,Sp)	3
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su)	4
BIOL 3220 (QI) Field Ecology (F)	2
BIOL 3300 General Microbiology (F,Sp)	4
BIOL 5250 (CI) Evolutionary Biology (F,Sp)	3

### Plant Identification (2-3 credits)

Choose one of the following courses:

BIOL 2410 Plants and Fungi in the Field (Su)	2
BIOL 4420 Plant Taxonomy (Sp)	3

### Physiology Course with Lab Requirement (4-5 credits)

Students must take from the following list one upper-division physiology course with an integrated or separate laboratory:

#### Courses with integrated laboratories:

BIOL 4400 (QI) Plant Physiology (F)	4
BIOL 5300 (QI) Microbial Physiology (Sp)	4

Courses with separate lecture and lab; one of the following three lecture courses **and** BIOL 5610 must be taken to meet the requirement:

BIOL 5100 Neurobiology (F) (3 cr) or BIOL 5600 Comparative Animal Physiology (Sp) (3 cr) or BIOL 5620 Medical Physiology (F) (3 cr)	3
And BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp)	2

### Biology Elective Courses (12 credits)

Students must take 12 credits from the following list or others approved by advisor. Up to 3 credits of BIOL 5800 may be included.

BIOL 4430 Introduction to Plant Pathology (Sp)	4
BIOL 4500 Applied Entomology (Sp)	3
BIOL 5020 (QI) Modeling Biological Systems (F)	3
BIOL 5310 Soil Microbiology (F) (Alt. Years)	3
BIOL 5320 Soil Microbiology Laboratory (F) (Alt. Years)	2
BIOL 5400 Environmental Toxicology (Sp)	3
BIOL 5800 Undergraduate Research (F,Sp,Su)	1-3
CEE/SOIL 5620 Aquatic Chemistry (F)	3
GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp)	4
PUBH 3610 Environmental Management (F)	3
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4

### Required Physical Science Courses (36 credits)

CHEM 1210 Principles of Chemistry I (F,Sp)	4
CHEM 1215 Chemical Principles Laboratory I (F,Sp)	1
CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su)	4
CHEM 1225 Chemical Principles Laboratory II (F,Sp)	1
CHEM 2310 Organic Chemistry I (F)	4
CHEM 2315 Organic Chemistry Laboratory I (F)	1
CHEM 2320 Organic Chemistry II (Sp)	4
CHEM 2325 Organic Chemistry Laboratory II (Sp)	1
CHEM 3000 (QI) Quantitative Analysis (F)	3
CHEM 3005 Quantitative Analysis Laboratory (F)	1
CHEM 3700 Introductory Biochemistry (Sp)	3
CHEM 3710 Introductory Biochemistry Laboratory (Sp)	1

PHYS 2110 The Physics of Living Systems I (4 cr) and PHYS 2120 (BPS) The Physics of Living Systems II (4 cr)	8
Or PHYS 2210 (QI) General Physics—Science and Engineering I (4 cr) and PHYS 2220 (BPS/QI) General Physics—Science and Engineering II (4 cr)	8

## Mathematics and Statistics Requirement (7 credits)

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3

## BS Degree in Composite Teaching—Biological Science

The Composite Teaching—Biological Science Major leads to licensure to teach in secondary schools. Students who may wish to teach Integrated Science at the middle or junior high school level should talk to their advisor about completing the courses necessary for an Integrated Science endorsement. **Note:** All USU teacher education candidates will be required to take and pass the content exam approved by the Utah State Office of Education in their major content area prior to student teaching. The Composite Teaching—Biological Science course requirements are as follows:

### Required Courses (32 credits)

BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	4
BIOL 2220 General Ecology (F,Sp)	3

BIOL 2420 Human Physiology (F,Sp,Su) .....	4
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su) .....	4
BIOL 3065 Genetics Laboratory (F) (Alt. Years) .....	2
BIOL 3220 (QI) Field Ecology (F) .....	2
BIOL 3300 General Microbiology (F,Sp) .....	4
BIOL 5250 (CI) Evolutionary Biology (F,Sp) .....	3
SCI 4300 Science in Society (F,Sp) .....	2

**Physiology Course with Lab Requirement (4-5 credits)**

Students must take from the following list one upper-division physiology course with an integrated or separate laboratory:

**Courses with integrated laboratories:**

BIOL 4400 (QI) Plant Physiology (F) .....	4
BIOL 5300 (QI) Microbial Physiology (Sp) .....	4

**Courses with separate lecture and lab; one of the following three lecture courses and BIOL 5610 must be taken to meet the requirement:**

BIOL 5100 Neurobiology (F) (3 cr) or	
BIOL 5600 Comparative Animal Physiology (Sp) (3 cr) or	
BIOL 5620 Medical Physiology (F) (3 cr) .....	3
And	
BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp) .....	2

**Required Physical Science Courses (21 credits)**

GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp) .....	4
CHEM 1110 (BPS) General Chemistry I (F,Sp) .....	4
CHEM 1115 General Chemistry Laboratory (F,Sp) .....	1
CHEM 1120 (BPS) General Chemistry II (Sp) .....	4

PHYS 2110 The Physics of Living Systems I (4 cr) and  
PHYS 2120 (BPS) The Physics of Living Systems II (4 cr) .....

Or	
PHYS 2210 (QI) General Physics—Science and Engineering I (4 cr) and	
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II (4 cr) .....	8

**Mathematics and Statistics Requirement (7 credits)**

MATH 1210 (QL) Calculus I (F,Sp,Su) .....	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su) .....	3

**Required Courses for the Secondary Teacher Education Program (STEP) (35 credits)**

**Level 1:**

INST 3500 Technology Tools for Secondary Teachers (F,Sp,Su) .....	1
SCED 3100 Motivation and Classroom Management (F,Sp) .....	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp) .....	3
SCED 3300 Clinical Experience I (F,Sp) .....	1
SCED 3400 Teaching Science I (Sp) .....	3

**Level 2:**

SPED 4000 Education of Exceptional Individuals (may be taken anytime) (F,Sp,Su) .....	2
SCED 4200 (CI) Reading, Writing, and Technology (F,Sp) .....	3
SCED 4210 Cognition and Evaluation of Student Learning (F,Sp) .....	3
SCED 4300 Clinical Experience II (F,Sp) .....	1
SCED 4400 Teaching Science II (F) .....	3

**Level 3:**

SCED 5500 Student Teaching Seminar (F,Sp) .....	2
SCED 5630 Student Teaching in Secondary Schools (F,Sp) .....	10

**Note:** The Teaching Science I and II courses (SCED 3400 and 4400) are *only* taught once per year. Therefore, it is important for students to consult with their advisor to fit these courses in the correct sequence into their plan of study.

**BA Degrees in Biology and Composite Teaching—Biological Science**

The student must complete the requirements for the BS (above) plus two years of a foreign language. (See pages 76-77 of this catalog.)

**BS Degree in Public Health**

A four-year program leading to the Bachelor of Science in Public Health is offered by the Department of Biology with options in environmental health, industrial hygiene, or public health education. The industrial hygiene program is accredited by the Applied Science Commission of the Accreditation Board for Engineering and Technology; 111 Market Place, Suite 1050; Baltimore MD 21202-4012; telephone (410) 347-7700. Individuals completing the environmental health option are qualified to take the Registered Environmental Health Specialist/Sanitarian Examination (REHS/RS). Those completing the industrial hygiene option are granted benefits toward both the Certified Industrial Hygienist (CIH) and the Certified Safety Professional (CSP) examinations. Public Health Education graduates are qualified to take the Certified Health Education Specialist (CHES) examination. The Public Health degree requires a core of biology courses similar to that required for the biology degrees; additional biology and public health courses; and chemistry, physics, mathematics, statistics, and allied science and engineering courses appropriate to each emphasis. The course requirements are as follows:

**Industrial Hygiene Emphasis**

**Required Biology Courses (16 credits)**

BIOL 1610 Biology I (F) .....	4
BIOL 1620 (BLS) Biology II (Sp) .....	4
BIOL 2420 Human Physiology (F,Sp,Su) .....	4
BIOL 3300 General Microbiology (F,Sp) .....	4

**Required Physical Science Courses (30 credits)**

CHEM 1210 Principles of Chemistry I (F,Sp) .....	4
CHEM 1215 Chemical Principles Laboratory I (F,Sp) .....	1
CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su) .....	4
CHEM 1225 Chemical Principles Laboratory II (F,Sp) .....	1
CHEM 2300 Principles of Organic Chemistry (F) .....	3
CHEM 2315 Organic Chemistry Laboratory I (F) .....	1
CHEM 3000 (QI) Quantitative Analysis (F) .....	3
CHEM 3005 Quantitative Analysis Laboratory (F) .....	1
CHEM 3700 Introductory Biochemistry (Sp) .....	3
CHEM 3710 Introductory Biochemistry Laboratory (Sp) .....	1

PHYS 2110 The Physics of Living Systems I (4 cr) and  
PHYS 2120 (BPS) The Physics of Living Systems II (4 cr) .....

Or	
PHYS 2210 (QI) General Physics—Science and Engineering I (4 cr) and	
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II (4 cr) .....	8

**Mathematics and Statistics Requirement (7 credits)**

MATH 1210 (QL) Calculus I (F,Sp,Su) .....	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su) .....	3

**Required Program Courses (32 credits)**

PUBH 3310 Occupational Health and Safety (F) .....	3
PUBH 3610 Environmental Management (F) .....	3
PUBH 3870 (CI) Professional/Technical Writing in Civil and Environmental Engineering (F) .....	2
PUBH 4040 Fundamentals of Epidemiology (Sp) .....	3
PUBH 4310 Industrial Hygiene Recognition of Hazards (F) .....	4
PUBH 4320 Industrial Hygiene Chemical Hazard Evaluation (Sp) .....	3
PUBH 4330 Industrial Hygiene Physical Hazards (Sp) .....	3

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PUBH 4380 Industrial Hygiene Internship (F,Sp,Su)	3
PUBH 5330 (QI) Industrial Hygiene Chemical Hazard Control (F)	3
PUBH 5400 Environmental Toxicology (Sp)	3
PUBH 5500 (CI) Public Health Management (F,Sp)	2

## Elective Options (select 5 credits)

BIOL 3060 (QI) Principles of Genetics (F,Sp,Su)	4
CEE 5610 Environmental Quality Analysis (F)	3
MGT 3110 (DSS) Managing Organizations and People (F,Sp,Su)	3
MGT 4630 Human Resource Management (F,Sp)	3
PUBH 4300 Industrial Hygiene Seminar (F)	1-2
PUBH 4410 Industrial Safety (Sp)	3
PUBH 5340 Industrial Hygiene and Safety Programs (Sp)	2
PUBH 5670 Hazardous Chemicals Handling and Safety (Sp)	2
PUBH 5730 Analysis and Fate of Environmental Contaminants (F)	3
PUBH 5790 Accident and Emergency Management (Sp)	3

## Environmental Health Emphasis

### Required Biology Courses (19 credits)

BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	4
BIOL 2220 General Ecology (F,Sp)	3
BIOL 2420 Human Physiology (F,Sp,Su)	4
BIOL 3300 General Microbiology (F,Sp)	4

### Required Physical Science Courses (22 credits)

CHEM 1210 Principles of Chemistry I (F,Sp)	4
CHEM 1215 Chemical Principles Laboratory I (F,Sp)	1
CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su)	4
CHEM 1225 Chemical Principles Laboratory II (F,Sp)	1
CHEM 2300 Principles of Organic Chemistry (F)	3
CHEM 2315 Organic Chemistry Laboratory I (F)	1

PHYS 2110 The Physics of Living Systems I (4 cr) and Or PHYS 2120 (BPS) The Physics of Living Systems II (4 cr)	8
PHYS 2210 (QI) General Physics—Science and Engineering I (4 cr) and PHYS 2220 (BPS/QI) General Physics—Science and Engineering II (4 cr)	8

### Mathematics and Statistics Requirement (7 credits)

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3

### Required Program Courses (31 credits)

PUBH 3310 Occupational Health and Safety (F)	3
PUBH 3610 Environmental Management (F)	3
PUBH 3870 (CI) Professional/Technical Writing in Civil and Environmental Engineering (F)	2
PUBH 4000 Public Health Field Experience (F,Sp,Su)	3
PUBH 4030 Communicable Disease Control (F)	3
PUBH 4040 Fundamentals of Epidemiology (Sp)	3
PUBH 4310 Industrial Hygiene Recognition of Hazards (F)	4
PUBH 5000 Public Health Seminar (Sp)	1
PUBH 5500 (CI) Public Health Management (F,Sp)	2
PUBH 5730 Analysis and Fate of Environmental Contaminants (F)	3
NFS 5110 (CI) Food Microbiology (Sp)	4

### Required Electives (select 10 credits)

BIOL 3220 (QI) Field Ecology (F)	2
BIOL 3500 (DSC) Plagues, Pests, and People (Sp)	3
BIOL 4420 Plant Taxonomy (Sp,Su)	3
BIOL 5550 Freshwater Invertebrates (Sp)	3
CHEM 3700 Introductory Biochemistry (Sp)	3
CHEM 3710 Introductory Biochemistry Laboratory (Sp)	1

PUBH 5400 Environmental Toxicology (Sp)	3
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4
SPCH 1020 (CI) Public Speaking (F,Sp)	3

## Public Health Education Emphasis

### Required Biology Courses (16 credits)

BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	4
BIOL 2420 Human Physiology (F,Sp,Su)	4
BIOL 3300 General Microbiology (F,Sp)	4

### Required Physical Science Courses (13 credits)

CHEM 1110 (BPS) General Chemistry I (F,Sp)	4
CHEM 1115 General Chemistry Laboratory (Sp)	1
CHEM 1120 (BPS) General Chemistry II (Sp)	4
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration (4 cr) or PHYS 1800 (BPS) Physics of Technology (4 cr)	4

### Mathematics and Statistics Requirement (7 credits)

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3

### Required Program Courses (15 credits)

PUBH 3120 Family and Community Health (Sp)	3
PUBH 4000 Public Health Field Experience (F,Sp,Su)	3
PUBH 4030 Communicable Disease Control (F)	3
PUBH 4040 Fundamentals of Epidemiology (Sp)	3
PUBH 5000 Public Health Seminar (Sp)	1
PUBH 5500 (CI) Public Health Management (F,Sp)	2

### Required Supporting Courses (30 credits)

HEP 2000 First Aid and Emergency Care (F,Sp,Su)	2
HEP 2500 Health and Wellness (F,Sp,Su)	2
HEP 3000 Drugs and Human Behavior (F,Su)	3
HEP 3900 Social Marketing in Health Education (Sp)	3
HEP 4200 (QI) Planning and Evaluation for Health Education (F)	3
HEP 5300 Grant Proposal Writing (Sp)	3
NFS 1020 (BLS) Science and Application of Human Nutrition (F,Sp,Su)	3
NFS 5210 Advanced Public Health Nutrition (Sp)	2
SOC 3330 Medical Sociology (F)	3
SOC 3500 Social Psychology (F,Sp)	3
SPCH 1020 (CI) Public Speaking (F,Sp)	3

## Biology Minor

The Biology minor requires completion of the following courses. A minimum cumulative GPA of 2.25 is required for these courses, with a C- or better grade in BIOL 1610 and 1620.

BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	4
Upper-division (3000-level and above) BIOL prefix courses	12

**Note:** Although BIOL/NR 2220 is a lower-division course, it may be counted toward the 12 elective credits.

## BioMath Minor

This minor requires mathematics and quantitative biology courses beyond those required for the basic biology degrees. It is an excellent option for students considering graduate work. Biology majors may take this minor through the Mathematics and Statistics Department. Requirements for the BioMath minor include:

BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	4
MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4

<b>MATH 2270 (QI)</b> Linear Algebra (F) .....	3
<b>MATH 2280 (QI)</b> Ordinary Differential Equations (Sp) .....	3
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) .....	3
<b>MATH/BIOL 4230 (QI)</b> Applied Mathematics in Biology (Sp) .....	3

(Note: MATH 2250 may substitute for MATH 2270 and 2280.)

Biology majors must take one course from the biology electives (listed below), and two courses from the mathematics and statistics electives (listed below). Mathematics and Statistics majors must take two courses from the biology electives, and one course from the mathematics and statistics electives. All other majors must take two courses from each set of electives.

## Biology Electives:

<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su) .....	4
<b>BIOL 3220 (QI)</b> Field Ecology (F).....	2
<b>BIOL 4400 (QI)</b> Plant Physiology (F).....	4
<b>BIOL 5020 (QI)</b> Modeling Biological Systems (F) .....	3
<b>BIOL 5300 (QI)</b> Microbial Physiology (Sp) .....	4
<b>BIOL 5380</b> Evolutionary Genetics (F) .....	4
<b>BIOL 5610 (QI)</b> Animal Physiology Laboratory (F,Sp).....	2
<b>BIOL 5800</b> Undergraduate Research (F,Sp,Su) (3 credits min.).....	3
<b>CLIM 5500</b> Land-Atmosphere Interactions (Sp).....	3
<b>PUBH 5330 (QI)</b> Industrial Hygiene Chemical Hazard Control (F).....	3

## Mathematics and Statistics Electives

<b>MATH 4630</b> Computer Aided Math for Scientists and Engineers (Sp) ..	3
<b>MATH 5410</b> Methods of Applied Mathematics (F).....	3
<b>MATH 5420</b> Partial Differential Equations (Sp) .....	3
<b>MATH 5460</b> Introduction to the Theory and Application of Nonlinear Dynamical Systems (Sp).....	3
<b>MATH 5610</b> Computational Linear Algebra and Solution of Systems of Equations (F).....	3
<b>MATH 5620</b> Numerical Solution of Differential Equations (Sp) .....	3
<b>MATH 5710</b> Introduction to Probability (F,Sp) .....	3
<b>MATH 5910</b> Directed Reading and Conference (F,Sp,Su) (3 credits min.).....	3
<b>STAT 5100 (CI/QI)</b> Linear Regression and Time Series (F) .....	3
<b>STAT 5110</b> Theory of Linear Models (F).....	3
<b>STAT 5120</b> Categorical Data Analysis (F) .....	3
<b>STAT 5200</b> Design of Experiments (Sp).....	3
<b>STAT 5300 (QI)</b> Statistical Process Control (Sp).....	3
<b>STAT 5600 (CI)</b> Applied Multivariate Statistics (Sp) .....	3
<b>STAT 5940</b> Directed Reading and Conference (F,Sp,Su) (3 credits min.).....	3

BIOL 5800, MATH 5910, and STAT 5940 must involve mathematical or statistical analysis of a biological problem.

## Public Health Minor

The Public Health minor requires completion of the following courses. A minimum cumulative GPA of 2.25 is required for these courses, with a C- or better grade in BIOL 1610 and 1620.

<b>BIOL 1610</b> Biology I (F).....	4
<b>BIOL 1620 (BLS)</b> Biology II (Sp).....	4
Upper-division (3000-level and above) Public Health elective courses .....	12

## Field Trips and Laboratory Fees

Many biology courses require field trips. Those enrolled are expected to dress appropriately for the conditions and observe any safety precautions issued by instructors. Many courses require modest laboratory fees to purchase and maintain equipment and supplies for use in the laboratories.

## Financial Support

Scholarships, assistantships, grants-in-aid, and work-study programs are available from the University. Both the College of Science and the Department of Biology offer scholarships. Applications for departmental and college scholarships should be submitted during early spring semester. Contact the College of Science Office (Eccles Science Learning Center 245) and the Biology Advising Center (Biology-Natural Resources 101) for details.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school.

An Honors Plan is available for students desiring a BS or BA degree "with Honors" in Biology. Departmental Honors requires the completion of 9 credits of Honors coursework in upper-division BIOL courses, BIOL 5800, and a research-based Bachelor's Thesis. For details, students should contact: Kimberly A. Sullivan, (435) 797-3713, [yejunco@biology.usu.edu](mailto:yejunco@biology.usu.edu).

## Suggested Four-year Plans

Suggested semester-by-semester four-year plans for students working toward a Bachelor of Science or Bachelor of Arts degree in majors within the Department of Biology can be found at:  
<http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Additional Information

For more information about requirements for the majors and minors within the Biology Department, see major requirement sheets, available from the Biology Department, or online at:  
<http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admission Requirements

See general admission requirements on pages 36-37. Complete details about graduate programs, admission requirements, preapplication, and application procedures are available online at:  
<http://www.biology.usu.edu/graduate/graduate.htm>

To be recommended for matriculated status, an applicant must have earned a bachelor's degree (or equivalent) from an accredited institution, and a Biology faculty member must agree to serve as major professor for that applicant. The Department of Biology also considers these guidelines for admission: (1) the transcript should show a minimum GPA of 3.0 (B); and (2) the scores on the verbal and quantitative GRE should be above the 50th percentile and the analytical writing score should be 3.5 or above. Advanced GREs (especially biology) are also recommended. Applicants for whom



# Department of Biology

English is not the primary language must have scored at least 575 (paper-based exam) or 233 (computer-based exam) on the TOEFL. The applicant's undergraduate program should be similar to that offered by the Department of Biology at Utah State University, which includes the following and their prerequisites: general biology, genetics, ecology, physiology, and evolution; general and organic chemistry; biochemistry; calculus; statistics; and physics. Other preparatory courses may be specified by the student's supervisory committee.

## Degree Programs

For those who have demonstrated strong academic capability as well as research interest, the Department of Biology offers the **Master of Science Degree** and the **Doctor of Philosophy Degree** in either Biology or Ecology. Graduate degrees in **Toxicology** are available through the Interdepartmental Program in Toxicology.

Undergraduate majors in Biology at USU with especially strong backgrounds and interest in research may apply for study of the Master of Science degree as **transitional students**. Acceptance as a transitional student allows undergraduates with advanced standing to integrate up to 9 credits of graduate work into the final semesters of their Bachelor of Science study. Acceptance into this program, as into all graduate programs in Biology, is closely regulated. Formal application through the School of Graduate Studies is required.

## Course Requirements

### Biology MS and PhD Degrees

Course requirements are determined by the student's supervisory committee. They will vary depending on the research emphasis selected and the background of the student.

### Ecology MS and PhD Degrees

For specific requirements, see the description of the Ecology Interdepartmental Program (pages 228-229).

## Research

The Department of Biology provides a dynamic and broad base for research and graduate study through a balanced program of basic and applied studies at ecosystem, population, organismal, cellular, and molecular levels. An outstanding variety of field sites; animal, plant, and microbe growth facilities; and modern well-equipped laboratories are available. Also, the Intermountain Herbarium, an excellent insect collection, the USDA/ARS U.S. National Pollinating Insects Collection, the Stable Isotope Laboratory, and the Center for Integrated BioSystems exist as research and support facilities.

Faculty members participate in and are supported by several interdepartmental programs, including the Ecology Center and the Center for Environmental Toxicology. In addition, many less formal contacts and interactions exist with colleagues in the colleges of Agriculture, Education and Human Services, Natural Resources, and Science.

Students are encouraged to carefully consider how their career goals match the faculty's research interests. Prospective students are strongly encouraged to contact faculty members with whom they are interested in working. Because of the combination of a diverse interdisciplinary base and excellent focused research programs, students have an opportunity to learn the philosophies and methods of many branches of biology. For further details about the faculty's research interests, students are encouraged to visit the Biology website: <http://www.biology.usu.edu/>

## Financial Assistance

Research assistantships are available from the grants of major professors and from Utah Agricultural Experiment Station funds. Teaching assistantships are awarded annually. All awards are made on a competitive basis and specific teaching needs are considered in awarding teaching assistantships. Given satisfactory performance, MS students are supported for at least two years and PhD candidates for at least four years on teaching assistantships. The department may also recommend particularly qualified students for College of Science or University fellowships. Admission to the graduate program of the Department of Biology does not guarantee financial support; however, applicants will not normally be admitted without financial support.

## Career Opportunities

Completion of graduate degrees in Biology prepares students for careers in teaching and research in universities and colleges. Many graduates also find employment with private industry and state and national governmental agencies. Specific employment possibilities will depend on the nature of the graduate program pursued. The extensive background provided by a graduate degree also prepares students for eventual administrative responsibilities.

## Research Emphases

Research areas of departmental faculty are diverse. Areas of research currently include: **Cellular and Molecular Biology:** plant-microbial interactions; neurobiology and biophysics; gene regulation and signal transduction; membrane transport; molecular virology; **Ecology and Behavior:** community and ecosystem ecology; insect ecology and behavior; pollination biology; plant-insect interactions; vertebrate behavioral ecology; mathematical and computer modeling; soil microbiology; fungal ecology; biological control; integrated pest management (IPM); **Physiology and Comparative Biology:** animal physiology; toxicology and industrial hygiene; insect pathology; plant physiology and pathology; and **Systematics and Evolution:** systematics and evolution of plants, fungi, insects, mammals, reptiles, and amphibians; evolutionary quantitative genetics; biogeography; evolution of chemical defenses and resistance in microorganisms, insects, reptiles, and amphibians.

## Research and Teaching Facilities

### Herbarium

Graduate study in plant taxonomy offered in the Department of Biology utilizes the extensive facilities of the Intermountain Herbarium. The collection includes over 250,000 research specimens. About 50 percent are from the Intermountain Region, while most of the remainder are from other regions of North America.

### Insect Collection

Comprising more than two million specimens, the insect collection is available to scientists and graduate students involved in taxonomic research and to those requiring identification of insects in various research projects. The collection primarily covers the Intermountain Region, but it also contains species from nearly all areas of the world. The Biology-Natural Resources Building also houses the USDA/ARS U.S. National Pollinating Insect Collection.

### Laser Scanning Confocal Microscope

The Department of Biology has a BioRad 1024 Laser Scanning Confocal Microscope. This state-of-the-art technology utilizes highly tuned lasers to give detailed sectional views of the interior of intact structures such as cells and tissues, and greatly extends the

advantages of fluorescence microscopy. This microscope is utilized by researchers campuswide, and is an indispensable tool for molecular and cellular studies.

## Center for Integrated BioSystems (CIB)

The CIB operates three service laboratories and a variety of research projects. The service laboratories provide essential biological resources for biotechnology research and development including: DNA sequencing, peptide synthesis, protein sequencing, antibodies, and fermentation.

## Biology Faculty

### Trustee Professor

*James A. MacMahon*, community ecology, mammalogy, herpetology

### Professors

*Diane G. Alston*, integrated pest management  
*Anne J. Anderson*, microbiology and plant pathology  
*Edmund D. Brodie, Jr.*, behavior and evolution  
*Daryll B. DeWald*, cell biology  
*E. W. "Ted" Evans*, insect ecology  
*Timothy A. Gilbertson*, neurobiology  
*James W. Haefner*, systems analysis  
*Joseph K.-K. Li*, virology  
*Frank J. Messina*, insect biology  
*Keith A. Mott*, plant physiology  
*William J. Pependorf*, industrial hygiene  
*John M. Stark*, microbial ecology and biogeochemistry  
*Jon Y. Takemoto*, microbiology  
*Paul G. Wolf*, systematics and molecular biology  
*David A. York*, human nutrition and obesity

### Associate Professors

*Brett A. Adams*, cell signaling  
*Michelle A. Baker*, aquatic ecology  
*Mary E. Barkworth*, plant systematics  
*Bradley R. Kropp*, mycology  
*Richard J. Mueller*, plant morphology  
*Michael E. Pfrender*, evolutionary quantitative genetics  
*Gregory J. Podgorski*, developmental biology  
*Kimberly A. Sullivan*, behavioral ecology  
*Carol D. von Dohlen*, insect biology  
*Dennis L. Welker*, microbial functional genomics

### Assistant Professors

*Paul F. Cliften*, microbial functional genomics  
*S. K. Morgan Ernest*, spatial ecology  
*C. Kent Evans*, extension plant pathology  
*Susannah S. French*, physiological ecology  
*Erin W. Hodgson*, insect biology  
*James P. Pitts*, insect biology  
*Katarina Stroffekova*, physiology

### Professors Emeritus

*William A. Brindley*, entomology and toxicology  
*Donald W. Davis*, entomology and pest management  
*Keith L. Dixon*, ornithology and mammalogy  
*LeGrande C. Ellis*, endocrinology and reproductive physiology  
*James A. Gessaman*, vertebrate physiological ecology  
*Ting H. Hsiao*, insect physiology and biochemistry

*Gene W. Miller*, plant biochemistry and physiology  
*Ivan G. Palmblad*, evolutionary ecology  
*John R. Simmons*, biochemical genetics  
*Sherman V. Thomson*, plant pathology  
*Nabil N. Youssef*, cell biology and parasitology

### Associate Professors Emeritus

*David B. Drown*, environmental health  
*Wilford J. Hansen*, systematic entomology  
*Jay B. Karren*, entomology  
*Raymond I. Lynn*, algology and microbial ecology  
*George W. Welkie*, plant physiology and virology

### Research Professor

*Donald W. Roberts*, insect pathology

### Research Assistant Professors

*Michelle A. Grilley*, molecular biology  
*Dane R. Hansen*, molecular biology, physiology, cell signaling  
*Joanne E. Hughes*, molecular genetics  
*MieJung Park*, neurobiology  
*Ethan White*, ecology

### Adjunct Professors

*James H. Cane*, bee biology  
*Noelle E. Cockett*, biotechnology  
*Robert Fogel*, mycology  
*James A. Powell*, mathematical biology  
*Donal G. Sinex*, psychology  
*Rex S. Spendlove*, virology  
*Bart C. Weimer*, food microbiology

### Adjunct Associate Professors

*Dale L. Barnard*, chemotherapy of viruses  
*Jeanette M. Norton*, soil microbiology  
*Vincent J. Tepedino*, entomology

### Adjunct Assistant Professors

*Karen H. Beard*, community ecology, ecosystem ecology, conservation biology  
*Shaun Bushman*, genetics, molecular biology  
*Terry Griswold*, bee biology  
*Rosalind R. James*, entomology  
*Theresa L. Pitts-Singer*, entomology

### Principal Lecturer

*David M. "Andy" Anderson*, medical technology

### Senior Lecturer

*David O. Wallace*, public health, industrial hygiene

### Lecturers

*John A. Flores II*, public health, industrial hygiene  
*Alice M. Lindahl*, invertebrate biology

## Course Descriptions

Biology (BIOL), pages 514-518

Public Health (PUBH), pages 647-648

# Master of Business Administration (MBA)

**Executive Director:** Frank N. Caliendo, PhD

**Location:** Business 602

**Phone:** (435) 797-2963

**E-mail:** frank.caliendo@usu.edu

**Associate Director:** Kenneth C. Snyder

**Location:** Business 309O

**Phone:** (435) 797-1387

**E-mail:** ken.snyder@usu.edu

**Assistant Director:** Katherine A. McConkie

**Location:** Business 309N

**Phone:** (435) 797-1773

**E-mail:** katherine.mcconkie@usu.edu

**Staff Assistant:** Lindi Brown

**Location:** Business 309

**Phone:** (435) 797-2360

**E-mail:** lindi.brown@usu.edu

**FAX:** (435) 797-2399

**WWW:** <http://www.huntsman.usu.edu/mba/>

**Degree Offered:** Master of Business Administration (MBA)

**Graduate Specializations:** Accounting, Entrepreneurship, Human Resource Management, Manufacturing Management, Personal Financial Planning

## Graduate Program

### Objectives

The MBA program is an interdepartmental program, administered by the Huntsman School of Business, which is designed to provide students with an understanding of analytical tools necessary for effective and efficient management in today's complex business world. The MBA program is accredited by AACSB International—The Association to Advance Collegiate Schools of Business.

The central focus of the MBA program in the Huntsman School is framed by strategic anchors in ethical leadership, global vision, entrepreneurship, and analytical rigor. Within this framework, the Huntsman School is committed to creating a branded academic experience within the broad context of the school's commitment to the philosophy of operational excellence. A unique academic partnership with the Shingo Prize creates a dynamic opportunity for high-context public/private partnerships. See: <http://www.shingoprize.org/>

The central theme of the operational excellence philosophy is based upon a commitment to deeply imbed the principles and tools of continuous process improvement throughout all learning experiences. A focus on operational excellence, as it is reflected in business processes cultivating patterns of ethical leadership, strategic planning, and deployment, as well as through development of people, partners, and culture, is central to the mission of the MBA program. Participants in the MBA experience will be empowered to reach a higher level of confidence in their application of analytical tools and skill sets, increasing their level of sophistication in managing complex organizational dynamics. The result is the cultivation of managers with a principle-based philosophy of operational excellence, enabling them to add value to the organizations they lead from their first day on the job.

## Admission Requirements

For consideration for admission to the MBA program, applicants must submit an application form and fee, all undergraduate transcripts, Graduate Management Admissions Test (GMAT) or Graduate Record Examination (GRE) scores, and three letters of recommendation from qualified professionals. TOEFL scores are required for international students whose native language is not English, with a minimum of 213 (computerized) or 79 (Internet) deemed acceptable. International students with a prior degree from a university in an English-speaking country are exempt from the TOEFL exam.

Students are expected to be admitted to the program as matriculated students before taking coursework leading to the degree.

### Application Deadline for Fall Semester

No application will be considered until all required information arrives in the School of Graduate Studies at Utah State University. In addition, the student desiring to pursue an MBA degree must have been accepted as a matriculated student before he or she will be permitted to register for 6000-level courses that will be part of the student's advanced program. Full-time business experience is also preferred, but not required. Students with or without an undergraduate degree in business may enter the MBA program. However, before the student may take advanced courses, basic competencies in business that have not been acquired through prior courses or experience must be met. Before entering the program, each student must meet with an advisor to plan his or her course of study.

The full-time MBA program on USU's main campus is a cohort program which starts every fall semester. Rolling admission to the on-campus program will begin on **December 1** of each year for early applicants who have outstanding credentials in the areas of undergraduate GPA, GMAT/GRE scores, and letters of recommendation. Applications will be accepted until all seats in the cohort are filled, with preference given to early, qualified applicants. Additional reviews for admissions will be conducted on **January 15** and **February 15**, with reviews in subsequent months (March, April, May, etc.) conducted as needed. Deadlines for admission to one of the part-time MBA programs offered by USU can be found on the MBA website at: <http://www.huntsman.usu.edu/mba/>

## Degree Requirements

Students are held responsible for meeting requirements as outlined below. It is the student's responsibility to be aware of all requirements and initiate the resolution of apparent inconsistencies.

### Business Core

The MBA Business Core curriculum provides skills and knowledge in statistics, written communication, computer literacy, mathematics, information systems, economics, accounting, finance, marketing, operations, management, and organizational behavior. Students who have completed a bachelor's degree must have coursework which includes learning experiences in management-specific areas recommended by AACSB International for direct entry into the advanced program.

### Accelerated Business Core

Students may acquire the necessary basic competencies by completing courses satisfying the following management-specific knowledge and skills requirement: ACCT 2010 (financial accounting), ACCT 2020 (managerial accounting), FIN 3400 (finance), MGT 3500 (marketing), MGT 3700 (operations), ECN 1500 (macroeconomics),

# Master of Business Administration (MBA)

ECN 2010 (microeconomics), MGT 2050 (business law), MGT 3110 (organizational behavior), MATH 1100 (calculus techniques), and STAT 2300 (business statistics). Students may not be required to take courses which duplicate prior academic or industrial training. Students must meet with the advisor of the MBA program to plan their course of study.

## Advanced Program Courses (33 credits)

The advanced program courses, along with electives, consist of 33 credits. Students must complete the advanced program course requirements listed below. In addition, students may choose to select among several specializations, which are also described below. A specialization requires the student to complete additional courses beyond the 33 credits.

Students must complete the following seven courses: ACCT 6350; FIN 6420; and MGT 6300, 6500, 6520, 6720, 6890. Additionally, students must complete one course each in information systems (e.g., MIS 6510); research methods (e.g., BUS 6860); and quantitative analysis (e.g., MGT 6740, ECN 6310, 6330). Students will also take a 3-credit field studies course that will provide consultation to companies.

## Specializations (12 credits)

Students may select a specialization in one of several areas listed below. Classes taken as part of the MBA advanced program courses cannot be used as part of a specialization. One course in each specialization will be designated as research intensive to meet the research methods requirement.

### Accounting

To qualify for this specialization, students must complete at least 12 approved 6000-level accounting credits as part of their MBA program of study. Students must complete, or have previously completed, the equivalent of ACCT 3110, 3120, 3310, 3410, 4200, 4410, 4500, 4510, 6350, 6410, 6510, and 6610.

### Entrepreneurship

This specialization consists of MGT 6410, 6430, 6470, and an approved elective.

### Human Resource Management

This specialization requires students to complete MGT 6690 and to select any three of the following courses: MGT 6550, 6620, 6630, 6640, 6670, and 6760.

### Manufacturing Management

This specialization is currently undergoing revision.

### Personal Financial Planning

This specialization consists of PFP 6060, 6070, and 6080. Students must also complete, or have previously completed, the following courses: PFP 3460 or FIN 4460, and ACCT 3410. This specialization satisfies requirements to sit for the national Certified Financial Planner (CFP) examination.

### Financial Assistance

Graduate assistantships, scholarships, and fellowships are available to outstanding on-campus students and are awarded on a competitive basis. Students who apply by **February 15** will be considered for financial awards, which generally range between \$1,600 and \$4,500 for nine months. A recipient of a graduate assistantship is usually eligible for a waiver of the out-of-state portion of his or her tuition.

## MBA Association (MBAA)

The MBA Association (MBAA) provides USU students with an opportunity to enhance their professional and academic skills while building their resumes. Club members focus on career attainment and benefit from a forum for networking with faculty, alumni, and employers. The MBAA also works to increase awareness of the USU MBA program and assists the USU Huntsman School of Business in developing an effective curriculum for the MBA program.

## Master of Business Administration Faculty

### Professors

*Kenneth R. Bartkus*, Accelerated Business Core, marketing techniques  
*Drew Dahl*, Accelerated Business Core, corporate finance essentials  
*Christopher Fawson*, applied econometrics  
*L. Dwight Israelsen*, applied econometrics  
*Richard L. Jenson*, advanced accounting information systems  
*I. Richard Johnson*, accounting theory and research  
*Vijay R. Kannan*, operations management, Accelerated Business Core, essentials of operation management  
*J. Robert Malko*, financial problems, managerial economics  
*Glenn M. McEvoy*, managing individuals and groups  
*David H. Olsen*, information systems for business, applied business research  
*C. R. Michael Parent*, marketing strategy  
*Clifford R. Skousen*, accounting strategies for achieving profit goals  
*David B. Stephens*, global business strategy

### Associate Professors

*J. Brian Atwater*, operations management, decision making in operations management  
*Katherine M. Chudoba*, applied business research  
*Austin Kwag*, financial decision making  
*Alan A. Stephens*, financial problems, financial decision making

### Assistant Professors

*Alison Cook*, managing individuals and groups  
*Daniel Holland*, management principles  
*Christopher J. Skousen*, Accelerated Business Core, financial and managerial accounting

### Executive-in-Residence/Principal Lecturers

*Chester Brough*, Accelerated Business Core, fundamentals of business law  
*Randy Cook*, leadership and operational excellence  
*Jack W. Peterson*, financial auditing  
*Dale G. Siler*, tax research and procedures  
*Alan P. Warnick*, managing individuals and groups

## MBA Courses

Descriptions of MBA courses can be found in the *Course Descriptions* section of this catalog.

# Department of Chemistry and Biochemistry

**Department Head:** Steve Scheiner

**Location:** Maeser Laboratory 140

**Phone:** (435) 797-1619

**FAX:** (435) 797-3390

**E-mail (undergraduate):** chem.undergrad@usu.edu

**E-mail (graduate):** chem.grad@usu.edu

**WWW:** <http://www.chem.usu.edu>

## Undergraduate Advisors:

Faculty advisors in the Department of Chemistry and Biochemistry are as follows:

### Biochemistry:

Lance C. Seefeldt, Widtsoe 241, (435) 797-3964,  
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Doug Harris, Widtsoe 335, (435) 797-1609,  
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### Chemistry:

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For faculty advisor assignment, contact:

Geri Child, (435) 797-0544, [geri.child@usu.edu](mailto:geri.child@usu.edu).

## Undergraduate Research Coordinator:

Joan Hevel, Widtsoe 235, (435) 797-1622, [joanie.hevel@usu.edu](mailto:joanie.hevel@usu.edu)

**Degrees Offered:** Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), Doctor of Philosophy (PhD) in Chemistry; BS, MS, and PhD in Biochemistry; BS in Chemistry Teaching; BS in Composite Teaching—Physical Science (Chem)

**Undergraduate emphases:** *BS in Chemistry*—Professional Chemistry, Biochemistry, Environmental Chemistry, Chemical Education, Life Science

**Graduate specializations:** *Chemistry*—Analytical Chemistry, Inorganic Chemistry, Organic Chemistry, Physical Chemistry

## Undergraduate Programs

### Objectives

Chemistry is a subject that addresses the properties of materials and the transformations that they undergo. Especially important are aspects of energy and structure related to chemical reactivity. Consequently, students of many disciplines take courses in chemistry to learn about the behavior of the substances they will use or reference. The Department of Chemistry and Biochemistry offers a wide variety of courses for those whose majors and/or anticipated careers require a knowledge of chemistry. These areas of study include nutrition, engineering, biology, agriculture, natural resources, medicine, law, and education, to name a few. Many students also choose chemistry as an elective course to better prepare themselves as citizens in a technological world.

The **Bachelor of Science Degree in Chemistry** entails considerable specialization in chemistry and related areas. The BS emphases require a common core of courses, but allow for a different

concentration of advanced work according to the interests and career objectives of the student. The **BS with Professional Chemistry Emphasis**, **BS with Environmental Chemistry Emphasis**, and **BS with Biochemistry Emphasis** degrees meet the requirements for certification by the American Chemical Society (ACS). The certified degree emphases provide excellent preparation for immediate entry into the job market or for graduate school in chemistry, biochemistry, chemical engineering, molecular biology, nutrition, food science, materials science, and a wide variety of other fields. ACS certification in **Chemical Education** is available to students who complete an ACS-certified program, together with the Professional Education program in secondary education. The **BS with Life Science Emphasis** degree is popular for students wishing to go on to medical or dental graduate programs. The life science emphasis is particularly appropriate for **premedical** and **predental** students who want a strong base for understanding the nature of chemical reactions in the body and the behavior of the drugs they will prescribe, or who want an attractive alternative should they decide ultimately not to pursue medical or dental school. The **Chemistry Teaching Major** or the **Composite Teaching Major in Physical Science** are available to those who want a career in secondary education. The BA degree is an excellent choice for students with an interest in studying **law** or **business** and who have an interest in science.

The core of the program utilizes year-long sequences of classes. The first-year sequence introduces the basic principles of chemistry, as well as most of the major concepts of the science. The second year explores in greater depth the characteristics of carbon-based compounds that serve as the backbone for the chemistry of life; for most drugs and medicines; for petroleum; for most fibers, paints, and plastics; and for many other commercial products. The third year examines in greater depth the models, theories, and mathematical interpretation of the structures, rates of change, energetics, and other properties of chemicals. In addition, one-semester courses examining the chemistry of life processes, the behavior of inorganic substances, and the analysis of the composition of substances are required. Many of the sequences have associated laboratory courses where students get hands-on practice. Here they synthesize compounds, measure physical properties, analyze samples, and determine structural features of compounds, using modern techniques and instrumentation.

The **Bachelor of Science Degree in Biochemistry** encompasses the study of the properties and functions of biological macromolecules, the mechanisms of action of enzymes, gene and protein regulation and expression, bioenergetics, and the metabolic pathways and processes that use and generate chemical and light energy. At its core, biochemistry recognizes and explains the unifying chemical principles that lie at the heart of the diverse expressions of life.

The core courses for the major are built around two-semester course sequences in the areas of general, organic, and biological chemistry; general biology; calculus; and general physics, along with associated laboratory courses. Students may choose from two physics tracks: (1) the life sciences track (typically preferred by students with a more biological inclination) and (2) the science-engineering track (typically preferred by students with a more mathematical/physical inclination). One-semester courses in analytical and biophysical chemistry and statistics round out the core of the program. To complete the additional 18 credits of coursework required for the major, students may choose elective courses from within the disciplines of chemistry, biochemistry, and biology. A wide range of advanced courses are available to meet the advanced electives requirement; students are encouraged to meet with their academic advisor to select courses that provide the best preparation for their intended career path. Representative courses (not all encompassing) include those in biology (e.g., human physiology, genetics, ecology, microbiology, plant physiology, cell biology); biochemistry (e.g., enzymology, structured biology, bioenergetics

# Department of Chemistry and Biochemistry

and metabolism, protein structure/function); and chemistry (e.g., intermediate and advanced inorganic, advanced organic).

The biochemistry major differs from the “chemistry major with biochemistry emphasis,” which is an American Chemical Society (ACS) certified degree that emphasizes specialization in biochemistry, but has a more chemical and mathematical emphasis than the biochemistry major. The biochemistry major is more biologically inclined (as well as somewhat less physically and mathematically inclined) than the chemistry major and is designed to meet the standards for the curriculum proposed by the American Society for Biochemistry and Molecular Biology (ASBMB).

The requirements of the BS and BA degrees in chemistry and the BS degree in biochemistry, along with University and University Studies requirements, are summarized here. The specific requirements for the teaching major and for the composite teaching major in physical science are also included.

Students are urged to study these requirements and to visit with their advisor on a regular basis about progress toward the completion of their degrees or for any questions regarding complementary courses and career goals.

## Assessment

The Department of Chemistry and Biochemistry has implemented a multilayered assessment strategy that defines learning objectives at the following levels: individual courses, divisional levels, and at the overall program level for the chemistry major. Details of this strategy can be found at: <http://www.chem.usu.edu/assessment/>

Learning objectives for the Chemistry Major are specifically outlined in an organized matrix at:  
<http://www.chem.usu.edu/assessment/matrix.pdf>

## General Requirements

### Admission Requirements

First-year students admitted to USU in good standing qualify for admission to this major. Transfer students from other institutions need a 2.2 transfer GPA, and students transferring from other USU programs need a 2.0 total GPA for admission to the chemistry or biochemistry major in good standing.

Students interested in studying chemistry or biochemistry should take high school mathematics courses that will enable them to start calculus during their first semester at USU. High school coursework in chemistry, biology, and physics is also desirable. AP credit in chemistry may be counted toward the chemistry or biochemistry degree. For details, contact the departmental advising faculty.

No CHEM prefix course may be applied toward graduation with any major or minor in chemistry or biochemistry with an earned grade of less than C-. No CHEM prefix course may be taken on a *Pass/Fail* basis. No CHEM prefix course may be repeated more than one time to improve the grade to a C- or better. A student dropped from the chemistry or biochemistry program for failure to meet this standard may appeal to the departmental Curriculum Committee for readmission.

## Chemistry Core Curriculum

In addition to the University Studies requirements for graduation, chemistry majors take a series of core courses spread across a traditional four-year period. The completion of the chemistry core also covers the College of Science requirements for graduation.

## Chemistry Major Core Requirements

### Suggested Schedule

#### First Year (30-32 credits)

##### Fall Semester (15-16 credits)

CHEM 1210 Principles of Chemistry I .....	4
CHEM 1215 Chemical Principles Laboratory I .....	1
MATH 1210 (QL) Calculus I .....	4
University Studies courses .....	6-7

##### Spring Semester (15-16 credits)

CHEM 1220 (BPS) Principles of Chemistry II .....	4
CHEM 1225 Chemical Principles Laboratory II .....	1
MATH 1220 (QL) Calculus II .....	4
University Studies courses .....	6-7

#### Second Year (32-33 credits)

##### Fall Semester (16 credits)

CHEM 2310 <sup>2</sup> Organic Chemistry I .....	4
CHEM 2315 <sup>2</sup> Organic Chemistry Laboratory I .....	1
CHEM 3000 (QI) <sup>2</sup> Quantitative Analysis .....	3
CHEM 3005 <sup>2</sup> Quantitative Analysis Laboratory .....	1
PHYS 2210 (QI) General Physics—Science and Engineering I .....	4
MATH 2210 (QI) Multivariable Calculus .....	3

##### Spring Semester (16-17 credits)

CHEM 2320 <sup>3</sup> Organic Chemistry II .....	4
CHEM 2325 <sup>3</sup> Organic Chemistry Laboratory II .....	1
CHEM 3510 <sup>3</sup> Intermediate Inorganic Chemistry .....	2
CHEM 3520 <sup>3</sup> Inorganic Chemistry Laboratory .....	1
PHYS 2220 (QI/BPS) General Physics—Science and Engineering II ..	4
University Studies courses .....	4-5

#### Third Year (29-31 credits)

##### Fall Semester (14-16 credits)

CHEM 3060 (QI) <sup>2</sup> Physical Chemistry .....	3
CHEM 3080 (CI) <sup>2</sup> Physical Chemistry Laboratory I .....	1
CHEM 5700 <sup>2</sup> General Biochemistry I .....	3
MATH 2250 (QI) <sup>1</sup> Linear Algebra and Differential Equations (4 cr) or	
STAT 3000 (QI) <sup>1</sup> Statistics for Scientists (3 cr) .....	3 or 4
University Studies or elective courses .....	4-5

##### Spring Semester (15 credits)

CHEM 3070 (QI) <sup>3</sup> Physical Chemistry .....	3
CHEM 3090 (CI) <sup>3</sup> Physical Chemistry Laboratory II .....	1
CHEM 5640 <sup>3</sup> Instrumental Analysis .....	3
CHEM 5650 <sup>3</sup> Instrumental Analysis Laboratory .....	2
University Studies or elective courses for specific degree emphasis ...	6

#### Fourth Year (31-32 credits)

CHEM 4990 (CI) Undergraduate Seminar .....	2
Upper-division and advanced elective courses for specific degree emphasis .....	29-30

<sup>1</sup> The completion of MATH 2250 or STAT 3000 is optional for the Teaching Major.

## Chemistry Degree Emphases

### Professional Chemistry Emphasis (ACS Certified)

In addition to the chemistry core, students must complete the following:

CHEM 5520 <sup>2</sup> Advanced Inorganic Chemistry (F) .....	2
CHEM 5530 <sup>3</sup> Advanced Synthesis Laboratory (Sp) .....	2
Advanced electives, as approved by department .....	6

# Department of Chemistry and Biochemistry

## Biochemistry Emphasis (ACS Certified)

In addition to the chemistry core, students must complete the following:

<b>CHEM 5710<sup>3</sup></b> General Biochemistry II (Sp) .....	3
<b>CHEM 5720<sup>3</sup></b> General Biochemistry Laboratory (Sp) .....	3
<b>BIOL 1610<sup>2</sup></b> Biology I (F) .....	4
Advanced Biology electives, as approved by department .....	4

## Environmental Chemistry Emphasis (ACS Certified)

In addition to the chemistry core, students must complete the following:

<b>CHEM 5670<sup>3</sup></b> Intermediate Environmental Chemistry (Sp).....	3
<b>CHEM 5680<sup>3</sup></b> Environmental Chemistry Laboratory (Sp) .....	2
Introductory environmental electives as approved by department .....	6-7
Advanced environmental electives as approved by department .....	3

## Chemical Education Emphasis (ACS Certified)

In addition to the chemistry core, students must complete the following:

Required courses for the Secondary Teacher Education Program (STEP) (see details on page 199) .....	35
Teaching minor from outside the Department of Chemistry and Biochemistry .....	12-16

<sup>2</sup> Offered fall semester only  
<sup>3</sup> Offered spring semester only

## BS Degree in Chemistry with Honors

This option can be met by completing any ACS certified program and by meeting the following requirements:

1. Minimum GPA of 3.50 in chemistry courses
2. Overall GPA of 3.30
3. Completion of 15 credits of honors work by successfully completing honors contracts in the following courses:

<b>CHEM 4800 (CI)</b> Research Problems (F, Sp, Su) .....	3-6
<b>CHEM 4990 (CI)</b> Undergraduate Seminar (F, Sp) .....	2

Credits selected from Honors courses numbered 3000 or above in chemistry or related subjects, as appropriate. Three credits may be selected from chemistry courses numbered 6000 or above.....3-6

In addition, select two courses from the following:

<b>CHEM 2320</b> Organic Chemistry II (Sp) .....	4
<b>CHEM 3070 (QI)</b> Physical Chemistry (Sp) .....	3
<b>CHEM 5640</b> Instrumental Analysis (Sp) .....	3
<b>CHEM 5700</b> General Biochemistry I (F) .....	3

## BS in Chemistry, Life Science Emphasis

In addition to the Chemistry Core Requirements (with the exception of CHEM 5640, 5650), students must complete the following:

<b>BIOL 1610</b> Biology I (F).....	4
<b>BIOL 1620 (BLS)</b> Biology II (Sp) (4 cr) <b>or</b>	
<b>BIOL 2420</b> Human Physiology (F,Sp,Su) (4 cr).....	4
<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su) (4 cr) <b>or</b>	
<b>BIOL 3300 (BLS)</b> General Microbiology (F,Sp) (4 cr) .....	4
<b>CHEM 5710</b> General Biochemistry II (Sp).....	3
<b>CHEM 5720</b> General Biochemistry Laboratory (Sp).....	3

## BA in Chemistry

In addition to the chemistry core (with the exception of CHEM 5640, 5650), students must complete the following:

<b>CHEM 5520</b> Advanced Inorganic Chemistry (F) (2 cr) <b>or</b>	
<b>CHEM 5640</b> Instrumental Analysis (Sp) (3 cr).....	2 or 3
Completion of one foreign language (16 cr) <b>or</b>	
Completion of two foreign languages (20 cr).....	16 or 20

## Chemistry Teaching Major

In addition to the Chemistry Core Requirements (with the exception of MATH 2250 or STAT 3000, and CHEM 5640 and 5650), students must complete the following:

<b>SCI 4300</b> Science in Society (F,Sp).....	2
Required courses for the Secondary Teacher Education Program (STEP) (see details on page 199) .....	35
Teaching minor from outside the Department of Chemistry and Biochemistry .....	12-16

## Composite Teaching Major in the Physical Sciences

This degree is available through the Chemistry and Biochemistry or Physics departments. Students with a Composite Teaching Major in Physical Sciences should plan their programs carefully in order to meet the upper-division requirement for graduation.

Specific for admission to this program, a student must have at least a 2.75 GPA in the following chemistry and physics courses:

<b>CHEM 1210</b> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su) .....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp).....	1

<b>PHYS 2110</b> The Physics of Living Systems I (4 cr) <b>and</b>	
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II (4 cr).....	8

**OR**  
**PHYS 2210 (QI)** General Physics—Science and Engineering I (4 cr) **and**

<b>PHYS 2220 (QI/BPS)</b> General Physics—Science and Engineering II (4 cr) .....	8
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(PHYS 2210 and 2220 are preferred.)

*This program does not include many aspects of the Chemistry Core.*

### Required Courses:

<b>CHEM 1210</b> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su) .....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp).....	1
<b>CHEM 2300</b> Principles of Organic Chemistry (F) (3 cr) <b>or</b>	
<b>CHEM 2310</b> Organic Chemistry I (F) (4 cr) .....	3 or 4
<b>CHEM 2315</b> Organic Chemistry Laboratory I (F) .....	1
<b>PHYS 1040 (BPS)</b> Introductory Astronomy .....	3
<b>PHYS 1080 (BPS)<sup>4</sup></b> Intelligent Life in the Universe (3 cr) <b>or</b>	
<b>PHYS 3030 (DSC/QI)</b> The Universe (3 cr) .....	3

<b>PHYS 2110</b> The Physics of Living Systems I (4 cr) <b>and</b>	
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II (4 cr).....	8

**OR**  
**PHYS 2210 (QI)** General Physics—Science and Engineering I (4 cr) **and**

<b>PHYS 2220 (QI/BPS)</b> General Physics—Science and Engineering II (4 cr) .....	8
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<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su) .....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su) .....	4
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) .....	3
<b>SCI 4300</b> Science in Society (F,Sp).....	2
<b>BIOL 1010 (BLS)</b> Biology and the Citizen (F,Sp,Su).....	3
<b>GEO 1110 (BPS)</b> The Dynamic Earth: Physical Geology (F,Sp).....	4
<b>CLIM 2000 (BPS)</b> The Atmosphere and Weather (F,Sp) .....	3

Teacher licensure courses from Secondary Education (35 cr)  
(see details on page 199)..... 35

A teaching minor is optional for the Composite Teaching Major in the Physical Sciences.

<sup>4</sup>PHYS 1080 is sometimes listed as USU 1360, ST: Intelligent Life in the Universe.

# Department of Chemistry and Biochemistry

## Secondary Teacher Education Program (STEP) (35 credits)

Prior to enrolling in these courses, students must be approved for admission to the STEP by the Emma Eccles Jones College of Education and Human Services. The teaching major advisor can assist with this process.

An overall 2.75 GPA in a minimum of 60 semester credits of approved University coursework is required for admission into the STEP. A minimum overall GPA of 2.75 is required for graduation. Specific for admission to any Chemistry Teaching program, a student must have at least a 2.75 GPA in CHEM 1210, 1215, 1220, and 1225.

All USU teacher education candidates will be required to take and pass the content exam approved by the Utah State Office of Education in their major content area prior to student teaching.

Students who may wish to teach Integrated Science at the middle or junior high school level should talk to their advisor about completing the courses necessary for an Integrated Science endorsement.

### Level 1 (11 credits)

INST 3500 Technology Tools for Secondary Teachers (F,Sp,Su)	1
SCED 3100 Motivation and Classroom Management (F,Sp)	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp)	3
SCED 3300 Clinical Experience I (40 hours minimum) (F,Sp)	1
SCED 3400 Teaching Science I (Sp)	3

### Level 2 (12 credits)

SPED 4000 Education of Exceptional Individuals (may be taken anytime) (F,Sp,Su)	2
SCED 4200 (CI) Reading, Writing, and Technology (F,Sp)	3
SCED 4210 Cognition and Evaluation of Student Learning (F,Sp)	3
SCED 4300 Clinical Experience II (40 hours minimum) (F,Sp)	1
SCED 4400 Teaching Science II (F)	3

### Level 3 (12 credits)

SCED 5500 Student Teaching Seminar (2 weeks) (F,Sp)	2
SCED 5630 Student Teaching in Secondary Schools (13 weeks, full-time) (F,Sp)	10

**Note:** The Teaching Science I and II courses (SCED 3400 and 4400) are *only* taught once per year. Therefore, it is important for students to consult with their advisor to fit these courses in the correct sequence into their plan of study.

**Note:** The courses in nonscience majors may differ from those listed here.

## Biochemistry Major

The following curriculum is required for the BS degree in biochemistry. To complete the degree in eight semesters (four academic years), students must register for an average of 15-16 credits per semester.

**Note:** Students may satisfy the CHEM 1210 requirement with an AP score of 3 or 4. *Both* CHEM 1210 *and* 1220 may be satisfied with an AP score of 5.

### Suggested Schedule

#### First Year (30-32 credits)

##### Fall Semester (15-16 credits)

CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
MATH 1210 (QL) Calculus I	4
University Studies courses	6-7

#### Spring Semester (15-16 credits)

CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
MATH 1220 (QL) Calculus II	4
University Studies courses	6-7

#### Second Year (32 credits)

##### Fall Semester (16 credits)

CHEM 2310 <sup>5</sup> Organic Chemistry I	4
CHEM 2315 <sup>5</sup> Organic Chemistry Laboratory I	1
BIOL 1610 <sup>5</sup> Biology I	4
PHYS 2110 The Physics of Living Systems I (4 cr) or PHYS 2210 (QI) General Physics—Science and Engineering I (4 cr)	4
University Studies course(s)	3

##### Spring Semester (16 credits)

CHEM 2320 <sup>6</sup> Organic Chemistry II	4
CHEM 2325 <sup>6</sup> Organic Chemistry Laboratory II	1
BIOL 1620 (BLS) <sup>6</sup> Biology II	4
PHYS 2120 (BPS) The Physics of Living Systems II (4 cr) or PHYS 2220 (BPS/QI) General Physics—Science and Engineering II (4 cr)	4
University Studies course(s)	3

#### Third Year (31-37 credits)

##### Fall Semester (15-18 credits)

CHEM 3000 <sup>5</sup> (QI) Quantitative Analysis	3
CHEM 3005 <sup>5</sup> Quantitative Analysis Laboratory	1
CHEM 5700 <sup>5</sup> General Biochemistry I	3
Advanced Biology Electives (2000 level or higher)	3-4
University Studies courses	5-7

##### Spring Semester (16-19 credits)

CHEM 5710 <sup>6</sup> General Biochemistry II	3
CHEM 5720 <sup>6</sup> General Biochemistry Laboratory	3
STAT 3000 (QI) Statistics for Scientists	3
Advanced Biology Electives (2000 level or higher)	3-4
University Studies courses	4-7

#### Fourth Year (29-34 credits)

##### Fall Semester (14-17 credits)

CHEM 4890 (CI) Undergraduate Biochemistry Seminar	2
CHEM 5070 <sup>5</sup> Biophysical Chemistry	3
Advanced elective coursework	6-12
University Studies course(s)	0-3

##### Spring Semester (12-15 credits)

Advanced elective coursework	6-12
University Studies course(s)	0-3

#### Preapproved Course Options for Biochemistry Major Electives (18 credits required for major)

Of the 18 credits required, 14 must be at the 3000 level or higher. Other upper-division courses may be substituted if approved by the department. Prerequisites will *not* be waived. Only courses with a C-grade or better can be applied toward the electives requirement.

ADVS 3020 Biotechnology in Agriculture (F) (Prereq: BIOL 1620, CHEM 2310)	3
ADVS 5350 Introductory Pharmacology and Pharmacokinetics (Sp) (Prereq: BIOL 5600, CHEM 3700, permission of instructor)	3
BIOL 2320 Human Anatomy (Sp,Su)	4
BIOL 2420 Human Physiology (F,Sp,Su)	4
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su) (Prereq: BIOL 1610, CHEM 1210)	4



# Department of Chemistry and Biochemistry

<b>BIOL 3065</b> Genetics Laboratory (F) (Prereq: BIOL 3060, which may be taken concurrently).....	2
<b>BIOL 3300</b> General Microbiology (F,Sp) (Prereq: BIOL 1610; CHEM 2310, which may be taken concurrently).....	4
<b>BIOL 4000</b> Human Dissection (F) (Prereq: BIOL 2320).....	1
<b>BIOL 5100</b> Neurobiology (F) (Prereq: BIOL 1620; BIOL 2420, 5600, or 5620; CHEM 1220; and PHYS 2120 or 2220).....	3
<b>BIOL 5150</b> Immunology (Sp) (Prereq: CHEM 1220; BIOL 3060; and BIOL 3300 or 5210).....	3
<b>BIOL 5210</b> Cell Biology (F) (Prereq: BIOL 1620, 3060; CHEM 2300 or 2320; CHEM 5700).....	3
<b>BIOL 5230</b> Developmental Biology (Sp) (Prereq: BIOL 3060 and 5210; CHEM 5700 strongly recommended).....	3
<b>BIOL 5250 (CI)</b> Evolutionary Biology (F,Sp) (Prereq: BIOL 3060 or WILD 4880 or permission of instructor).....	3
<b>BIOL 5330</b> Virology (Sp) (Prereq: BIOL 3060 and 3300).....	3
<b>BIOL 5600</b> Comparative Animal Physiology (Sp) (Prereq: BIOL 1620 and CHEM 1220).....	3
<b>BIOL 5620</b> Medical Physiology (F) (Prereq: BIOL 1620; BIOL 2420 or 5600; CHEM 5710).....	3
<b>CHEM 4800 (CI)</b> Research Problems: Undergraduate Research (F,Sp,Su) (Prereq: Permission of instructor).....	3
<b>CHEM 6730</b> Principles of Enzymology (Sp) (Prereq: CHEM 5700).....	3
<b>CHEM 6740</b> Cellular Communication by Small Molecules and Proteins (Sp) (Prereq: CHEM 5700).....	3
<b>CHEM 6750</b> Principles of Structural Biology (F) (Prereq: CHEM 5700).....	3
<b>CHEM 6760</b> Principles of Bioenergetics (F) (Prereq: CHEM 5700).....	3

<sup>5</sup> Offered fall semester only

<sup>6</sup> Offered spring semester only

## BS Degree in Biochemistry with Honors

A BS degree in Biochemistry with honors can be earned by meeting the following requirements:

1. Minimum GPA of 3.50 in chemistry courses
2. Overall GPA of 3.30
3. Completion of 15 credits of honors work by successfully completing honors contracts in the following courses:

<b>CHEM 4800 (CI)</b> Research Problems (F,Sp,Su).....	3-6
<b>CHEM 4890 (CI)</b> Undergraduate Biochemistry Seminar.....	2
3-6 credits selected from Honors courses numbered 3000 or higher in chemistry or related subjects, as appropriate. Three credits may be selected from chemistry courses numbered 6000 or higher.....	3-6

In addition, select two courses from the following:

<b>CHEM 2320</b> Organic Chemistry II (Sp).....	4
<b>CHEM 5070</b> Biophysical Chemistry (F).....	3
<b>CHEM 5700</b> General Biochemistry I (F).....	3
<b>CHEM 5710</b> General Biochemistry II (Sp).....	3

## Chemistry Minor

In addition to CHEM 1210, 1215, 1220, and 1225, 10 additional credits in Chemistry prefix courses at the 2000 level or higher, as approved by department, are required (either CHEM 2300 or 2310 may be included).

## Chemistry Teaching Minor

In addition to CHEM 1210, 1215, 1220, 1225, CHEM 2300 or 2310, and CHEM 2315, 3-4 additional credits selected from the following are required:

<b>CHEM 2320</b> Organic Chemistry II (Sp) (if CHEM 2310 has been previously selected).....	4
<b>CHEM 3000 (QI)</b> Quantitative Analysis (F).....	3
<b>CHEM 3060 (QI)</b> Physical Chemistry (F).....	3
<b>CHEM 3510</b> Intermediate Inorganic Chemistry (Sp) (2 cr) <b>and</b>	
<b>CHEM 3520</b> Inorganic Chemistry Laboratory (Sp) (1 cr).....	3
<b>CHEM 3650 (DSC)</b> Environmental Chemistry (Sp) (3 cr) <b>or</b>	
<b>CHEM 3700</b> Introductory Biochemistry (Sp) (3 cr).....	3
Enrollment in the Secondary Teacher Education Program (STEP) (see details on page 199).....	35

## Undergraduate Research Opportunities

The Chemistry and Biochemistry Department encourages students in all departmental majors to engage in undergraduate research. For information about how they can become involved in undergraduate research, students should contact Joan Hevel, the departmental undergraduate research coordinator, (435) 797-1622, joanie.hevel@usu.edu.

## Career Opportunities

Chemistry degree holders work in a wide variety of professions, from physicians, lawyers, and professors to research/development, sales, or production in the chemical, oil, pharmaceutical, metals, electronic, and biochemical industries. Government at all levels employs chemists, including the federal Departments of Defense, Health and Human Services, Agriculture, and Interior. A graduate with a bachelor's degree often begins work in chemical analysis or sales or may assist senior chemists in research and development. A graduate with a teaching major or chemistry education emphasis may teach in public schools. A graduate degree is usually needed to direct research or teach at the university level. Degree holders from the Department of Chemistry and Biochemistry have had excellent success in obtaining support for graduate studies, often at very prestigious institutions, and in obtaining employment directly following graduation.

The major in Biochemistry is appropriate both for students who wish to terminate their studies at the bachelor's degree and for those planning to continue their education at the graduate or professional level. For those who terminate at the bachelor's degree, career opportunities are available in research and development, sales, quality control, and analysis within a range of biochemical, pharmaceutical, and biotechnological industries. For those planning to pursue a career in the health professions, the biochemistry major provides an excellent and well-rounded background for medical, dental, and veterinary school admission. The biochemistry major also provides excellent preparation for students planning to pursue graduate work in a range of biological, environmental, and chemical sciences, including biochemistry, molecular biology, genetics, genomics, oncology, and bioinformatics. For those students interested in pursuing a legal career in areas such as patent law, bioethics, and environmental protection and regulation, the major is also excellent preparation for law school.

For further information about career opportunities for chemistry majors and biochemistry majors, students should contact their advisor.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty

# Department of Chemistry and Biochemistry

in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For more information about requirements for the majors and minors within the Chemistry and Biochemistry Department, see the major requirement sheets, available from the department, or online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admissions Requirements

See the general admission requirements for the School of Graduate Studies (pages 36-37). All applicants should have a bachelor's degree or master's degree in chemistry or biochemistry from an accredited institution. Appropriate undergraduate preparation is expected; applicants not fully prepared may be admitted with the condition that appropriate undergraduate courses are taken as necessary.

Applications are especially encouraged during the spring semester for expected admission in the following fall semester. However, the Graduate Recruiting and Admissions Committee screens applications throughout the year. Detailed information about the graduate programs and faculty research activities can be found on the Internet at: <http://www.chem.usu.edu>

## Degree Programs

### Master of Science

To earn an MS in chemistry or biochemistry, a student must meet the general requirements of the School of Graduate Studies (see pages 116-119), conduct research under the direction of a major professor and write a thesis acceptable to a supervisory committee (Plan A) or write a review-of-literature paper (Plan B), and pass an oral examination that is principally a defense of the thesis or the Plan B paper.

Qualified undergraduate chemistry majors at USU may apply in the third year for admission to the MS program. Students may be admitted to this MS program if they have a *B* average in chemistry, physics, and mathematics courses, and have completed the one-year sequences in general, organic, and physical chemistry (including labs), two courses in analytical or inorganic chemistry, two semesters of physics, math through MATH 2210, and at least 15 credits of their University Studies requirements.

Students should consult with the chairperson of the Graduate Recruiting and Admissions Committee to be certain of their eligibility for this program. The chairperson will then submit an application to the department head and to the School of Graduate Studies for approval. Students must earn a satisfactory score on the GRE exam before the completion of the MS degree. All requirements for the BS degree must be completed within two semesters of admission. The MS coursework cannot include coursework counted toward the BS degree.

### Doctor of Philosophy

To earn the PhD in chemistry or biochemistry, a student must successfully complete a core curriculum of courses and other courses as approved by a supervisory committee. In addition, preliminary examinations (both oral and written) must be passed and research in a field of specialization must be conducted. The final requirement is the writing and defense of a dissertation before the student's supervisory committee.

### Biochemistry Course Requirements

Every MS and PhD student in the biochemistry program must complete at least four of the graduate biochemistry core courses (CHEM 6730, 6740, 6750, and 6760). Both MS and PhD students must complete a total of at least 15 credits in coursework, exclusive of seminar and research credit. The Program of Study is approved by the student's supervisory committee. A total of 30 credits is required for the MS degree, and a total of 90 credits is required for the PhD. Beginning students who already hold an MS degree need 60 credits to complete the PhD program.

### Chemistry Course Requirements

Every MS and PhD student in the chemistry program must complete the courses required for their specialization: *Analytical*—CHEM 7600, 7610; *Inorganic*—CHEM 6500, 6510; *Organic*—CHEM 6300, 7300, 7310; or *Physical Chemistry*—CHEM 6010, 6020, 7020. Both MS and PhD students must complete a total of at least 15 credits in coursework, exclusive of seminar and research credit. The Program of Study is approved by the student's supervisory committee. A total of 30 credits is required for the MS degree and a total of 90 credits is required for the PhD. Beginning students who already hold an MS degree need 60 credits to complete the PhD program.

## Financial Assistance

The department offers financial support to students in the form of teaching assistantships, research assistantships, and fellowships. All applications for admission to the School of Graduate Studies constitute an application for financial assistance; it is not necessary to file a separate request. Teaching assistantships are the principal means of support for first-year students. Inquiries about current support levels should be directed to the department main office. The department is responsible for the first nine months of stipend and tuition, with the remaining summer stipend and tuition usually being paid from faculty research funds. Teaching assistants devote no more than 12 contact hours per week directing undergraduate laboratories, leading recitation sections, and assisting students with questions during the regular fall and spring semesters. Research assistantships, funded from individual faculty research grants, support students conducting research related to the grant projects. Although first-year students are not normally supported as research assistants, well-prepared students may be eligible for research support at the discretion of their major professor.

# Department of Chemistry and Biochemistry

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Fellowships are awarded by the University to outstanding students solely on the basis of merit. The department encourages students with strong academic records to apply for the University fellowships and national awards, and will provide assistance in obtaining and submitting the appropriate forms. Additionally, several graduate awards are given each year to honor exemplary performance in research and teaching.

The College of Science recently established the Willard L. Eccles Foundation Science Fellowship. The \$22,000 per year, three-year stipend is competitively awarded to highly qualified science applicants. Students applying to the graduate program will be considered for this fellowship, and will be sent the necessary information. Application deadline for this fellowship is March 1.

## Chemistry and Biochemistry Faculty

### Professors

*Stephen E. Bialkowski*, analytical chemistry  
*Alexander I. Boldyrev*, physical chemistry  
*Scott A. Ensign*, biochemistry  
*David Farrelly*, physical chemistry  
*Alvan C. Hengge*, organic chemistry  
*Vernon D. Parker*, physical organic chemistry  
*Steve Scheiner*, computational chemistry  
*Lance C. Seefeldt*, biochemistry

### Trustee Professor Emeritus

*Ann E. Aust*, biochemistry

### Professors Emeritus

*Steven D. Aust*, biochemistry  
*William M. Moore*, physical chemistry  
*Richard K. Olsen*, organic chemistry  
*Grant G. Smith*, organic chemistry  
*Jack T. Spence*, inorganic chemistry

### Associate Professors

*Lisa M. Berreau*, inorganic chemistry  
*Robert S. Brown*, analytical chemistry  
*Cheng-Wei Tom Chang*, organic chemistry  
*Bradley S. Davidson*, organic chemistry  
*John L. Hubbard*, inorganic chemistry

### Assistant Professors

*Joan M. Hevel*, biochemistry  
*Sean J. Johnson*, biochemistry

### Research Assistant Professors

*Brett Barney*, biochemistry  
*Tapas Kar*, physical chemistry

### Lecturer

*Douglas G. Harris*

## Course Descriptions

Chemistry and Biochemistry (CHEM), pages 527-529

# Department of Civil and Environmental Engineering

**Department Head:** William J. Rahmeyer  
**Location:** Engineering Laboratory 211  
**Phone:** (435) 797-2938  
**FAX:** (435) 797-1185  
**E-mail:** beckyjh@engineering.usu.edu  
**WWW:** <http://www.engineering.usu.edu/cee>

## **Undergraduate Advisor:**

### **Civil Engineering:**

Engineering Advising Center, Engineering 314A, (435) 797-2705  
kathy@engineering.usu.edu

### **Environmental Engineering:**

Engineering Advising Center, Engineering 314A, (435) 797-2705  
kathy@engineering.usu.edu

## **Undergraduate Division Heads:**

### **Civil Engineering:**

Kevin C. Womack, Engineering Laboratory 276, (435) 797-1144,  
kevin.womack@usu.edu

### **Environmental Engineering:**

David K. Stevens, Engineering 216, (435) 797-3229,  
david.stevens@usu.edu

## **Graduate Program Division Heads:**

### **Environmental Engineering:**

David K. Stevens, Engineering 216, (435) 797-3229,  
david.stevens@usu.edu

### **Geotechnical Engineering:**

James A. Bay, Engineering Laboratory 266, (435) 797-2947  
jim.bay@usu.edu

### **Structural Engineering:**

Marvin W. Halling, Engineering Laboratory 264, (435) 797-3179,  
marv.halling@usu.edu

### **Water Engineering:**

Gilberto E. Urroz, Engineering 223, (435) 797-3379,  
gurro@engineering.usu.edu

### **Transportation Systems Engineering:**

Anthony Chen, Engineering 231, (435) 797-7109,  
achen@engineering.usu.edu

**Degrees offered:** Bachelor of Science (BS) in Civil Engineering; BS in Environmental Engineering; Master of Engineering (ME), Master of Science (MS), Civil Engineer (CE) and Doctor of Philosophy (PhD) in Civil and Environmental Engineering

**Graduate specializations:** Environmental Engineering, Fluid Mechanics and Hydraulic Engineering, Geotechnical Engineering, Hazardous Waste Management, Structural Engineering and Mechanics, Transportation Engineering, Water Engineering, Water Resources Engineering and Hydrology

## **Undergraduate Programs**

### **Objectives**

Civil and Environmental Engineering is concerned with planning, designing, constructing, and operating various physical works; developing and utilizing natural resources in an environmentally

sound manner; providing the infrastructure which supports the highest quality of life in the history of the world; and protecting public health and renovating impacted terrestrial and aquatic systems from the mismanagement of toxic and hazardous wastes. The Department of Civil and Environmental Engineering offers Bachelor of Science degrees in Civil Engineering and in Environmental Engineering. Both degrees are accredited by the Engineering Accreditation Commission of ABET.

The objectives of the undergraduate programs in Civil Engineering and Environmental Engineering are to graduate engineers who have a solid educational foundation with broad experiences in engineering, the sciences, and the humanities; and who are prepared to enter graduate school, other professional training, or the workplace as effective professionals. These graduates will understand the significance of life-long learning and the importance of ethical conduct and will be qualified to assume roles of leadership in business, community, government, and the engineering profession and contribute significantly to global society as a whole.

### **Outcomes**

The **Program Outcomes** of the Civil Engineering undergraduate program are the following:

- (a) an ability to apply knowledge of mathematics, science, and engineering principles to civil engineering problems.
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data.
- (c) an ability to design a system, component, or process to meet desired goals in civil engineering applications.
- (d) an ability to function on multi-disciplinary teams.
- (e) an ability to identify, formulate, and solve engineering problems.
- (f) an understanding of professional and ethical responsibility.
- (g) an ability to communicate effectively.
- (h) a broad education necessary to understand the impact of engineering solutions in a global and societal context.
- (i) a recognition of the need for, and an ability to engage in, lifelong learning.
- (j) knowledge of contemporary issues in civil engineering.
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- (l) the understanding and application of engineering knowledge of specialized areas in Civil Engineering.\*
- (m) the understanding of basic project management techniques and leadership.\*\*
- (n) the understanding of basic professional practices, including work procurement and legal issues.

\*Students in the Civil Engineering program should gain proficiency in a minimum of four of the following six recognized major civil engineering areas. These engineering areas include : (1) environmental, (2) geotechnical, (3) hydraulics, (4) structural, (5) transportation, and (6) water resources and hydrology.

\*\*Basic project management techniques can include multiple principles, such as the interaction between design professionals and the construction professions to construct a project, as well as the principles of cost and scheduling, drawing and plans, and project inspection.

# Department of Civil and Environmental Engineering

The **Program Outcomes** of the Environmental Engineering undergraduate program are the following:

- (a) an ability to apply knowledge of mathematics, science, and engineering principles to civil engineering problems.
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data.
- (c) an ability to design a system, component, or process to meet desired goals in civil engineering applications.
- (d) an ability to function on multi-disciplinary teams.
- (e) an ability to identify, formulate, and solve engineering problems.
- (f) an understanding of professional and ethical responsibility.
- (g) an ability to communicate effectively.
- (h) a broad education necessary to understand the impact of engineering solutions in a global and societal context.
- (i) a recognition of the need for, and an ability to engage in, lifelong learning.
- (j) knowledge of contemporary issues in civil engineering.
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

## Assessment

The Civil and Environmental Engineering Department employs several methods to assess the quality of the two BS programs offered by the department. Assessments are made prior to graduation by measuring the performance of students in each class. In addition, the results of the FE exam, senior exit interviews, and faculty reviews of student portfolios are used. Postgraduate assessment of Civil and Environmental Engineering graduates is also conducted up to six years after graduation. Assistance from outside reviewers is also obtained in making the assessment. For more details, see the CEE assessment website at: <http://www.engineering.usu.edu/cee/assessment/>

## Requirements

### Admission Requirements

Admission requirements for the Department of Civil and Environmental Engineering are the same as those described for the University on pages 30-35. Students in good standing may apply for admission to the department. In addition, students must maintain the academic requirements outlined for the College of Engineering on pages 132-133.

### Bachelor of Science Degrees

The Department of Civil and Environmental Engineering offers two Bachelor of Science degrees: one in Civil Engineering and one in Environmental Engineering. The four-year programs leading to these two degrees are listed below. During the first two years, students are in a pre-engineering program. Students must successfully complete the pre-engineering program or, in the case of transfer students, substantially equivalent coursework at another institution before they are accepted into the professional program. Transfer students may apply for permission to take upper-division courses in cases where postponement of these courses will prolong the student's time to graduate.

Design is a cornerstone of engineering that requires creative thinking, technical knowledge, the ability to organize and solve complex problems, and teamwork. Engineering design activities begin during the first two years and progress in-depth as each student's proficiency increases. These design activities culminate in a major senior design course, which integrates past engineering coursework into a focused, realistic design project. An important feature of the senior design experience is that students work in teams to complete the project.

The student who is majoring in or planning to major in Civil Engineering or Environmental Engineering needs to be aware of the College of Engineering requirements concerning admission to the college, pre-engineering program, admission to professional engineering programs, University Studies, and other academic requirements. Additional information concerning these items is given in the College of Engineering write-up on pages 131-133. It is the responsibility of the student to be aware of these rules and regulations. **Passing the Fundamentals of Engineering Exam is required for graduation.**

The Civil and Environmental Engineering Department strongly recommends that students have a high-end calculator, such as an HP calculator, that has the capabilities to do units, matrices, and programs in BASIC. Although not a requirement at this time, CEE students are strongly encouraged to have a modern desktop or laptop personal computer. Since computer technology is changing rapidly, students should seek advice from a knowledgeable professional on hardware and software requirements before purchasing a computer.

Students in the Civil Engineering program must establish proficiency in at least four areas of Civil Engineering. Proficiency is established through a combination of material covered in required courses, as well as by establishing depth through the selection of technical electives. Proficiency must be established in four of the following areas: Environmental Engineering, Fluid Mechanics/ Hydraulics, Geotechnical, Structures, Transportation, or Water Resources. The courses must be selected from the approved Technical Elective courses.

## Undergraduate Course Requirements for Civil Engineering (128 credits)<sup>1</sup>

**Pre-engineering Program: Freshman and Sophomore**

### Freshman Year (31-34 credits)

#### Fall Semester (16 credits)

MATH 1210 (QL) <sup>2</sup> Calculus I .....	4
CHEM 1210 <sup>2</sup> Principles of Chemistry I .....	4
CHEM 1215 <sup>2</sup> Chemical Principles Laboratory I .....	1
CEE 1880 <sup>2</sup> Civil and Environmental Engineering Orientation and Computer Applications .....	1
CEE 2240 <sup>2</sup> Engineering Surveying .....	3
University Studies Breadth course .....	3

#### Spring Semester (15-18 credits)

MATH 1220 (QL) <sup>2</sup> Calculus II .....	4
GEO 1110 (BPS) <sup>2</sup> The Dynamic Earth: Physical Geology (4 cr) <b>or</b> GEOG 1000 (BPS) Physical Geography (3 cr) .....	3 or 4
ETE 2270 <sup>2</sup> Computer Engineering Drafting .....	2
BIOL 1010 (BLS) Biology and the Citizen .....	3
PHYS 2200 Elements of Mechanics (prereq. to PHYS 2220) .....	(2)
University Studies Breadth course .....	3

# Department of Civil and Environmental Engineering

## Sophomore Year (30 credits)

### Fall Semester (15 credits)

<b>PHYS 2220 (BPS/QI)</b> <sup>2</sup> General Physics—Science and Engineering II (prereq. AP Physics or PHYS 2200).....	4
<b>MATH 2210 (QI)</b> Multivariable Calculus .....	3
<b>ENGR 2010</b> <sup>2</sup> Engineering Mechanics Statics.....	2
<b>ENGL 2010 (CL2)</b> <sup>2</sup> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
University Studies Breadth course .....	3

### Spring Semester (15 credits)

<b>ENGR 2030</b> <sup>2</sup> Engineering Mechanics Dynamics.....	3
<b>ENGR 2140</b> <sup>2</sup> Strength of Materials.....	2
<b>ENGR 2450</b> <sup>2</sup> Engineering Numerical Methods.....	2
<b>CEE 2870</b> <sup>2</sup> Sophomore Seminar.....	1
<b>MATH 2250 (QI)</b> <sup>2</sup> Linear Algebra and Differential Equations.....	4
University Studies Breadth course .....	3

<sup>1</sup>Passing the Fundamentals of Engineering Exam is required for graduation. The exam is offered in October and April. Application must be made 120 days in advance. The exam is usually taken during fall semester of the junior or senior year.

<sup>2</sup>These courses are required for admission to the Professional Engineering Program (PEP).

## Professional Engineering Program: Junior and Senior

### Junior Year (33 credits)

#### Fall Semester (17 credits)

<b>CEE 3010</b> Mechanics of Materials .....	2
<b>CEE 3030</b> Uncertainty in Engineering Analysis.....	2
<b>CEE 3500</b> Civil and Environmental Engineering Fluid Mechanics .....	3
<b>CEE 3610</b> <sup>3</sup> Environmental Management.....	3
<b>CEE 3870 (CI)</b> <sup>3</sup> Professional/Technical Writing in Civil and Environmental Engineering .....	2
<b>CEE 4200</b> Engineering Economics .....	2
Engineering Science Elective.....	3

#### Spring Semester (16 credits)

<b>CEE 3020</b> Structural Analysis.....	2
<b>CEE 3510</b> Civil and Environmental Engineering Hydraulics .....	3
<b>CEE 3880</b> Civil Engineering Design I.....	1
CEE Group A course <sup>4</sup> .....	3
CEE Group A course <sup>4</sup> .....	4
Engineering Science Elective.....	3

<sup>3</sup>CEE 3610 and 3870 must be taken concurrently.

### Senior Year (33-35 credits)

#### Fall Semester (17 credits)

<b>CEE 4870 (CI)</b> Civil Engineering Design II.....	2
CEE Senior Design elective course <sup>5</sup> .....	3
CEE Technical Elective course <sup>5</sup> .....	3
CEE Technical Elective course <sup>5</sup> .....	3
CEE Technical Elective Group B course <sup>5</sup> .....	3
University Studies Depth Social Sciences (DSS) course .....	3

#### Spring Semester (16-18 credits)

<b>CEE 4880 (CI)</b> Civil Engineering Design III.....	2
CEE Group A course <sup>4</sup> .....	3
CEE Group A course <sup>4</sup> .....	3-4
CEE Group A course <sup>4</sup> .....	3
CEE Technical Elective course <sup>5</sup> .....	3
University Studies Depth Humanities and Creative Arts (DHA) course.....	2-3

<sup>4</sup>Students must complete *all five* of the following Group A Courses. The order in which they are taken will dictate the choice of technical elective courses (as they are prerequisites for various technical elective courses).

## Engineering Science Electives (6 credits minimum)

Students in the Civil Engineering program must complete two engineering science electives chosen from the three courses below. The addition of two engineering science courses in place of one technical elective is required of all students entering the Civil Engineering Professional Program August 2007 and beyond.

<b>ETE 2210</b> Electrical Engineering for Nonmajors (F,Sp,Su).....	4
<b>MAE 2160</b> Material Science (F,Sp) .....	3
<b>MAE 2300</b> Thermodynamics I (Sp,Su).....	3

## Group A Courses

<b>CEE 3080</b> Design of Reinforced Concrete Structures (Sp).....	3
<b>CEE 3210</b> Introduction to Transportation Engineering (Sp) .....	3
<b>CEE 3430</b> Engineering Hydrology (Sp).....	3
<b>CEE 3640</b> Water and Wastewater Engineering (Sp) (4 cr) <b>or</b>	
<b>CEE 3780</b> Solid and Hazardous Waste Management (F) (3 cr) <b>or</b>	
<b>CEE 5860</b> Air Quality Management (F) (3 cr).....	3 or 4
<b>CEE 4300</b> Engineering Soil Mechanics (Sp).....	4

<sup>5</sup>Civil Engineering students are required to complete a Senior Design elective course concurrent with CEE 4870. In addition, they must complete four Technical Elective Courses (one of which must be selected from Group B), for a total of 12 credits. Following is a list of Technical Elective Courses and Senior Design Elective Courses.

## Technical Elective Courses (15 credits minimum required)

Students in the Civil Engineering program must complete a senior design elective (see list below). They must also establish proficiency in *at least four* areas of Civil Engineering by taking a *minimum of two courses* in each area. Proficiency in **Environmental Engineering** is established by taking BIOL 1010; CEE 3610; and CEE 3640, 3780, or 5860. Proficiency in **Structures** is established by taking ENGR 2010, 2140; and CEE 3010, 3020, 3080. Proficiency in **Fluid Mechanics and Hydraulics** is established by taking ENGR 2030; and CEE 3430, 3500, 3510. Students will also demonstrate proficiency in *one* of Geotechnical Engineering, Transportation Engineering, or Water Resources Engineering by taking a Group B course (see list below).

Proficiency in **Geotechnical Engineering** is established by taking ENGR 2030; GEO 1110 (recommended) or GEOG 1000; CEE 4300; and *either* CEE 5350 or 5380. Proficiency in **Transportation Engineering** is established by taking CEE 3210; and *one* of CEE 5190, 5220, 5230, or 5240. Proficiency in **Water Resources Engineering** is established by taking CEE 3430; and *one* of CEE 5450, 5460, or 5470.

The sum of the Group B class, the Senior Design Elective, and other technical electives from the approved list must be at least 15 credits.

<b>CEE 3670</b> Transport Phenomena in Bio-Environmental Systems (Sp).....	3
<b>CEE 3780</b> Solid and Hazardous Waste Management (F) .....	3
<b>CEE 5010</b> Matrix Analysis/Finite Element (F).....	3
<b>CEE 5050</b> Design of Wood and Masonry Structures (Sp).....	3
<b>CEE 5070</b> Structural Steel Design (F).....	3
<b>CEE 5080</b> Numerical Methods in Elasticity (F).....	3
<b>CEE 5100</b> Infrastructure Evaluation and Renewal (Sp) .....	3
<b>CEE 5190</b> Geographic Information Systems for Civil Engineers (Sp).....	3
<b>CEE 5220</b> Traffic Engineering (Sp) .....	3
<b>CEE 5230</b> Geometric Design of Highways (Sp).....	3
<b>CEE 5240</b> Urban and Regional Transportation Planning (F).....	3
<b>CEE 5350</b> Foundation Analysis and Design (F) .....	3
<b>CEE 5380</b> Earthquake Engineering (Sp).....	3
<b>CEE 5430</b> Groundwater Engineering (F).....	3
<b>CEE 5450</b> Hydrologic Modeling (Sp).....	3
<b>CEE 5460</b> Water Resources Engineering (F).....	3
<b>CEE 5470</b> Sedimentation Engineering (Sp) .....	3
<b>CEE 5500</b> Open Channel Hydraulics with an Emphasis on Gradually Varied Flow (F) .....	3

# Department of Civil and Environmental Engineering

CEE 5540 Hydraulic Structures Design (F).....	3
CEE 5550 Hydraulics of Closed Conduits (Sp).....	3
CEE 5690 Natural Systems Engineering (F).....	3
CEE 5720 Natural Systems Modeling (Sp).....	3
CEE 5860 Air Quality Management (F).....	3
CEE 5870 Hazardous Waste Incineration (Sp).....	2
CEE 5880 Remediation Engineering (F).....	3
CEE 5900 Cooperative Practice (F,Sp,Su).....	3
ETE 2210 Electrical Engineering for Nonmajors (F,Sp,Su).....	4
MAE 2160 Material Science (F,Sp).....	3
MAE 2300 Thermodynamics I (Sp,Su).....	3

## Senior Design Elective Courses (3 credits required)

CEE 3780 Solid and Hazardous Waste Management (F).....	3
CEE 5070 Structural Steel Design (F).....	3
CEE 5230 Geometric Design of Highways (Sp).....	3
CEE 5350 Foundation Analysis and Design (F).....	3
CEE 5460 Water Resources Engineering (F).....	3
CEE 5470 Sedimentation Engineering (Sp).....	3
CEE 5500 Open Channel Hydraulics with an Emphasis on Gradually Varied Flow (F).....	3
CEE 5540 Hydraulic Structures Design (F).....	3

## Group B Elective Courses (3 credits required)

CEE 5190 Geographic Information Systems for Civil Engineers (Sp)...	3
CEE 5220 Traffic Engineering (Sp).....	3
CEE 5230 Geometric Design of Highways (Sp).....	3
CEE 5240 Urban and Regional Transportation Planning (F).....	3
CEE 5350 Foundation Analysis and Design (F).....	3
CEE 5380 Earthquake Engineering (Sp).....	3
CEE 5450 Hydrologic Modeling (Sp).....	3
CEE 5460 Water Resources Engineering (F).....	3
CEE 5470 Sedimentation Engineering (Sp).....	3

## Undergraduate Course Requirements for Environmental Engineering<sup>6</sup>

### Pre-engineering Program: Freshman and Sophomore

#### Freshman Year (30-31 credits)

Fall Semester (16 credits)	
MATH 1210 (QL) <sup>8</sup> Calculus I.....	4
CHEM 1210 <sup>8</sup> Principles of Chemistry I.....	4
CHEM 1215 <sup>8</sup> Chemical Principles Laboratory I.....	1
CEE 1880 <sup>8</sup> Civil and Environmental Engineering Orientation and Computer Applications.....	1
CEE 2240 <sup>8</sup> Engineering Surveying.....	3
University Studies Breadth course.....	3

#### Spring Semester (14-15 credits)

BIOL 1010 (BLS) <sup>8</sup> Biology and the Citizen.....	3
MATH 1220 (QL) <sup>8</sup> Calculus II.....	4
ETE 2270 <sup>8</sup> Computer Engineering Drafting.....	2
PHYS 2200 <sup>8</sup> Elements of Mechanics.....	2
GEO 1110 (BPS) <sup>8</sup> The Dynamic Earth: Physical Geology (4 cr) or GEOG 1000 (BPS) Physical Geography (3 cr).....	3 or 4

#### Sophomore Year (32 credits)

Fall Semester (16 credits)	
MATH 2250 (QI) <sup>8</sup> Linear Algebra and Differential Equations.....	4
ENGR 2010 <sup>8</sup> Engineering Mechanics Statics.....	2
ENGL 2010 (CL2) <sup>8</sup> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
PHYS 2220 (BPS/QI) <sup>8</sup> General Physics—Science and Engineering II (prereq: AP Physics or PHYS 2200).....	4
University Studies Breadth course.....	3

#### Spring Semester (16 credits)

ENGR 2030 <sup>8</sup> Engineering Mechanics Dynamics.....	3
ENGR 2140 Strength of Materials.....	2
ENGR 2450 <sup>8</sup> Engineering Numerical Methods.....	2
MAE 2300 <sup>8</sup> Thermodynamics I.....	3
CEE 2890 <sup>8</sup> Environmental Engineering Sophomore Seminar.....	1
CEE 3030 Uncertainty in Engineering Analysis.....	2
University Studies Breadth course.....	3

<sup>6</sup>Passing the Fundamentals of Engineering Exam is required for graduation. The exam is offered in October and April. Application must be made 120 days in advance. The exam is usually taken during fall semester of the senior year.

<sup>7</sup>The Breadth Life Sciences (BLS) area in the University Studies Program is satisfied by the combination of BIOL 1610 and 3300.

<sup>8</sup>These courses are required for admission to the Professional Engineering Program (PEP).

#### Professional Engineering Program: Junior and Senior Junior Year (32 credits)

##### Fall Semester (15 credits)

CEE 3500 Civil and Environmental Engineering Fluid Mechanics.....	3
CEE 3610 <sup>9</sup> Environmental Management.....	3
CEE 3780 Solid and Hazardous Waste Management.....	3
CEE 3870 (CI) <sup>9</sup> Professional/Technical Writing in Civil and Environmental Engineering.....	2
SOIL 3000 Fundamentals of Soil Science.....	4

##### Spring Semester (17 credits)

CEE 3430 Engineering Hydrology.....	3
CEE 3510 Civil and Environmental Engineering Hydraulics.....	3
CEE 3640 Water and Wastewater Engineering.....	4
CEE 3670 Transport Phenomena in Bio-Environmental Systems.....	3
CEE 3890 Environmental Engineering Design I.....	1
New course in Environmental Chemistry.....	3

#### Senior Year (31-32 credits)

##### Fall Semester (16 credits)

PUBH 3310 Occupational Health and Safety.....	3
CEE 4200 Engineering Economics.....	2
CEE 4790 (CI) <sup>10</sup> Environmental Engineering Design II.....	2
CEE 5610 Environmental Quality Analysis.....	3
CEE 5860 Air Quality Management.....	3
CEE Senior Design Elective course <sup>10</sup> .....	3

##### Spring Semester (15-16 credits)

CEE 4890 (CI) Environmental Engineering Design III.....	2
Technical Elective course (Area 1, 2, or 3) <sup>11</sup> .....	2
Technical Elective course (Area 4 or 5) <sup>11</sup> .....	3
University Studies Breadth course.....	3
University Studies Depth Humanities and Creative Arts (DHA) and Depth Social Sciences (DSS) courses.....	5-6

<sup>9</sup>CEE 3610 and 3870 must be taken concurrently.

<sup>10</sup>Environmental Engineering students are required to complete a Senior Design elective course concurrent with CEE 4790. Available Senior Design elective courses are listed below.

<sup>11</sup>Environmental Engineering students must select at least two Technical Elective courses (totaling 4 credits) chosen from the specialty areas (options) listed below.

#### Senior Design Elective Courses

CEE 5690 Natural Systems Engineering (F).....	3
CEE 5810 Biochemical Engineering (F).....	3
CEE 5830 Management and Utilization of Biological Solids and Wastewater (F).....	3
CEE 5880 Remediation Engineering (F).....	3

# Department of Civil and Environmental Engineering

## Technical Elective Courses

### Solids—Area 1

CEE/PUBH 5670 Hazardous Chemicals Handling and Safety (Sp).....	2
CEE/BIE 5680 Soil-based Waste Management (Sp) .....	2
CEE/PUBH 5730 Analysis and Fate of Environmental Contaminants (F).....	3
CEE/BIE 5830 Management and Utilization of Biological Solids and Wastewater (F) .....	3
CEE 5870 Hazardous Waste Incineration (Sp) .....	2
CEE 5880 Remediation Engineering (F) .....	3

### Water—Area 2

CEE 5430 Groundwater Engineering (F).....	3
CEE/SOIL 5620 Aquatic Chemistry (F) .....	3
CEE 5720 Natural Systems Modeling (Sp) .....	3
CEE/PUBH 5730 Analysis and Fate of Environmental Contaminants (F).....	3
CEE/BIE 5810 Biochemical Engineering (F).....	3

### Air—Area 3

CEE 5710 Pollution Prevention and Industrial Ecology (Sp, Alt Years).....	2
CEE 5750 Air Quality Measurements (Sp) .....	2
CEE/PUBH 5790 Accident and Emergency Management (Sp) .....	3
CEE 5870 Hazardous Waste Incineration (Sp) .....	2

### Natural Systems—Area 4

CEE 5690 Natural Systems Engineering (F).....	3
WATS 4500 Limnology: Ecology of Inland Waters (Sp) .....	3
WATS 4530 Water Quality and Pollution (F) .....	3

### Occupational Safety and Health—Area 5

PUBH 4310 Industrial Hygiene Recognition of Hazards (F).....	4
PUBH 4320 Industrial Hygiene Chemical Hazard Evaluation (Sp) .....	3
PUBH 4330 Industrial Hygiene Physical Hazards (Sp).....	3
PUBH 5330 (QI) Industrial Hygiene Chemical Hazard Control (F).....	3
CEE/PUBH 5670 Hazardous Chemicals Handling and Safety (Sp).....	2
CEE 5710 Pollution Prevention and Industrial Ecology (Sp).....	2
CEE/PUBH 5790 Accident and Emergency Management (Sp) .....	3

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school.

In the Department of Civil and Environmental Engineering, departmental honors can be earned by completing 20 credits of upper-division honors engineering courses. Students should work with the department in selecting appropriate courses.

Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For more information about Bachelor of Science requirements and the sequence in which courses should be taken, see major requirement sheet, available from the Civil and Environmental Engineering Department, or online at: <http://www.usu.edu/majorsheets/>

## Concurrent BS/Master's Program

The concurrent BS/Master's program allows engineering students to begin taking graduate-level classes during their senior year. This permits them to complete requirements for *both* the BS degree *and* the master's degree concurrently during two years. Students in this program have a greater selection of graduate courses, since many graduate courses are taught during alternate years. In addition, the student's senior design project could be a start for a graduate design project or thesis. After completing their BS degree, students in the program can earn a master's degree in only one additional year. Both the BS and the master's degree can generally be earned with 150-152 total credits, although students should note that a Plan C MS requires 3 extra credits. Finally, students with a master's degree can expect a much higher starting salary following graduation. (For more information, see *College of Engineering* section of this catalog, pages 133-134.)

## Graduate Programs

The ME degree emphasizes professional practice and coursework. A minimum of 30 credits of technical and scientific coursework is required. The MS degree emphasizes research and the preparation of a significant publication. A minimum of 30 credits, 6 to 9 of which shall be thesis research, is required for an MS. In special cases, as decided by the student's supervisory committee, a second MS is available with a Plan B option, which requires 30 credits, including 3 credits of CEE 6970, Thesis Research. The CE degree, which prepares students for professional engineering careers, requires 60 credits beyond the bachelor's degree, or 30 credits beyond the master's degree, including a technical engineering report. The PhD degree represents high scholarly achievement demonstrated by independent research and competence in an area of specialization approved by the student's supervisory committee.

## Admission Requirements

See general admission requirements, pages 36-37. Admission committees consider GRE scores and experience, undergraduate record and curriculum, and formal recommendations. A student without an undergraduate civil and environmental engineering background may be required to complete selected undergraduate courses prior to admission as a fully matriculated graduate student.

## Graduate Program Divisions

The graduate program in the Department of Civil and Environmental Engineering is administered through five academic divisions, as described below.

### Structural Engineering

The structural engineer is involved in the design, construction, repair, and retrofit of all types of structures: buildings, bridges, dams, and many others. The safety of the structures we occupy and utilize every day is the responsibility of structural engineers. They must be able to evaluate the loads placed on a structure, determine their effects on the



# Department of Civil and Environmental Engineering

structure, and select the appropriate materials and structural elements, or repair strategy, to withstand these loads. Today's structural engineer is using new space materials in the design of new structures or the retrofit of older structures.

Mathematics, physics, and materials science constitute a foundation for structural engineering. Structural analysis and design are added to this foundation and become the focus of the structural engineering program. Graduate students in the structures program also engage in structural mechanics, numerical methods, structural dynamics, geotechnical engineering, and the study of new structural materials. Current research in the structures area is focusing on the dynamic characteristics of structures, their potential response to earthquakes, and new seismic retrofit measures, using advanced composite materials, for older structures. Materials research is focusing on cementitious materials and constitutive modeling.

## Geotechnical Engineering

Engineering studies of soils are concerned with the physical and engineering properties of soils and how these are related to engineering projects.

Traditional geotechnical engineering includes the application of engineering principles to the analysis and/or design of building foundations, earth embankments, retaining walls, drainage systems, earthquake motion, buried structures, and other systems involving soil and rock. Engineers and architects cannot ignore the problems of investigating properties of soils in connection with engineering construction. Undergraduate and graduate courses offered by the department provide the basic knowledge necessary for the design of foundations and various types of earth structures. Fundamental concepts and their application are emphasized so that the student will be properly trained for his or her initial job, as well as being prepared to understand future development in this field.

The Geotechnical Engineering Division, in cooperation with the Environmental Engineering Division, is offering a new program in Geoenvironmental Engineering. This new program uses the strengths of both divisions to provide a program involving the geotechnical aspects of hazardous waste management, the investigation of hazardous waste sites, and the design of hazardous waste containment systems.

The geotechnical division has a strong research program. Current research projects in this division include studies on liquefaction, seismic slope stability, pile foundations, landslides, mechanically stabilized embankments, risk analysis of dams, finite element analysis of soil-structure systems, and the long-term properties of clay soils used in hazardous waste containment systems.

## Water Engineering

The water engineering program is a multidisciplinary graduate program in the College of Engineering and is intended to enable engineers and scientists interested in water to obtain graduate degrees in the areas of fluid mechanics and hydraulics, hydrology, groundwater, and water resources engineering. Core courses and departmental offerings cover these fundamental areas, as well as essential numerical and statistical methods. The water engineering faculty are committed to a strong academic program. The curriculum offered is one of the most comprehensive offered in the U.S. Elements of ongoing research projects are routinely and effectively incorporated into the classes. The program combines training, research, and experience to understand the water issues and water resources management challenges in the United States and internationally. Graduate students can supplement departmental offerings by selecting courses in Mathematics and

Statistics; Watershed Sciences; Applied Economics; Economics; Geology; Biological and Irrigation Engineering; Mechanical and Aerospace Engineering; and Plants, Soils, and Climate. This ensures that graduates are well-grounded in the fundamentals, but have a breadth of training and are prepared to contribute professionally to the solution of multidisciplinary local, national, and international water problems. Graduate students in the water program have the opportunity for research support through the Utah Water Research Laboratory (UWRL) while working on theses or dissertations. Excellent laboratory and computing facilities are available. Strong, continuous state and federal research funding keeps the research topics and facilities current. Specialty areas within the program comprise fluid mechanics and hydraulics, hydrology, groundwater, and water resources engineering.

*Fluid mechanics and hydraulic engineering* covers both fundamental principles and theory and their applications in a variety of engineering fields. Elementary fluid mechanics, based on fundamental principles of conservation of mass, energy, and momentum, is the logical core for all water-related engineering programs. Consequently, other specialties in water engineering study fluid mechanics. Students specializing in fluid mechanics and hydraulics emphasize theoretical fluid mechanics, hydraulic design, numerical methods, and laboratory hydraulic techniques. A good variety and balance of courses supporting research in theoretical fluid mechanics, open channel hydraulics, hydraulic design, transients, sedimentation, municipal water system design, and cavitation are available at the graduate level. Graduates in fluid mechanics and hydraulics find employment in a broad range of professional engineering fields, including consulting, university teaching and research, and state and federal government agencies.

*Hydrology* is a branch of geoscience concerned with the origin, distribution, movement, and properties of waters of the earth. The hydrologic cycle encompasses the atmosphere, the land surface, lakes and oceans, and the subsurface. Complex, interacting processes at varied time and space scales describe the hydrologic cycle. The concepts and practice of hydrology derive from an integration of field observations, laboratory investigations, and conceptual, mathematical, chemical, statistical, and probabilistic models.

The hydrology program at USU has strength in both theoretical and applied aspects of modern hydrology. Past and present research focuses on a broad spectrum of hydrologic problems. These range from climate modeling, rainfall processes, floods, droughts, terminal lake analyses, soil erosion, and stream water quality models to groundwater contamination characterization and remediation and watershed analyses. A particular emphasis of the program is on an understanding of the global water and energy cycles at nested scales from the hemisphere to the continent to the watershed from a holistic perspective that recognizes the two-way linkages between water reservoirs and fluxes through oceans, atmosphere, land surface and subsurface, and biota.

*Groundwater engineering* is concerned with fluid flow and transport of contaminants in the subsurface environment. It encompasses the theory of flow in porous media; groundwater hydrology; fate and transport of contaminants in subsurface; and analytical, numerical, and stochastic modeling of such processes. Emphasis is placed on the quantitative analysis of physical and chemical principles governing these processes and on the application of these principles to practical field problems, with all their difficulties related to the complex structure of subsurface formations. Examples of such problems include groundwater supply and management, capture zone analysis, well hydraulics, subsurface cleanup technologies, health risk assessment, and analysis and remediation of groundwater contamination. These problems are of a multidisciplinary nature, and their solutions require

# Department of Civil and Environmental Engineering

a multidisciplinary approach, involving, among others, soil and water chemistry, chemical engineering, and economics. The groundwater professional is an important team player in solving such problems.

*Water Resources Engineering* prepares engineers to be lead members in water resources planning teams, often charged with coordinating the information and concepts supplied from other disciplines. This need for breadth requires considerable flexibility in the training and arrangement of degree programs.

Water resources engineers draw principles from hydrology, fluid mechanics, hydraulics, environmental engineering, economics, ecology, political science, and other disciplines in the design and operation of projects and nonstructural methods for water resources planning and management. They need a sound understanding of how water storage, delivery, and other management systems function; of criteria used in evaluating and selecting among alternatives; of the techniques of operations research that can be used in systems design; and of the institutional aspects of decision-making in the public sector. A focus area of the program is to develop decision support systems for sustainable water quantity and quality management in the United States and in developing regions of the world. Evolving information sources and tools, such as spatial data sets encoded in geographical information systems, climate forecasts, and cognitive models of the human decision process and societal group dynamics, are being integrated in representative institutional contexts.

An internationally-recognized specialized program has been developed in dam safety risk assessment. Students take classes in dam engineering; hydrology and hydraulics; geotechnical engineering; geology; decision analysis; risk assessment; probability and statistics; and natural resources economics, planning, and management. Students work on practical applications, as well as research projects, for improving the state-of-the-art.

## Environmental Engineering

The Division of Environmental Engineering is a multidisciplinary graduate program in the College of Engineering and provides coursework and research experience to enable engineers and scientists interested in the environment to obtain graduate degrees relating to potable water and waste treatment, toxic and hazardous wastes management, air quality management, natural systems engineering, and environmental impact assessment. The program provides an interdisciplinary educational approach to fundamental principles that can be applied to environmental phenomena. Research and training projects are a part of the program and provide the student with appropriate research experience leading to a thesis or dissertation.

*Hazardous Waste Management.* This specialization has been developed within the broader scope of the environmental engineering program to provide an integrated approach for students with a BS in engineering or natural sciences to deal with the complex issues of toxic and hazardous waste. Aspects of toxic/hazardous waste management, including characterization, treatment, disposal, control, monitoring, and environmental impacts, are dealt with in this program.

*Natural Systems Engineering* is the study of the interaction of engineered systems with nature, emphasizing impacts to aquatic ecosystems. Techniques include assessment of aquatic habitat through computer simulation and model verification, quantification of aquatic habitat using remote sensing systems, and data analysis and display through integrated statistical and GIS approaches. These tools are used to evaluate impacts on threatened and endangered species, habitat enhancement, instream flow assessments, fish habitat, stream sediment, and hydraulic features.

*A bioprocess engineering program* has been developed as a cooperative effort between the Division of Environmental Engineering and the Biological and Irrigation Engineering Department. This program provides students with specialized coursework and research experience in areas of bioreactor processing of environmental materials and engineering scale-up of biologically-based environmental reactions. Areas of specialization include waste to energy, fermentation, composting, and industrial waste (agricultural and chemical) reuse, recycling, and technologies based on biological processes, as well as engineering optimization of aquatic habitats.

## Transportation Engineering

The graduate program in Transportation Engineering offers education and research opportunities in transportation systems planning, design, and management. It is designed to enable aspiring planners, engineers, and managers to obtain advanced degrees while specializing in infrastructure management, traffic network analysis, facility design, traffic operations, transportation economics and finance, and project appraisal. Up-to-date computer and laboratory facilities, as well as the Transportation Division's close links with local and state transportation agencies, enable students to gain hands-on experience and practical perspectives.

Past and present research undertaken by the Transportation Division faculty and researchers ranges from microscopic traffic flow simulation, dynamic route assignment, and network reliability to traffic accident modeling, pavement management, video image processing, and intelligent transportation systems. The focus remains on efficient and effective solutions to transportation problems.

Transportation Division course offerings expose students to the theoretical and practical aspects of goods and passenger transportation. State-of-the-art analytical tools and new research findings are introduced into the courses through periodic revision of notes, examples, problem sets, and computer software. Students are encouraged to design their own programs of study according to their personal and professional goals. Due to the multi-disciplinary nature of transportation, students are encouraged to include in their program of study course offerings from other programs in CEE, as well as from Mathematics and Statistics, Environment and Society, Applied Economics, Economics and Finance, Management, and Sociology.

## Financial Assistance

Both departmental and formal grant support are available to graduate students and are awarded on a competitive basis. Students requesting financial support should apply to the department by March 15 for the coming academic year.

A number of fellowships are available through the University and the department. Teaching assistantships are available through the department and research assistantships are available through the Utah Water Research Laboratory and departmental faculty members who have ongoing projects or who hold special research grants from the University, private companies, or state and federal agencies.

Acceptance to pursue graduate studies in the Civil and Environmental Engineering Department does not guarantee the student financial assistance. Inasmuch as funds are limited, the assistantships are awarded by the department to cover specific teaching assignments and by the faculty members to provide for research as funds are available.

# Department of Civil and Environmental Engineering

## Civil and Environmental Engineering Faculty

### Professors

*A. Bruce Bishop*, engineering systems and planning  
*David S. Bowles*, risk assessment, hydrology, water resources engineering  
*William J. Doucette*, environmental analytical chemistry  
*R. Ryan Dupont*, hazardous waste management, bioremediation  
*Thomas B. Hardy*, ecological system modeling, statistical analysis  
*Jagath J. Kaluarachchi*, subsurface hydrology, water resources  
*Mac McKee*, water resources planning and analysis  
*William J. Rahmeyer*, hydraulics, hydraulic structures, scour and erosion  
*David K. Stevens*, treatment process analysis  
*David G. Tarboton*, hydrology and water resources  
*Kevin C. Womack*, structural mechanics

### Research Professor

*Darwin L. Sorensen*, aquatic microbiology

### Professors Emeritus

*Loren R. Anderson*, geotechnical engineering  
*Jay M. Bagley*, hydrology, water resources  
*W. O. Carter*, structures  
*Calvin G. Clyde*, fluid mechanics and groundwater  
*Irving S. Dunn*, geotechnical engineering  
*Gordon H. Flammer*, hydraulics  
*William J. Grenney*, water resources  
*Trevor C. Hughes*, water resources systems analysis  
*C. Earl Israelsen*, hydrology, hydraulics, water resources, erosion control  
*Roland W. Jeppson*, numerical modeling  
*Fred W. Kiefer, Jr.*, geotechnical engineering  
*Elliot Rich*, structural engineering  
*J. Paul Riley*, water resources systems, hydrology  
*J. Paul Tullis*, hydraulics, hydraulic structures, and hydromachinery  
*Reynold K. Watkins*, geotechnical engineering

### Adjunct Professors

*Lloyd H. Austin*, water resources  
*Steve C. Chapra*, water-quality modeling  
*George G. Goble*, deep foundations and structural dynamics  
*Roger D. Hansen*, water resources  
*Jeffrey R. Keaton*, geotechnical engineering, engineering geology  
*Upmanu Lall*, climate modeling, statistical hydrology, water resource systems  
*Christopher M. U. Neale*, remote sensing, biological and irrigation engineering  
*Neil Parrett*, performance and safety of dams  
*Norman E. Stauffer, Jr.*, engineering hydrology and computer modeling  
*Alan Steinberg*, road maps for intelligence  
*Daniel A. Stone*, environmental chemistry

### Associate Professors

*Paul J. Barr*, reinforced concrete, bridge design  
*James A. Bay*, geotechnical engineering  
*Joseph A. Caliendo*, geotechnical engineering  
*Anthony Chen*, network analysis and logistics, transportation planning  
*Marvin W. Halling*, structural dynamics, earthquake engineering  
*Sonia S. Manuel-Dupont*, technical communication  
*Randal S. Martin*, environmental engineering (air pollution)  
*Michael J. McFarland*, environmental engineering (biosolids)  
*Laurie S. McNeill*, environmental engineering (drinking water)  
*Robert T. Pack*, geomatics and engineering geology  
*Blake P. Tullis*, hydraulics, hydraulic structures, and hydromachinery  
*Gilberto E. Urroz*, hydraulics, hydraulic structures

### Research Associate Professor

*Joan E. McLean*, fate and behavior of metals in the subsurfaces

### Adjunct Associate Professors

*Danny Marks*, snow hydrology  
*Eva C. Nieminski*, water quality  
*Anthony Turhollow*, transportation  
*Ross A. Woods*, water

### Associate Professor Emeritus

*J. Derle Thorpe*, engineering materials, measurements

### Assistant Professors

*Kevin Heaslip*, transportation  
*Bethany T. Neilson*, environmental engineering  
*John D. Rice*, geotechnical engineering  
*David Rosenberg*, water resources  
*Keri L. Ryan*, structural dynamics, structural control

### Research Assistant Professors

*Luis Bastidas*, hydrology  
*Sanjay Chauhan*, dam safety, risk assessment, hydrologic modeling  
*Michael C. Johnson*, hydraulics

### Adjunct Assistant Professors

*Steven L. Barfuss*, hydraulics  
*Charles H. Luce*, forest hydrology

### Affiliate Faculty

*Robert W. Hill*, professor, Biological and Irrigation Engineering; irrigation and water resource extension  
*Jack Keller*, professor emeritus, Biological and Irrigation Engineering; sprinkle and drip irrigation  
*Gary P. Merkley*, professor, Biological and Irrigation Engineering; conveyance systems  
*Judith L. Sims*, research associate professor, Biological and Irrigation Engineering; soil biology  
*Ronald C. Sims*, Department Head and professor, Biological and Irrigation Engineering; biological process engineering  
*Wynn R. Walker*, professor, Biological and Irrigation Engineering; Associate Dean, College of Engineering; surface irrigation

## Course Descriptions

Civil and Environmental Engineering (CEE), pages 520-527

**Coordination:** Mark L. Damen, Susan O. Shapiro, and Frances B. Titchener, Department of History

**Location:** Main 323

**Phone:** (435) 797-1290

**FAX:** (435) 797-3899

**E-mail:** mark.damen@usu.edu, susan.o.shapiro@usu.edu, frances.titchener@usu.edu

**WWW:** <http://www.usu.edu/history/classics/>

An academic minor is available in the field of **Classical Studies** with four areas of emphasis: **Classical Civilization**, **Latin Language**, **Greek Language**, and **Latin Teaching**. From the ancient civilizations of the Mediterranean area are derived our government, literature, sciences, and laws. The classical world is the backdrop of the modern world. In association with various majors, the Classics Minor is designed to enhance intellectual abilities and practical skills.

## Requirements

Requirements for the four emphasis areas are as follows:

### Classics Minor with Emphasis in Civilization

Twenty-one credits of coursework are required. All students must take:

**HIST 3130 (CI/DHA)** Greek History.....3  
**HIST 3150 (CI)** Roman History (Sp).....3

One of the following two courses in ancient archaeology is required:

**HIST/ARTH 3110 (CI/DHA)** Ancient Near East (Sp) .....3  
**ANTH 1030 (BSS)** World Archeology (F [Sp online]).....3

One of the following three ancient literature courses is required:

**CLAS 1100** The Latin and Greek Element in English (F,Sp).....3  
**CLAS/ARTH 3210** Classical Mythology (F,Sp) .....3  
**THEA 5290** Special Topics in Theatre History and Literature (F,Sp).....3

One of the following two ancient art courses is required:

**HIST/ARTH 4210** Celtic Europe (F) .....3  
**ARTH 4610 (CI)** Greek and Roman Art.....3

One of the following three ancient thought courses is required:

**HIST 4350** Greek Intellectual History (Sp) .....3  
**POLS 4310 (CI)** History of Political Thought I (Sp) .....3  
**PHIL 3100 (CI)** Ancient Philosophy .....3

The remaining 3 credits are elective and may include any of the courses listed above.

### Classics Minor with Emphasis in Latin Language

Thirteen credits are required. All students must complete HIST 3150 (Roman History) and 7 credits of upper-division (3000- and 4000-level) courses in Latin language. They must also complete *one* of the following courses:

**ARTH 4610 (CI)** Greek and Roman Art.....3  
**CLAS 1100** The Latin and Greek Element in English (F,Sp).....3  
**CLAS/ARTH 3210** Classical Mythology (F,Sp) .....3  
**HIST/ARTH 4210** Celtic Europe (F) .....3  
**THEA 5290** Special Topics in Theatre History and Literature (F,Sp).....3

### Classics Minor with Emphasis in Greek Language

Thirteen credits are required. All students must complete HIST 3130 (Greek History) and 7 credits of upper-division (3000- and 4000-level) courses in classical Greek language. They must also complete *one* of the following courses:

**ARTH 4610 (CI)** Greek and Roman Art.....3  
**CLAS 1100** The Latin and Greek Element in English (F,Sp).....3  
**CLAS/ARTH 3210** Classical Mythology (F,Sp) .....3  
**HIST 4350** Greek Intellectual History (Sp) .....3  
**PHIL 3100 (CI)** Ancient Philosophy .....3  
**THEA 5290** Special Topics in Theatre History and Literature (F,Sp).....3

### Classics Minor with Emphasis in Latin Teaching

Twenty-one credits are required. All students must take the following courses:

**CLAS 1100** The Latin and Greek Element in English (F,Sp).....3  
**HIST 3150 (CI)** Roman History (Sp).....3  
**LATN 3100** Intermediate Latin Prose (F) .....3  
**LATN 3130** Intermediate Latin Poetry (F) .....3  
**LATN 4100** Advanced Latin Readings (F).....3  
**LATN 4860** Latin Pedagogy (Sp) .....3

The remaining 3 credits must be taken in upper-division Latin. Students may fulfill this requirement *either* by taking LATN 4100 a second time (provided a different author is studied) *or* by taking 3 credits of LATN 4930 (Directed Readings in Latin Poetry and Prose Authors).

In order to receive teaching certification in Latin, students must also pass the PRAXIS exam, as well as successfully complete the STEP (Secondary Teacher Education Program) as part of their major.

Approved courses for the various minors are listed in the brochure titled *Classical Studies*. Brochures are available from the Department of History, Main 323.

## Course Descriptions

Classics (CLAS), page 530

Greek (GRK), page 574

Latin (LATN), page 596

# Department of Communicative Disorders and Deaf Education

**Department Head:** Beth E. Foley  
**Location:** Lillywhite 103  
**Phone:** (435) 797-3924  
**FAX:** (435) 797-0221  
**E-mail:** beth.foley@usu.edu  
**WWW:** <http://www.cehs.usu.edu/comd/>

**Assistant Department Head and Advisor for  
Speech-Language Pathology and Audiology:**  
Dee R. Child, Lillywhite 112, (435) 797-2318, [dee.child@usu.edu](mailto:dee.child@usu.edu)

**Advisor for Deaf Education:**  
Jan Kelley-King, Lillywhite 40, (435) 797-5718,  
[jan.kellyking@usu.edu](mailto:jan.kellyking@usu.edu)

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA),  
Master of Science (MS), Master of Arts (MA), Master of Education  
(MEd), and Educational Specialist (EdS) in Communicative Disorders  
and Deaf Education; Doctorate of Audiology (AuD)

**Undergraduate areas of focus:** BS, BA—Communicative Disorders,  
Education of the Deaf and Hard of Hearing

**Graduate specializations:** MS, MA, MEd—Speech-Language  
Pathology; MEd—Education of the Deaf and Hard of Hearing;  
EdS—Audiology

## Objectives

Three main objectives of the Department of Communicative Disorders and Deaf Education are (1) to train competent speech-language pathologists, educators of the deaf and hard of hearing, and clinical-educational audiologists capable of receiving state and national licensure; (2) to provide clinical services to individuals with speech-language deficits or hearing loss in the University population or in the community; and (3) to provide research opportunities for students relating to communicative problems of individuals. The graduate programs in both Speech-Language Pathology and Clinical-Educational Audiology are accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language Hearing Association. The program in Education of the Deaf and Hard of Hearing is accredited by the Council on Education of the Deaf. All department programs hold Utah State Office of Education approval and NCATE accreditation.

## Undergraduate Programs

### Bachelor's Degree in Communicative Disorders and Deaf Education

There are two areas of focus available within the department: (1) **communicative disorders**, which includes options in *audiology* and *speech-language pathology*, and (2) **education of the deaf and hard of hearing**. Though the BS or BA is available in both tracks, the student should be aware that there is no professional employment licensure in either communicative disorders or education of the deaf and hard of hearing at the bachelor's level.

### Option 1: Audiology and Speech-Language Pathology

Any accepted student at Utah State University may major in Communicative Disorders and Deaf Education (COMD-DE) during the freshman and/or sophomore years. However, during the first semester of the junior year, the student must formally apply for admission into the COMD-DE undergraduate professional preparation program. Application forms for admission into COMD-DE will be disseminated in class during the first semester of the junior year. As part of the application process, each student will complete the Emma Eccles Jones College of Education and Human Services Writing Examination. The student will be accepted if cumulative grade point average is 3.0 or higher, University Studies credits are within 15 credits of completion, the Emma Eccles Jones College of Education and Human Services Writing Examination has been taken and passed, and all COM-DE courses taken to this point have grades higher than C+. Students who are accepted into the undergraduate program must maintain the acceptance standards each semester in order to continue in the major.

Transfer Students or students applying for admission into the program subsequent to the fall semester of their junior year must receive approval from the department head before beginning their matriculation in major classes.

Admission into the Emma Eccles Jones College of Education and Human Services teacher education program is necessary before the student may take licensure courses taught in the School of Teacher Education and Leadership and the Department of Special Education and Rehabilitation, which are supportive of the major. Admission into the teacher education program is also required prior to taking the Communicative Disorders clinical practicum coursework. Application to the teacher education program typically takes place at the beginning of the graduate program.

### Course Requirements

Each student in audiology and speech-language pathology must complete a component of professional training, which includes departmental and extra-departmental coursework. This professional training component includes the following courses:

#### A. Lower-division Core Courses (13 credits)

<b>MATH 1010</b> Intermediate Algebra (F,Sp,Su) (4 cr) <b>or</b>	
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su) (4 cr) .....	4
<b>STAT 1040 (QL)</b> Introduction to Statistics (F,Sp,Su) .....	3
<b>CS 1030 (BPS)</b> Foundations of Computer Science (F) (3 cr) <b>or</b>	
<b>OSS 1400</b> Microcomputer Applications (3 cr) .....	3
<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) (3 cr) <b>or</b>	
<b>FCHD 1500 (BSS)</b> Human Development	
Across the Lifespan (F,Sp) (3 cr) .....	3

#### B. Extra-departmental Core Courses (13 credits)

<b>BIOL 1010 (BLS)</b> Biology and the Citizen (F,Sp,Su) .....	3
<b>BIOL 2320</b> Human Anatomy (Sp,Su) (4 cr) <b>or</b>	
<b>BIOL 2420</b> Human Physiology (F,Sp,Su) (4 cr) .....	4
<b>PSY 1100</b> Developmental Psychology: Infancy	
and Childhood (F,Sp) .....	3
<b>SPCH 2110 (CI)</b> Interpersonal Communication (F,Sp) .....	3

#### C. Course Required for State Licensure (2 credits)

<b>SPED 4000</b> Education of Exceptional Individuals (F,Sp,Su) .....	2
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# Department of Communicative Disorders and Deaf Education

## D. Communicative Disorders Major Core Requirements (40-41 credits)

COMD 2400 Orientation and Observation (F,Sp)	1
COMD 2500 Language, Speech, and Hearing Development (F,Sp)	3
COMD 2600 Introduction to Communication Disorders (F)	2
COMD 2910 (CI) Sign Language I (Majors) (F,Sp,Su)	4
COMD 3100 Fundamentals of Anatomy for Speech and Language (F)	3
COMD 3120 Disorders of Articulation and Phonology (Sp)	3
COMD 3400 Acoustics and Anatomy of the Ear (Sp)	3
COMD 3500 Phonetics/Developmental Phonology (F)	3
COMD 3650 (CI) Clinical Processes and Behavior (Sp)	2
COMD 3700 Basic Audiology (F)	3
COMD 4400 Clinical Practicum in Audiology (F,Sp,Su)	1-2
COMD 4450 Assessment and Treatment of Communicative Disorders in the Pediatric Population (Sp)	3
COMD 5070 Speech Science (F)	3
COMD 5100 Language Science (Sp)	3
COMD 5200 Language Assessment and Intervention for Children Birth to Age Five (Sp)	3
COMD 5210 Cultural and Linguistic Diversity in Communicative Disorders (F)	3
COMD 5250 Diagnosis and Treatment of Adults in Speech-Language Pathology (Sp)	3
COMD 5330 Pediatric Aural Rehabilitation (Sp)	3

## E. Upper-division Electives, Preapproved by Department (12 credits)

### Suggested Semester Schedule for Communicative Disorders and Deaf Education Majors (Audiology and Speech-Language Pathology)

**Note:** A minimum 3.0 overall GPA is required for admission to the professional program during the junior year. Prior to beginning the program, each student should meet with a departmental advisor to work out a specific academic plan, tailored to meet the individual student's needs.

### Junior Year (33 credits)

#### Fall Semester (17 credits)

COMD 2400 Orientation and Observation	1
COMD 2500 Language, Speech, and Hearing Development	3
COMD 2600 Introduction to Communication Disorders	2
COMD 3100 Fundamentals of Anatomy for Speech and Language	3
COMD 3500 Phonetics/Developmental Phonology	3
SPED 4000 Education of Exceptional Individuals	2
Electives	3

#### Spring Semester (16 credits)

COMD 3400 Acoustics and Anatomy of the Ear	3
COMD 4450 Assessment and Treatment of Communicative Disorders in the Pediatric Population	3
COMD 5100 Language Science	3
PSY 1100 Developmental Psychology: Infancy and Childhood	3
Electives	4

### Senior Year (33 credits)

#### Fall Semester (19 credits)

COMD 2910 (CI) Sign Language I (Majors)	4
COMD 3700 Basic Audiology	3
COMD 5070 Speech Science	3
COMD 5210 Cultural and Linguistic Diversity in Communicative Disorders	3
STAT 1040 (QL) Introduction to Statistics	3
Depth Humanities and Creative Arts (DHA) course	3

### Spring Semester (14 credits)

COMD 5200 Language Assessment and Intervention for Children Birth to Age Five	3
COMD 5250 Diagnosis and Treatment of Adults in Speech-Language Pathology	3
COMD 5330 Pediatric Aural Rehabilitation	3
Electives	5

## Online Post-bachelor's Degree in Communicative Disorders

Nationally there is a critical need for master's-level or doctoral-level professionals in the field of communicative disorders. Many individuals already holding bachelor's degrees who would like to pursue these professions are lacking the required undergraduate prerequisites needed to be considered for admission into graduate programs. The Department of Communicative Disorders and Deaf Education at Utah State University has developed an online second bachelor's degree program to help fulfill this need. In order to be accepted into this program, students must have received a bachelor's degree from an accredited U.S. or Canadian university in another discipline. This second bachelor's degree program consists of 12 COMD online courses. The entire program may be completed during three semesters, but can be "stretched out" over a longer period if desired. All courses will be taught on the Internet by Regional Campuses and Distance Education (RCDE).

A 3.0 cumulative GPA within the first bachelor's degree is **strongly recommended**. However, students having a GPA below 3.0 will still be considered for admission. All students should make note of the following policy:

Admission into graduate school programs is very competitive. A competitive grade point average from this second bachelor's degree program will greatly increase the likelihood of being admitted into graduate school. For this reason, students in USU's second bachelor's degree program must maintain at least a 3.0 GPA in order to continue in the program. Students who fall below the 3.0 GPA at the end of any semester will not be allowed to continue until they raise their GPA back to 3.0 or higher by retaking courses.

Applicants may transfer to USU up to 6 credits of undergraduate communicative disorders courses. These credits must have been completed as part of an ASHA accredited program. In order to use these courses to replace equivalent courses within USU's program, permission must be granted by USU's COMD advisor (Dee Child).

## Required Courses

It is **strongly recommended** (but not required) that the following courses be taken in the order shown below.

### Semester 1

COMD 2500 Language, Speech, and Hearing Development	3
COMD 3100 Fundamentals of Anatomy for Speech and Language	3
COMD 3500 Phonetics/Developmental Phonology	3
COMD 5100 Language Science	3

### Semester 2

COMD 3120 Disorders of Articulation and Phonology	3
COMD 3400 Acoustics and Anatomy of the Ear	3
COMD 3650 (CI) Clinical Processes and Behavior	2
COMD 5330 Pediatric Aural Rehabilitation	3

# Department of Communicative Disorders and Deaf Education

## Semester 3

COMD 3700 Basic Audiology .....	3
COMD 5070 Speech Science.....	3
COMD 5200 Language Assessment and Intervention for Children Birth to Age Five .....	3
COMD 5900 Independent Study: Observation/Graduate Preparation.....	2

## Option 2: Education of the Deaf and Hard of Hearing

Students admitted to the University in good standing may major in the composite degree in Deaf Education/Elementary Education (DEEE). Upon completion of 30 semester credits, students may apply for admission to the teacher education program. Admission criteria include a cumulative GPA of 2.75, a passing score on the Emma Eccles Jones College of Education and Human Services Writing Examination, a speech and hearing test, successful performance on the ACT exam, computer skills competency, and high potential as a teacher, as judged by performance in a small-group interview. Students must also complete the following courses prior to application: ELED 1010, ENGL 1010, FCHD 1500, MATH 1050, one Breadth American Institutions (BAI) course, one Breadth Physical Sciences (BPS) course, and one Breadth Humanities (BHU) or Breadth Creative Arts (BCA) course. Students who are accepted into the teacher education program may continue with the Deaf Education coursework, if they continue to improve in their use of American Sign Language, and if they continue to receive grades of no less than a B- in all of their COMD courses.

Students wishing to obtain licensure to teach the deaf and hard of hearing will need to complete the majority of the requirements for a teaching license in early childhood education, elementary education, secondary education, or special education.

## Suggested Schedule for Deaf Education/Elementary Education Composite Majors

Students wishing to obtain teacher certification in Elementary Education and Deaf Education must complete the undergraduate requirements for the composite major and complete a two-semester graduate program during which student teaching requirements are fulfilled. There is no certification available at the bachelors' degree level.

## Freshman Year (34 credits)

### Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
Breadth American Institutions (BAI) course (major approved) .....	3
Breadth Humanities (BHU) course (major approved).....	3
Breadth Life Sciences (BLS) course (major approved) .....	3
Breadth Physical Sciences (BPS) course (major approved) .....	3

### Spring Semester (19 credits)

COMD 2910 (CI) Sign Language I .....	4
ELED 1010 Orientation to Elementary Education .....	3
FCHD 1500 (BSS) Human Development Across the Lifespan.....	3
MATH 1050 (QL) College Algebra.....	4
HEP 3500 Elementary School Health Education (2 cr) or HEP 2000 First Aid and Emergency Care (2 cr).....	2
Breadth Creative Arts (BCA) course (major approved) .....	3

## Sophomore Year (36 credits)

### Fall Semester (18 credits)

#### Level II Courses (Students must be admitted to the program.)

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II.....	6
ELED 3005 Beginning Classroom Management.....	1
ELED 4005 Intermediate Classroom Management.....	1
SPED 4000 Education of Exceptional Individuals .....	2
PSY 3660 Educational Psychology for Teachers .....	2
INST 4010 Principles and Practices of Technology for Elementary Teachers.....	3
ELED 3100 Classroom Reading Instruction.....	3

### Spring Semester (18 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
Breadth Physical Sciences (BPS) course (major approved) .....	3
Breadth Social Sciences (BSS) course (major approved).....	3
MATH 2020 (QI) Introduction to Logic and Geometry (Prereq: C- or better in MATH 1050; or ACT of 25 or higher) .....	3
MUSC 3260 Elementary School Music .....	2
COMD 3910 Sign Language II .....	4

## Junior Year (34 credits)

### Fall Semester (18 credits)

STAT 1040 (QL) Introduction to Statistics .....	3
COMD 2500 Language, Speech, and Hearing Development.....	3
PEP 3050 Physical Education in the Elementary School .....	3
COMD 5610 Introduction to Education of the Deaf and Hard of Hearing .....	3
Depth Humanities and Creative Arts (DHA) Course.....	3
Depth Life and Physical Sciences (DSC) Course.....	3

### Spring Semester (16 credits)

COMD 3080 American Sign Language Practicum .....	1
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#### Level III in Elementary Education:

ELED 4000 Teaching Science and Practicum Level III .....	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3
ELED 4040 (CI) Assessment and Instruction for Struggling Readers.....	3
ELED 4050 Teaching Social Studies and Practicum Level III .....	3
ELED 4060 Teaching Mathematics and Practicum Level III.....	3

## Senior Year (32 credits)

### Fall Semester (16 credits)

COMD 4750 Teaching the English Language to Individuals who are Deaf and Hard of Hearing.....	3
COMD 4770 Audiology and Teachers of Children who are Deaf and Hard of Hearing.....	3
COMD 4780 Socio-Cultural Aspects of Deafness .....	3
COMD 4910 (CI) Sign Language III .....	4
COMD 5740 Teaching Reading to Deaf and Hard of Hearing Children .....	3

### Spring Semester (16 credits)

COMD 4630 Teaching Speech to Deaf and Hard of Hearing Children .....	3
COMD 4790 Psychological Principles and Individuals who are Deaf and Hard of Hearing.....	3
COMD 4920 Sign Language IV.....	4
COMD 5600 Classroom Teaching Using American Sign Language .....	3
COMD 5620 Teaching School Subjects to Students who are Deaf and Hard of Hearing.....	3

# Department of Communicative Disorders and Deaf Education

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For more information concerning graduation requirements and course sequencing, see the major requirement sheet, available from the Department of Communicative Disorders and Deaf Education, or online at: <http://www.usu.edu/majorsheets/>. Additional information may also be found at the departmental website: <http://www.cehs.usu.edu/comd/>

Because many of the undergraduate COMD-DE courses are taught in sequence, students should meet with a departmental advisor prior to beginning classes in the COMD-DE major to assure that the most efficient and effective schedule is followed. Students should also confer with a departmental advisor for information about changes in requirements or scheduling.

## Graduate Programs

### Admission Requirements

A bachelor's degree in Communicative Disorders or equivalent requirements must be completed before the student enters the graduate program. (Students already having a bachelor's degree in another area must *either* complete a second bachelor's degree in Communicative Disorders *or* take the undergraduate Communicative Disorders courses as postbachelor's courses.) The time required to complete the master of science degree is determined during the first semester of study by a temporary department committee consisting of professors from the student's direct field of study.

Students seeking the MEd with a specialization in education of the deaf and hard of hearing must have an undergraduate degree in early childhood, elementary, secondary, or special education. Students coming into the master's degree with a degree other than deaf education will need to plan on a two-year MEd program, while those coming directly through the USU curriculum will need to plan on a one-year master's degree program.

In addition to School of Graduate Studies admission requirements, students must demonstrate competency in American Sign Language, in order to be admitted to the education of the deaf and hard of hearing program.

Applications will be considered once a year between March 1 and March 15. However, students must have completed the application process to the School of Graduate Studies by February 15. No application will be considered until all the required information is submitted to the School of Graduate Studies.

## Doctorate of Audiology

The Department of Communicative Disorders and Deaf Education at Utah State University offers a clinical Doctorate of Audiology (AuD). The program provides students with a broad yet in-depth academic and practicum-based curriculum to prepare them for applied audiology in a variety of settings. Graduates have the skills to function at a high level of expertise in such environments as clinics, hospitals, private practice, research laboratories, hearing conservation programs, schools, the military, etc.

The program is a four-year post-baccalaureate residency program, the first of its kind in the Intermountain West and Pacific states. Utah State University is the birthplace of educational audiology. In addition, USU is in the forefront of research in telehealth applications in audiology. The AuD will enable graduates to enter the field at a professional level and begin a rewarding career of service in this evolving allied healthcare discipline.

The program meets the mandate of the American Speech-Language-Hearing Association (ASHA) to have audiology students move from master's-level to doctoral-level training as the entry-level requirement within the profession of audiology. Specifically, the AuD requires three years of coursework, one year of intensive clinical practicum, and a doctoral-level clinically-related project to meet the requirements currently recommended for the AuD by ASHA and the American Academy of Audiology (AAA). Students at USU will participate in didactic and experiential learning in clinical, educational, telehealth, and rehabilitative audiology.

## Course Requirements

### A. Required Courses

All requirements for the undergraduate major in Communicative Disorders and Deaf Education must be taken in addition to the following graduate courses:

COMD 6370 Educational Audiology (F).....	3
COMD 6780 Socio-Cultural Aspects of Deafness (F).....	3
COMD 7200 <sup>1</sup> Introduction to Clinical Practice (F,Sp,Su).....	4
COMD 7300 <sup>1</sup> Intermediate Clinical Practicum (F,Sp,Su).....	4
COMD 7310 Psychoacoustics and Instrumentation (F).....	3
COMD 7320 Amplification I (Sp).....	3
COMD 7340 Pediatric Audiology (F).....	3
COMD 7380 Advanced Audiology (F).....	2
COMD 7400 Advanced Clinical Practicum (F,Sp,Su).....	2
COMD 7410 Noise and Hearing Conservation (F).....	2
COMD 7420 Amplification II (F).....	3
COMD 7430 Electrophysiology (F).....	3
COMD 7460 Adult Aural Rehabilitation (Sp).....	3
COMD 7470 Educational Audiological Management and Audiologic Counseling (Sp).....	3
COMD 7490 Medical Aspects of Audiology (Sp).....	3
COMD 7530 Balance Evaluation and Management (Sp).....	3
COMD 7800 <sup>1</sup> Clinical Externship in Audiology (F,Sp,Su).....	12
COMD 7820 Clinical Research in Audiology (F).....	3
COMD 7850 <sup>1</sup> Externship Seminar (F,Sp,Su).....	6
COMD 7860 Practice Management in Audiology (Sp).....	3
COMD 7870 <sup>1</sup> Audiology Capstone Project (F,Sp,Su).....	12



# Department of Communicative Disorders and Deaf Education

EDUC 6570 Introduction to Educational and Psychological Research (F,Sp,Su).....	3
EDUC 6600 Research Design and Analysis I (F,Sp,Su).....	3

## B. Elective Courses

COMD 6680 SKI*HI Training (F,Sp,Su).....	1-3
SPED 6500 Interdisciplinary Workshop (F,Sp,Su).....	1-3

<sup>1</sup>In order to earn the required number of credits, students must take this course, which is repeatable for credit, during more than one semester.

## Graduate Courses in Audiology

### Year One:

#### Fall Semester

COMD 7200 Introduction to Clinical Practice.....	2
COMD 7310 Psychoacoustics and Instrumentation.....	3
COMD 7380 Advanced Audiology.....	2
COMD 7820 Clinical Research in Audiology.....	3

#### Spring Semester

COMD 5330 Pediatric Aural Rehabilitation (3 cr) or EDUC 6570 Introduction to Educational and Psychological Research (3 cr).....	3
COMD 7200 Introduction to Clinical Practice.....	2
COMD 7320 Amplification I.....	3
COMD 7340 Pediatric Audiology.....	3
COMD 7490 Medical Aspects of Audiology.....	3

#### Summer Semester

EDUC 6570 Introduction to Educational and Psychological Research.....	3
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### Year Two:

#### Fall Semester

COMD 7300 Intermediate Clinical Practicum.....	2
COMD 7420 Amplification II.....	3
COMD 7430 Electrophysiology.....	3
EDUC 6600 Measurement, Design, and Analysis I.....	3

#### Spring Semester

COMD 6370 Educational Audiology.....	3
COMD 7300 Intermediate Clinical Practicum.....	2
COMD 7460 Adult Aural Rehabilitation.....	3
COMD 7530 Balance Evaluation and Management.....	3
COMD 7820 Clinical Research in Audiology.....	3

#### Summer Semester (Optional)

COMD 7300 Intermediate Clinical Practicum.....	2
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## Master's Degrees

Generally, all students will complete the requirements as specified below. In some instances students will have had some of the coursework required in the graduate curriculum as part of the undergraduate training at another institution. In those cases, the program will be individualized to meet national licensure through the American Speech-Language-Hearing Association (ASHA) and state educational licensure from the State of Utah. In no instance will students amass fewer than 36 graduate credits.

At the end of their programs, all graduate students, except for those in education of the deaf and hard of hearing, must take the NTE examination in their area of specialty. This must be done before a letter of completion will be sent to the School of Graduate Studies. Students are required to list USU as a recipient of NTE test scores.

## Speech-Language Pathology

The program in speech-language pathology is accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association (ASHA). The Utah State Office of Education has also approved the program. Students completing the master's curriculum are eligible for certification from ASHA and licensure from the State of Utah Board of Education. Additionally, these students will have met the academic and practicum requirements for professional licensure from the State of Utah. Upon graduation, students are prepared for employment in both educational and health care settings, where qualified providers of diagnostic and treatment services for individuals with communicative disorders are needed.

## Course Requirements

### Graduate Courses in Speech-Language Pathology

#### Year One:

##### Fall Semester (15 credits)

COMD 6020 Language Assessment and Intervention for School-age Children and Adolescents.....	3
COMD 6100 Advanced Clinical Practicum in Speech-Language Pathology.....	3
COMD 6130 Neuropathologies of Speech and Language.....	4
COMD 6230 Introduction to Research in Communicative Disorders.....	3
COMD 6850 Seminar in Communicative Disorders and Deaf Education.....	2

##### Spring Semester (15 credits)

COMD 6100 Advanced Clinical Practicum in Speech-Language Pathology.....	3
COMD 6120 Adult Disorders of Motor Speech and Swallowing.....	4
COMD 6140 Pediatric Neurogenic Disorders.....	3
COMD 6150 Phonological Assessments and Intervention.....	3
COMD 6850 Seminar in Communicative Disorders and Deaf Education: School/Professional Program.....	2

##### Summer Semester (9-12 credits)

COMD 6220 Severe Communication Impairments.....	3
COMD 6300 Externship in Speech-Language Pathology.....	6-9

#### Year Two:

##### Fall Semester (14-15 credits)

COMD 6030 Disorders of Fluency—Stuttering.....	3
COMD 6040 Communication Disorders Related to Orofacial Anomalies.....	3
COMD 6200 Internship in Public Schools—Speech-Language Pathology.....	4-5
COMD 6810 Disorders of Phonation.....	3
COMD 6850 Seminar in Communicative Disorders and Deaf Education.....	1

##### Spring Semester (15 credits)

COMD 6300 Externship in Speech-Language Pathology.....	9-12
COMD 6900 Independent Study.....	1-9
COMD 6970 Thesis.....	1-7

# Department of Communicative Disorders and Deaf Education

## Education of the Deaf and Hard of Hearing

### Deaf Education—Teacher Preparation Track

The program in Education of the Deaf and Hard of Hearing is accredited by the Council on Education of the Deaf (CED) and is also approved by the Utah State Office of Education. Students completing this program may be licensed by the Utah State Board of Education as teachers of the deaf and hard of hearing and they also meet the requirements for licensure by CED. Students who complete the curriculum are prepared to provide services as teachers of the deaf and hard of hearing in any setting in which such services are provided.

The following courses or their equivalent are required for all students seeking the MEd in education of the deaf and hard of hearing:

<b>COMD 2500</b> Language, Speech, and Hearing Development (F,Sp).....	3
<b>COMD 2910 (CI)</b> Sign Language I (Majors) (F,Sp,Su).....	4
<b>COMD 3050</b> Practicum and Methods in Teaching Children who are Deaf and Hard of Hearing (F,Sp).....	1-3
<b>COMD 3080</b> American Sign Language Practicum (F,Sp).....	1
<b>COMD 3910</b> Sign Language II (F,Sp,Su).....	4
<b>COMD 4630</b> Teaching Speech to Deaf and Hard of Hearing Children (Sp).....	3
<b>COMD 4750</b> Teaching the English Language to Individuals who are Deaf and Hard of Hearing (F).....	3
<b>COMD 4760</b> Early Intervention for Children who are Deaf and Hard of Hearing (F).....	3
<b>COMD 4770</b> Audiology and Teachers of Children who are Deaf and Hard of Hearing (F).....	3
<b>COMD 4780</b> Socio-Cultural Aspects of Deafness (F).....	3
<b>COMD 4790</b> Psychological Principles and Individuals who are Deaf and Hard of Hearing (Sp).....	3
<b>COMD 4910 (CI)</b> Sign Language III (F,Sp).....	4
<b>COMD 4920</b> Sign Language IV (Sp).....	4
<b>COMD 5610</b> Introduction to Education of the Deaf and Hard of Hearing (F).....	3
<b>COMD 5620</b> Teaching School Subjects to Students who are Deaf and Hard of Hearing (Sp).....	3
<b>COMD 6430</b> Speech Communication and Hearing Loss (F).....	3
<b>COMD 6640</b> Strategies for Teaching Children who are Deaf and Hard of Hearing (F).....	3
<b>COMD 6650</b> Strategies for Teaching English Language to Children who are Deaf and Hard of Hearing (F).....	3
<b>COMD 6700</b> Practicum in Education of Children who are Deaf and Hard of Hearing (F,Sp,Su).....	1-3
<b>COMD 6800</b> Student Teaching—Day-School Program (F).....	6-12
<b>COMD 6820</b> Principles of Intervention for Children who are Deaf and Hard of Hearing (Sp).....	3
<b>COMD 6830</b> Student Teaching—Residential (Sp).....	6-12
<b>COMD 6850</b> Seminar in Communicative Disorders and Deaf Education (F,Sp,Su).....	1-3

### Deaf Education—Early Intervention Track

This early intervention program is for students wishing to work with families having deaf children who are between birth and 3 years of age. Students must have completed the necessary background in Early Childhood and Family, Consumer, and Human Development.

<b>COMD 3910</b> Sign Language II (F,Sp,Su).....	4
<b>COMD 4910 (CI)</b> Sign Language III (F,Sp).....	4
<b>COMD 5610</b> Introduction to Education of the Deaf and Hard of Hearing (F).....	3
<b>COMD 6630</b> Teaching Speech to Deaf and Hard of Hearing Children (Sp).....	3

<b>COMD 6700</b> Practicum in Education of Children who are Deaf and Hard of Hearing (F,Sp,Su).....	3
<b>COMD 6760</b> Early Intervention for Children who are Deaf and Hard of Hearing (F).....	3
<b>COMD 6770</b> Audiology and Teachers of Children who are Deaf and Hard of Hearing (F) (3 cr) <b>or</b>	
<b>COMD 7340</b> Pediatric Audiology (instructor's permission required) (F) (2-3 cr).....	2 or 3
<b>COMD 6780</b> Socio-Cultural Aspects of Deafness (F).....	3
<b>COMD 6960</b> Master's Project (F,Sp,Su).....	4
<b>SPED 5060</b> Consulting with Parents and Teachers (instructor's permission required) (Sp).....	3
<b>SPED 5710</b> Young Children with Disabilities: Characteristics and Services (taught online; register through Regional Campuses and Distance Education).....	3
<b>SPED 5730</b> Intervention Strategies for Young Children with Disabilities (instructor's permission required) (F).....	3

In order to earn the MEd from the Education of the Deaf and Hard of Hearing program, the student must (1) pass a sign language competency examination, (2) complete a creative project, or (3) pass a comprehensive written and oral examination. The candidate must also demonstrate the ability to teach children who are deaf and/or hard of hearing in a variety of settings.

## Educational Specialist Degree

The department offers an Educational Specialist (EdS) program that can be individualized to suit a candidate's need within a basic structure of educational audiology or speech-language pathology and with foci on research, supervision, and evaluation. The program is designed for those individuals who have completed the master's degree and who are practicing in educational settings. The degree requires a minimum of 30 credits beyond the master's degree and may be completed in part through coursework in the summer and extension study and research in conjunction with the individual's workplace.

## Auditory Learning and Spoken Language for Children with Hearing Loss

### Program Rationale

Today, with universal newborn hearing screening, early diagnosis, fitting of advanced hearing technology (such as digital hearing aids and cochlear implants), and enrollment in early intervention and preschool programs, children with hearing loss have more opportunities than ever before to use audition to develop spoken language. Rapid progress in these areas has created a critical shortage of appropriately trained professionals who can meet the unique communicative and learning needs of children with permanent hearing loss and their families.

The Department of Communicative Disorders and Deaf Education at Utah State University, recognizing the opportunity to provide in-depth training to graduate students in Audiology, Speech-Language Pathology, and Deaf Education, has developed an innovative training program for these graduate programs. In addition to the standard coursework and requirements for a master's degree (MS) in Speech-Language Pathology or a Doctor of Audiology (AuD) degree, students can take additional courses and complete specialized practica and field-study experiences to develop specific knowledge and skills in the practice of pediatric audiology, auditory-verbal therapy, and auditory-oral education for children with hearing loss, aged birth through six, and their families.

# Department of Communicative Disorders and Deaf Education

Students who have completed a composite bachelor's degree in Special Education/Early Childhood Education can receive a master's degree in Special Education with an emphasis in auditory learning and spoken language. This specialized training program for educators is a joint effort between the Department of Communicative Disorders and Deaf Education and the Department of Special Education and Rehabilitation.

**Sound Beginnings of Cache Valley**, a newly established early intervention program and preschool, serves as the primary training site for graduate students and provides a range of practicum placements and experiences, such as audiology diagnostics, auditory-verbal therapy sessions, speech-language therapy, parent-infant intervention, toddler group intervention, and auditory-oral education within the preschool. Further information, can be found at:  
<http://www.soundbeginnings.usu.edu/>

The program is built on a strong foundation of interdisciplinary service provision to young children with hearing loss and their families. Therefore, regardless of their major, students enrolled take courses together and are often assigned as teams in practica settings and field study projects. Best practices and guiding principles in family-centered intervention, early childhood education, deaf education, speech-language pathology, and audiology are incorporated throughout the program.

## Practicum and Externship Experiences

All students completing the program will be placed at local and in-state facilities, such as Sound Beginnings of Cache Valley and Primary Children's Cochlear Implant Center, as well as at innovative, nationally recognized programs or schools serving children with hearing loss who are acquiring spoken language, such as:

1. Auditory Oral School of New York (Brooklyn, New York)
2. CASTLE Program (University of North Carolina at Chapel Hill)
3. CREC Soundbridge (Wethersfield, Connecticut)
4. Jean Weingarten Oral Peninsula School for the Deaf (San Francisco, California)
5. Listen and Talk (Seattle, Washington)
6. Tucker-Maxon Oral School for the Deaf (Portland, Oregon)
7. Saticoy Elementary School (Los Angeles, California)
8. Hearts for Hearing Foundation (Oklahoma City, Oklahoma)
9. The Moog Center for Deaf Children (St. Louis, Missouri)

## Creating Additional Professional Opportunities

Due to the ongoing changes within the field of deafness and the fact that approximately 95 percent of parents having children with hearing loss are hearing themselves, parents are increasingly seeking spoken language communication options and intervention programs that will allow their young children with hearing loss to learn to listen and talk. By completing an emphasis in Auditory Learning and Spoken Language, students receiving graduate degrees in Speech-Language Pathology or Audiology will be qualified to work in a variety of settings serving young children with hearing loss and their families, including but not limited to:

1. Cochlear Implant Programs and Teams
2. Community Speech-Language-Hearing Centers
3. Family-Centered Intervention Programs
4. Educational Programs for Children with Hearing Loss

5. Home Health Organizations
6. Hospitals
7. Private Practice
8. Public and/or Private Schools
9. State and Federal Agencies

## Funding for Students

Through generous funding from private foundations, federal and state grants, and University resources, graduate students accepted into the program are eligible for scholarships that include tuition and a monthly stipend. Students will be asked to sign a "payback agreement" stipulating that after graduation they will work in settings serving children with hearing loss and their families. They will be required to work in the field one year for each year of funding (e.g., two years of funding requires two years of work), and the graduate must begin this commitment within five years of graduation.

## Required Courses

<b>COMD 6320</b> Language Learning and Literacy Acquisition in Children with Hearing Loss (Su) .....	3
<b>COMD 6340</b> Auditory Learning and Spoken Language for Young Children with Hearing Loss (F,Sp,Su) .....	3
<b>COMD 6630</b> Teaching Speech to Deaf and Hard of Hearing Children (Sp).....	3
<b>COMD 6700</b> Practicum in Education of Children who are Deaf and Hard of Hearing (F,Sp,Su) .....	3
<b>COMD 6850</b> Seminar: Auditory Learning and Spoken Language (F,Sp,Su) .....	1
<b>COMD 6900</b> Independent Study: Family-Centered Practices for Children with Hearing Loss (F,Sp,Su) .....	3
<b>COMD 6900</b> Independent Study: Multiple Disabilities and Hearing Loss in Children (F,Sp,Su) .....	3
<b>COMD 6900</b> Independent Study: Cochlear Implantation (F,Sp,Su).....	2
<b>COMD 6950</b> Practicum in Early Intervention: Externship in Auditory Learning and Spoken Language (F,Sp) .....	1-6
<b>COMD 7340</b> Pediatric Audiology (F,Sp,Su).....	2

## Clinical Assignments/Practicum

Students are expected to complete approximately 10 hours of practicum-related experience per week. This estimate will fluctuate slightly based on the number of children enrolled in Sound Beginnings. During Fall Semester 2008, students averaged 6.5 hours of direct contact time, and another two hours each week were used for planning the sessions.

For more information about the Graduate Studies Program in Auditory Learning and Spoken Language, contact Dr. Todd Houston, Director, at [todd.houston@usu.edu](mailto:todd.houston@usu.edu) or at (435) 797-0434.

## Communicative Disorders and Deaf Education Research Requirements

Several options are available for graduate students to complete the research or special project required for the MS or MEd. These options are specified in the list of requirements available in the department office, and include for the MS the traditional Plan A experimental thesis option, as well as the Plan B integrative review option or creative project option. Declaration of an option must be made at the time the student files an Application for Candidacy form with the School of Graduate Studies. Changes in the option will necessitate a complete revision and review of the Application for Candidacy by the student's supervisory committee.

# Department of Communicative Disorders and Deaf Education

## Licensure

Each undergraduate and graduate student is advised on which classes will meet Utah State Office of Education and American Speech-Language-Hearing Association licensure requirements, as well as Utah State Professional Licensure requirements. State Office of Education licensure credentials within Utah include approval for audiology, speech-language pathology, and education of the deaf and hard of hearing. Graduation from any of these graduate programs ensures the student may be licensed in Utah. Such licensure facilitates meeting other requirements for other states, because of reciprocal agreements that exist among some state educational agencies throughout the country.

## Practicum Opportunities

Practicum experience at the graduate level is available in a variety of settings. The department maintains a Speech-Language-Hearing Center offering a full range of diagnostic and remedial services to individuals with speech-language or hearing disabilities. Additionally, students are assigned to off-campus practicum sites such as hospitals, schools for the deaf, long-term and rehabilitation care centers, clinics, physician's offices, and public schools. Placement in out-of-state practicum sites is available for those students who request it. Students may also be placed at the Center for Persons with Disabilities for experience in birth to age three services. **Students must be enrolled in clinical practicum each semester of their graduate program.**

## Financial Assistance

Limited departmental and federal grant support is available to graduate students and is awarded on a competitive basis. The application form for financial support must be submitted to the department no later than March 1 for consideration for the coming year.

## Career Opportunities

Audiology graduates are prepared to work as clinical, educational, and rehabilitative audiologists. Speech-Language-Pathology graduates are prepared to work in a variety of medical, rehabilitation, and educational settings. Graduates in the area of Education of the Deaf are trained to work in total communication, bilingual/bicultural, and auditory-aural settings.

## Additional Information

Specific details about each of the foregoing degree programs are outlined in policy and procedure documents available through the department. All requirements are subject to change; check with the department for current requirements. Additional information may be obtained by contacting the Department of Communicative Disorders and Deaf Education.

## Communicative Disorders and Deaf Education Faculty

### Trustee Professor

*Carol J. Strong*, Dean, Emma Eccles Jones College of Education and Human Services; language development, language assessment and intervention, language disorders in school-age students, research methodology in communicative disorders, narrative assessment and literature-based language intervention

### Lillywhite Endowed Chair and Professor

*Ron Gillam*, language development, language assessment and intervention, narrative development, memory, phonological representation

### Professors

*James C. Blair*, educational audiology, education of the deaf and hard of hearing

*J. Freeman King*, American Sign Language, linguistics, teacher preparation

### Adjunct Clinical Professors

*Jeffrey Bennion*, MD, otolaryngologist

*James Blotter*, MD, otolaryngologist

*Jeffrey Keyser*, MD, otolaryngologist

*Bryan R. Larsen*, MD, gastroenterologist

*Gordon S. Wood*, MD, otolaryngologist

### Associate Professors

*Kim Corbin-Lewis*, diagnosis and management of voice disorders, laryngeal imaging, speech science, disorders of motor speech, dysphagia, anatomy and physiology of speech and swallow

*Beth E. Foley*, neuropathologies of speech and language, augmentative/alternative communication, language and literacy

*Sandi Gillam*, language assessment and intervention, evidence-based practice, text comprehension, memory, language difference, phonology

*Sonia S. Manuel-Dupont*, nondiscriminatory educational assessment of non-English-language background children, Native American language assessment, emergent literacy, ethnic literacy, developmental phonology, syntax, professional and scientific discourse analysis

*John E. Ribera*, medical audiology, amplification, hearing science, telemedicine, hearing conservation, balance studies

### Adjunct Associate Professor

*Douglas W. Laws*, clinical audiology

### Assistant Professors

*Debbie Golos*, bilingual-bicultural deaf education, emergent literacy, ASL development, educational television, children's media

*K. Todd Houston*, spoken language acquisition in children with hearing loss, habilitation after cochlear implantation, early intervention, speech and hearing sciences, family-centered practices, adult aural rehabilitation

*Jeffery Larsen*, classroom acoustics, speech perception

*Jaclyn Littledike*, orofacial anomalies, professional practice issues, and clinical supervision

*Karen Muñoz*, pediatric audiology, amplification, clinical audiology

*Lauri Nelson*, early childhood spoken language, academic achievement in young children with cochlear implants and hearing aids

*Susan Watkins*, early intervention programs, sensory impaired infants and toddlers

*Julie Wolter*, school-age language, literacy

### Clinical Assistant Professors

*Cache Pitt*, cochlear implants, pediatric audiology, clinical supervision

*Vicki Simonsmeier*, pediatric neurogenic disorders, oral-motor dysphagia, early intervention programs, audiology, auditory processing, clinical supervision

### Clinical Instructors

*Jill R. Andrus*, assistive technology, augmentative communication, child articulation and language disorders, clinical supervision

*Natalie Austin*, early intervention in deaf education

# Department of Communicative Disorders and Deaf Education

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*Chad Bingham*, pediatric brain injury, limited English proficiency, augmentative/assistive technology, clinical supervision  
*Dee R. Child*, distance education, disorders of phonation  
*Anne Elsweller*, fluency, preschool language and articulation, clinical supervision  
*Kathryn S. Gantz*, speech-language pathology  
*Heather Jo Jensen*, clinical supervision, amplification, medical audiology  
*Jan Kelley-King*, American Sign Language, deaf education  
*Amy Porter*, clinical supervision, pediatric/adult diagnostics and amplification, balance assessment

## Lecturer

*Curt Radford*, American sign language, bilingual/bicultural education, teacher preparation

## Course Descriptions

Communicative Disorders and Deaf Education (COMD),  
pages 531-536

# Department of Computer Science

**Department Head:** Donald H. Cooley

**Location:** Main 414

**Phone:** (435) 797-2451

**FAX:** (435) 797-3265

**E-mail:** [usucs@cs.usu.edu](mailto:usucs@cs.usu.edu)

**WWW:** <http://www.cs.usu.edu/>

## **Associate Head and Coordinator for Graduate Programs in Computer Science:**

Stephen J. Allan, Main 420, (435) 797-2587, [steve.allan@usu.edu](mailto:steve.allan@usu.edu)

## **Undergraduate Advisor:**

Myra Cook, Main 424, (435) 797-8019, [myra.cook@usu.edu](mailto:myra.cook@usu.edu)

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), and Doctor of Philosophy (PhD) in Computer Science; Master of Computer Science (MCS)

**Undergraduate emphases:** BS, BA—Science, Digital Systems, Software Development, Bioinformatics, Information Technology

**Graduate specializations:** MS—Artificial Intelligence, Information Systems, Parallel Systems, Software Engineering

**Accreditation:** The Computer Science undergraduate program (Science, Digital Systems, Bioinformatics, and Software Development emphases) is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700.

## **Undergraduate Programs**

### **Objectives**

The core objective of the department is to fulfill its mission, as defined in its mission statement. A detailed description of all department objectives is given under the department's website:

<http://www.cs.usu.edu/>. The outcome objectives for undergraduates are as follows.

### **Learning Objectives: Undergraduate Outcomes**

All students graduating with a bachelor's degree in Computer Science from Utah State University will be expected to show mastery in the following.

1. Graduates will be proficient in programming in at least two programming languages that have significance in industry.
2. Graduates will master the core curriculum in:
  - a. Data Structures and Algorithms
  - b. Computer Architecture and Organization
  - c. Programming Languages
  - d. Operating Systems
  - e. Software Engineering
3. Graduates will understand the practices and dynamics required to develop software, whether it be a single program or a major software product developed in a team environment.
4. Graduates will gain proficiency in the use of mathematical tools, including calculus, elementary statistics, and probability.
5. Graduates will have sufficient mastery of fundamental knowledge to be lifelong learners in computer science.

6. Graduates will understand the social and ethical issues that face computer scientists, and thus be able to contribute in a positive and productive manner to society.
7. Graduates will be able to communicate information effectively, both in writing and orally.

The course of study offered by the Department of Computer Science is directed primarily toward developing the problem-solving skills of its students. This, in conjunction with the understanding of computers and computer systems provided by coursework, will enable a graduate of the program to apply his or her knowledge to finding solutions to problems that arise in the science, business, industry, government, and education sectors.

Students who have the ability to think analytically and creatively will find a challenging and exciting future in computer science.

Opportunities for practical applications of computer science skills are available with members of the computer science faculty who are engaged in research and consultation work both on and off campus.

### **Assessment**

The Computer Science Department has an ongoing assessment process that it highly values. Faculty members devote much of their time and resources to frequent assessment of the level or degree to which stated objectives are being met, the objectives themselves, and the departmental mission statement. The department then uses these results to establish priorities and guide the program. For further information, go to <http://www.cs.usu.edu/>, and click on **assessment**.

### **Computer Science**

Computer Science deals with information structures and processes as they are represented and implemented in modern high-speed digital computers, and with information processing systems designed to implement useful applications of computing.

The program in computer science attempts to provide a solid foundation of knowledge about computers and to teach a mode of thinking that will permit continuing growth on the part of graduates. Prospective students should have an aptitude for mathematics and logic and an interest in analysis and deduction.

Computer science is one of the fastest growing fields of study in our society. Excellent employment opportunities are available to computer science graduates. All of the major corporations hire computer science graduates. Graduates in Computer Science work for numerous Utah-based corporations, as well as Microsoft, IBM, Hewlett-Packard, etc.

The Computer Science bachelor's degree is a four-year degree with areas of emphasis in Science, Digital Systems, Software Development, Bioinformatics, and Information Technology. In addition, by working with a departmental advisor, students may develop a plan of study tailored to their own unique career objectives.

### **Science Emphasis**

The Science Emphasis (SC) is designed for those who plan to pursue scientific or technical careers, research, or graduate education in computer science. Students choosing the science emphasis will take courses in programming languages, advanced algorithms, and math courses in calculus, linear analysis, and multi-variable calculus. Additional courses include a variety of upper-division computer science courses, chosen in consultation with an advisor. This emphasis might be termed the "typical" computer science degree.

# Department of Computer Science

## Digital Systems Emphasis

The Digital Systems Emphasis is available for those interested in both the hardware and software aspects of computer systems. In addition to computer science and mathematics courses, students in this emphasis will take electrical engineering courses in electronics, circuits, digital fundamentals, microcomputer systems, and digital system design. The curriculum for students in this emphasis is similar to that for students in the computer engineering major in the Electrical and Computer Engineering Department.

## Bioinformatics Emphasis

The Bioinformatics Emphasis is designed for students who wish to pursue careers in the computer science aspects of bioinformatics. Students in this emphasis gain a strong background in core computer science areas, such as programming, theory of computing, and software development. In addition, they follow a course of study in biology, chemistry, and statistics. Through this background and course of study, students are provided with the computational skills and the scientific understanding necessary for work in bioinformatics.

## Software Development Emphasis

The Software Development Emphasis (SD) is designed to give students expertise in all major areas of software engineering, including project management, development processes, group work, requirement capture and analysis, software design, programming, testing, standards, and documentation. Students completing this option are prepared to create sophisticated, reliable, and secure software for a broad range of applications. Students in this option take courses in computer science emphasizing software development processes, conceptual modeling, database design, testing, and security, along with broadening courses in operations research, statistics, and management.

## Information Technology Emphasis

The Information Technology Emphasis trains students in all phases of analysis, design, and implementation of information technology. It also gives students expertise in the theory and application of information technology. At the same time, this emphasis provides students with a strong background in business principles, including accounting, finance, marketing, and human resource management. Students in the Information Technology emphasis are prepared for careers that straddle information technology and business, in both the private and public sectors. Students are trained in all phases of the analysis, design, and implementation of information systems. They also gain an understanding of business fundamentals. Thus, students are prepared to apply their computing expertise in a business environment.

## Undergraduate Research

The Computer Science Department provides opportunities for undergraduates to participate in research projects. Additionally, a student may register for CS 4950 (Undergraduate Research, 1-4 credits) to receive credit for their research. To learn about research opportunities, students should contact Computer Science faculty members. Students may work on a project of their own under faculty supervision, or they may do research as part of a faculty member's research team. For further information, contact Dan Watson, the department's coordinator of undergraduate research, at (435) 797-2440 or dan.watson@usu.edu.

## Department and General College of Science Requirements

To fulfill the University Studies requirements, majors in computer science must complete a total of at least 30 semester credits in writing, languages, humanities, arts, and/or social sciences. Courses taken to meet the University Studies requirements, if applicable, may also be counted to meet this departmental requirement. Students must work closely with their advisor to meet both these requirements.

## Bachelor of Science Core Requirements

Students working toward the Bachelor of Science degree in Computer Science must complete the following:

1. One year of calculus, including MATH 1210 and 1220. *Students in the Information Technology Emphasis may substitute MATH 1100.*
2. MATH 3310 (Discrete Mathematics). *Not required for students in the Information Technology Emphasis.*
3. One of the following year-long science sequences: (1) BIOL 1610, 1620 (required for Bioinformatics Emphasis); (2) CHEM 1210, 1215, 1220, 1225; (3) PHYS 2210, 2220 (required for Digital Systems Emphasis); (4) PHYS 2110, 2120 (available for Information Technology Emphasis only); or (5) GEO 1110, 3200. The sequence chosen must be outside the student's department.

Except for students enrolled in the Information Technology Emphasis, all Computer Science majors must complete at least 11 advisor-approved science credits. The year-long science sequence is included in these 11 credits.

## Requirements

### Summary of Departmental Admission and Retention Requirements

Admission requirements of the Department of Computer Science for freshmen are the same as those described for the University on pages 30-35. Transfer students with a 2.0 GPA may apply for admission to the department.

Before a student can register for a Computer Science course, he or she must earn a grade of C- or better in all prerequisite courses. All required classes for the major must be completed with a grade of C- or better. Required courses, regardless of department, may not be taken pass-fail, and a Computer Science major must have advanced standing or written permission to register for Computer Science courses or Electrical and Computer Engineering courses at the 3000-level or above.

In addition to completing the required courses listed below, students must comply with the following regulations, in order to graduate with a bachelor's degree in Computer Science.

1. Students must maintain a minimum cumulative GPA of 2.0. The cumulative GPA will be computed using all USU credits, as well as transfer credits (if those transfer credits are applied to any USU requirements, including major requirements).
2. Students must attain a minimum grade of C- in all courses fulfilling Computer Science major requirements.

# Department of Computer Science

3. Students may have *no more than one* 5000-level Computer Science course with a grade less than C- on their transcript.

## Courses Required for Advanced Standing

Students must achieve a minimum cumulative GPA of 2.0 and a minimum GPA of 2.0 (or grade of C- or better) among courses in one of the following core emphasis course sequences, or their equivalent, as determined by the Computer Science Department:

### Science Emphasis

<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 2810</b> Computer Systems Organization and Architecture I (F,Sp)....	3
<b>CS 3000</b> Undergraduate Seminar (F,Sp).....	1
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3

### Digital Systems Emphasis

<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 3000</b> Undergraduate Seminar (F,Sp).....	1
<b>ECE 2700</b> Digital Circuits (F,Sp).....	4
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3

### Software Development Emphasis

<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 2810</b> Computer Systems Organization and Architecture I (F,Sp)....	3
<b>CS 3000</b> Undergraduate Seminar (F,Sp).....	1
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3

### Bioinformatics Emphasis

<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 2810</b> Computer Systems Organization and Architecture I (F,Sp)....	3
<b>CS 3000</b> Undergraduate Seminar (F,Sp).....	1
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3

### Information Technology Emphasis

<b>CS 1030 (BPS)</b> Foundations of Computer Science (F,Sp,Su).....	3
<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 2810</b> Computer Systems Organization and Architecture I (F,Sp)....	3
<b>CS 3000</b> Undergraduate Seminar (F,Sp).....	1
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su).....	3

For a more complete statement of requirements, please contact the department directly. Requirements may change from time to time.

## Bachelor of Science Degree

The department offers a degree program with emphases in Science, Digital Systems, Software Development, Bioinformatics, and Information Technology. The objectives are to train computer scientists who can relate to science, computer design, or information-based business disciplines. Other areas of emphasis will be considered on an individual basis.

### First Semester Schedule (15 credits)

Depending upon emphasis, a new student's first semester schedule is configured from the following:

<b>CS 1400</b> Introduction to Computer Science—CS 1.....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab.....	1
<b>MATH 1210 (QL)</b> Calculus I ( <i>for Science, IS, DS, or BI Emphasis</i> ) (4 cr) or	
<b>MATH 1100 (QL)</b> Calculus Techniques ( <i>for IT Emphasis</i> ) (3 cr) ....	3 or 4
University Studies courses .....	7-8

## COMPUTER SCIENCE REQUIRED COURSES

### Science Emphasis

In addition to the Department and General College of Science Requirements stated above, students in the science emphasis must complete the following courses:

<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 2810</b> Computer Systems Organization and Architecture I (F,Sp)....	3
<b>CS 3000</b> Undergraduate Seminar (F,Sp).....	1
<b>CS 3100</b> Operating Systems and Concurrency (F,Sp).....	3
<b>CS 3410 (QI)</b> Computational Science: JAVA/Internet (F,Sp,Su) (3 cr) or	
<b>CS 3420 (QI)</b> Computational Science: C# and .NET (F,Sp,Su) (3 cr) or	
<b>CS 3430 (QI)</b> Computational Science: Python and Perl Programming (Sp,Su) (3 cr) .....	3
<b>CS 3450</b> Introduction to Software Engineering II (F).....	3
<b>CS 3810</b> Computer Systems Organization and Architecture II (F,Sp)....	3
<b>CS 4700</b> Programming Languages (F,Sp).....	3
<b>CS 5050</b> Advanced Algorithms (F,Sp).....	3
<b>CS 5070</b> Computer Science Capstone (F,Sp,Su).....	1
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 2210 (QI)</b> Multivariable Calculus (F,Sp,Su).....	3
<b>MATH 2250 (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su) .....	4
Or (MATH 2250; or MATH 2270 and 2280)	
<b>MATH 2270 (QI)</b> Linear Algebra (3 cr) and	
<b>MATH 2280 (QI)</b> Ordinary Differential Equations (3 cr).....	6
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3
<b>MATH 5610</b> Computational Linear Algebra and Solution of Systems of Equations (F) (3 cr) or	
Advisor-approved elective course (3 cr).....	3
<b>PHIL 1120 (BHU)</b> Social Ethics (F) (3 cr) or	
<b>PHIL 2400 (BHU)</b> Ethics (Sp) (3 cr) or	
<b>PHIL 3520 (DHA)</b> Business Ethics (Sp) (3 cr) or	
<b>PHIL 4530 (DSC)</b> Ethics and Biotechnology (Sp) (3 cr) or	
<b>PHIL 4540 (DHA)</b> Human Values and Information Technology (Sp) (3 cr) .....	3
<b>SPCH 1020 (CI)</b> Public Speaking (F,Sp) (3 cr) or	
<b>ENGL 3080 (CI)</b> Introduction to Technical Communication (F, Sp) (3 cr) .....	3



# Department of Computer Science

**STAT 3000 (QI)** Statistics for Scientists (F,Sp,Su) (3 cr) **or**  
**MATH 5710** Introduction to Probability (F,Sp) (3 cr) ..... 3  
 Advisor-approved computer science classes numbered 5000  
 or above ..... 10  
 In addition, students must complete 3 credits at the 3000 level or  
 higher, appropriate to the degree.

## Digital Systems Emphasis

In addition to the Department and General College of Science  
 Requirements stated above, students in the digital systems emphasis  
 must complete the following courses:

<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	3
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 3000</b> Undergraduate Seminar (F,Sp).....	1
<b>CS 3100</b> Operating Systems and Concurrency (F,Sp).....	3
<b>CS 3410 (QI)</b> Computational Science: JAVA/Internet (F,Sp,Su) (3 cr) <b>or</b>	3
<b>CS 3420 (QI)</b> Computational Science: C# and .NET (F,Sp,Su) (3 cr) <b>or</b>	3
<b>CS 3430 (QI)</b> Computational Science: Python and Perl	
Programming (Sp,Su) (3 cr) .....	3
<b>CS 3450</b> Introduction to Software Engineering II (F).....	3
<b>CS 4700</b> Programming Languages (F,Sp).....	3
<b>CS 5050</b> Advanced Algorithms (F,Sp).....	3
<b>CS 5070</b> Computer Science Capstone (F,Sp,Su).....	1
<b>ECE 2250</b> Electrical Circuits (F,Sp).....	4
<b>ECE 2700</b> Digital Circuits (F,Sp).....	4
<b>ECE 3710</b> Microcomputer Hardware and Software (F,Sp).....	4
<b>ECE 3720</b> Microcomputer Systems Programming (Sp).....	3
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 2250 (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su).....	4
Or (MATH 2250; or MATH 2270 and 2280)	
<b>MATH 2270 (QI)</b> Linear Algebra (3 cr) <b>and</b>	
<b>MATH 2280 (QI)</b> Ordinary Differential Equations (3 cr).....	6
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3
<b>PHIL 1120 (BHU)</b> Social Ethics (F) (3 cr) <b>or</b>	
<b>PHIL 2400 (BHU)</b> Ethics (Sp) (3 cr) <b>or</b>	
<b>PHIL 3520 (DHA)</b> Business Ethics (Sp) (3 cr) <b>or</b>	
<b>PHIL 4530 (DSC)</b> Ethics and Biotechnology (Sp) (3 cr) <b>or</b>	
<b>PHIL 4540 (DHA)</b> Human Values and Information Technology	
(Sp) (3 cr) .....	3
<b>SPCH 1020 (CI)</b> Public Speaking (F,Sp) (3 cr) <b>or</b>	
<b>ENGL 3080 (CI)</b> Introduction to Technical	
Communication (F, Sp) (3 cr) .....	3
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) .....	3
Advisor-approved computer science classes numbered 5000 or above .....	10

## Software Development Emphasis

In addition to the Department and General College of Science  
 Requirements stated above, students in the software development  
 emphasis must complete the following courses:

<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 2810</b> Computer Systems Organization and Architecture I (F,Sp).....	3
<b>CS 3000</b> Undergraduate Seminar (F,Sp).....	1
<b>CS 3100</b> Operating Systems and Concurrency (F,Sp).....	3
<b>CS 3450</b> Introduction to Software Engineering II (F).....	3
<b>CS 3810</b> Computer Systems Organization and Architecture II (F,Sp).....	3
<b>CS 4700</b> Programming Languages (F,Sp).....	3
<b>CS 5050</b> Advanced Algorithms (F,Sp).....	3

<b>CS 5070</b> Computer Science Capstone (F,Sp,Su).....	1
<b>ECN 1500 (BAI)<sup>1</sup></b> Introduction to Economic Institutions, History, and	
Principles (F,Sp,Su).....	3
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3
<b>MGT 3080 (QI)</b> Operations Research (F,Sp).....	3
<b>MGT 3110 (DSS)<sup>2</sup></b> Managing Organizations and People (F,Sp,Su).....	3
<b>PHIL 1120 (BHU)</b> Social Ethics (F) (3 cr) <b>or</b>	
<b>PHIL 2400 (BHU)</b> Ethics (Sp) (3 cr) <b>or</b>	
<b>PHIL 3520 (DHA)</b> Business Ethics (Sp) (3 cr) <b>or</b>	
<b>PHIL 4530 (DSC)</b> Ethics and Biotechnology (Sp) (3 cr) <b>or</b>	
<b>PHIL 4540 (DHA)</b> Human Values and Information Technology	
(Sp) (3 cr) .....	3
<b>SPCH 1020 (CI)</b> Public Speaking (F,Sp) (3 cr) <b>or</b>	
<b>ENGL 3080 (CI)</b> Introduction to Technical	
Communication (F, Sp) (3 cr) .....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su).....	4
Advisor-approved computer science class numbered 3000 or above .....	3
Advisor-approved computer science classes numbered 5000 or above .....	10

**The Software Development Emphasis also requires completion of  
 two of the following three courses (6 credits)**

<b>CS 3410 (QI)</b> Computational Science: JAVA/Internet (F,Sp,Su).....	3
<b>CS 3420 (QI)</b> Computational Science: C# and .NET (F,Sp,Su).....	3
<b>CS 3430 (QI)</b> Computational Science: Python and Perl	
Programming (Sp,Su).....	3

**The Software Development Emphasis requires the following two  
 courses. These two courses are included in the 10 credits for this  
 category.**

<b>CS 5700</b> Object-Oriented Software Development (F).....	3
<b>CS 5800</b> Introduction to Database Systems (F).....	3

<sup>1</sup> ECN 1500 fulfills the University Studies Breadth American Institutions (BAI) requirement.

<sup>2</sup> MGT 3110 fulfills the University Studies Depth Social Science (DSS) requirement.

## Bioinformatics Emphasis

In addition to the Department and General College of Science  
 Requirements stated above, students in the bioinformatics emphasis  
 must complete the following courses:

<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su).....	4
<b>CHEM 1110 (BPS)</b> General Chemistry I (F,Sp).....	4
<b>Or</b> (CHEM 1110; or CHEM 1210 and 1215)	
<b>CHEM 1210</b> Principles of Chemistry I (F,Sp) (4 cr) <b>and</b>	
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp) (1 cr).....	5
<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 2810</b> Computer Systems Organization and Architecture I (F,Sp).....	3
<b>CS 3000</b> Undergraduate Seminar (F,Sp).....	1
<b>CS 3100</b> Operating Systems and Concurrency (F,Sp).....	3
<b>CS 3410 (QI)</b> Computational Science: JAVA/Internet (F,Sp,Su) (3 cr) <b>or</b>	3
<b>CS 3420 (QI)</b> Computational Science: C# and .NET (F,Sp,Su) (3 cr) <b>or</b>	3
<b>CS 3430 (QI)</b> Computational Science: Python and Perl	
Programming (Sp,Su) (3 cr) .....	3
<b>CS 3450</b> Introduction to Software Engineering II (F).....	3
<b>CS 3810</b> Computer Systems Organization and Architecture II (F,Sp).....	3
<b>CS 4700</b> Programming Languages (F,Sp).....	3
<b>CS 5050</b> Advanced Algorithms (F,Sp).....	3
<b>CS 5070</b> Computer Science Capstone (F,Sp,Su).....	1
<b>CS 5660</b> Bioinformatics I (F).....	3

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<b>CS 5670</b> Bioinformatics II (Sp).....	3
<b>CS 5800</b> Introduction to Database Systems (F).....	3
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su).....	3
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 2250 (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su) (4 cr) or	
<b>MATH 2270 (QI)</b> Linear Algebra (F) (3 cr).....	3 or 4
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3
<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su).....	4
<b>BIOL 3100 (CI)</b> Bioethics (Sp).....	3
<b>CHEM 1110 (BPS)</b> General Chemistry I (F,Sp) (4 cr) or	
<b>CHEM 1210</b> Principles of Chemistry (F,Sp) (4 cr).....	4
<b>SPCH 1020 (CI)</b> Public Speaking (F,Sp) (3 cr) or	
<b>ENGL 3080 (CI)</b> Introduction to Technical Communication (F, Sp) (3 cr).....	3
Advisor-approved elective courses.....	12-13
Prior written advisor approval is required for electives. As part of their electives in this emphasis, students are strongly encouraged to include the following Chemistry sequence: CHEM 1210 (or 1220), 2300 (or 2310), and 3700.	
<b>Information Technology Emphasis</b>	
In addition to the Department and General College of Science Requirements stated above, students in the information technology emphasis must complete the following courses:	
<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>CS 1030 (BPS)</b> Foundations of Computer Science (F).....	3
<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 2810</b> Computer Systems Organization and Architecture I (F,Sp).....	3
<b>CS 3000</b> Undergraduate Seminar (F,Sp).....	1
<b>CS 3100</b> Operating Systems and Concurrency (F,Sp).....	3
<b>CS 3410 (QI)</b> Computational Science: JAVA/Internet (F,Sp,Su) (3 cr) or	
<b>CS 3420 (QI)</b> Computational Science: C# and .NET (F,Sp,Su) (3 cr) or	
<b>CS 3430 (QI)</b> Computational Science: Python and Perl Programming (Sp,Su) (3 cr).....	3
<b>CS 3450</b> Introduction to Software Engineering II (F).....	3
<b>CS 3810</b> Computer Systems Organization and Architecture II (F,Sp).....	3
<b>CS 4700</b> Programming Languages (F,Sp).....	3
<b>CS 5050</b> Advanced Algorithms (F,Sp).....	3
<b>CS 5070</b> Computer Science Capstone (F,Sp,Su).....	1
<b>CS 5800</b> Introduction to Database Systems (F).....	3
<b>CS 5850</b> Systems Analysis (Sp).....	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>FIN 3400 (QI)</b> Corporate Finance (F,Sp,Su).....	3
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su).....	3
<b>MGT 3080 (QI)</b> Operations Research (F,Sp).....	3
<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su).....	3
<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su).....	3
<b>MGT 3710</b> Developing Team and Interpersonal Skills (F,Sp).....	3
<b>PHIL 1120 (BHU)</b> Social Ethics (F) (3 cr) or	
<b>PHIL 2400 (BHU)</b> Ethics (Sp) (3 cr) or	
<b>PHIL 3520 (DHA)</b> Business Ethics (Sp) (3 cr) or	
<b>PHIL 4530 (DSC)</b> Ethics and Biotechnology (Sp) (3 cr) or	
<b>PHIL 4540 (DHA)</b> Human Values and Information Technology (Sp) (3 cr).....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su).....	4
Advisor-approved computer science classes numbered 5000 or above.....	7

## Minor

Requirements for a minor in computer science are listed below. Before beginning any minor, a student must meet with a departmental advisor and file an approved minor application form with the Computer Science Department.

### Computer Science Minor (16-18 credits)

#### A. Required Courses (10 credits)

<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su).....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3

#### B. Computer Science Electives (6-8 credits)

Two additional CS classes must be selected from the following:

<b>CS 2450 (CI)</b> Introduction to Software Engineering I (Sp).....	3
<b>CS 2810</b> Computer Systems Organization and Architecture I (F,Sp).....	3
<b>CS 3100</b> Operating Systems and Concurrency (F,Sp).....	3
<b>CS 3450</b> Introduction to Software Engineering II (F).....	3
<b>CS 3810</b> Computer Systems Organization and Architecture II (F,Sp).....	3
<b>CS 4700</b> Programming Languages (F,Sp).....	3
Any CS class numbered 5000 or above.....	3 or 4
At least one of these two electives must be numbered at the 3000 level or above.	

## Suggested Four-year Plans

Suggested semester-by-semester four-year plans for students working toward a Bachelor of Science or Bachelor of Arts degree in emphases within the Computer Science major can be found at:

<http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For more information about requirements for the Computer Science major and minor, see the major requirement sheet, available from the Computer Science Department, or online at:

<http://www.usu.edu/majorsheets/>

# Department of Computer Science

## Graduate Programs

Computer science deals with the programming, use, management, and organization of computers. Graduate students specialize in many different areas, several of which have strong ties to other disciplines such as mathematics, computer engineering, statistics, accounting, and business administration.

## Admission Requirements

Applicants for admission to the graduate program should have a bachelor's degree in computer science **or** extensive experience in computing. Normally, a score of at least 640 on the quantitative test of the general GRE is required for admission to the MS, and a score of at least 700 is required for admission to the PhD or MCS. For scores less than these, applicants must show other strengths in their backgrounds to be considered for admission. The GRE computer science subject exam is not required for admission. Those who do take the GRE computer science subject exam will have preference in consideration for the award of financial aid. Decisions on financial aid are made on or near March 15 for the following fall semester.

## Course Requirements

In addition to the specific departmental admission and degree requirements described in this section, students are advised that they must also meet all Graduate School requirements as described in the Graduate School section of this catalog. Please note that departmental requirements change from time to time, so students should work closely with their advisor in designing their graduate program. Graduate-level courses outside the department *may* be acceptable for the graduate degree. In all cases, approval of the candidate's graduate committee should be obtained *before* registering for such courses.

Graduate students in the master's degree programs who have not taken or passed at the 50th percentile the computer science GRE subject exam are required to meet departmental placement requirements before completion of their first year. Students who have not met this requirement after the first year, as a minimum, will not be eligible for department-funded financial aid and cannot submit their program of study. In some circumstances, students will be terminated in the program. The department placement requirement is met in one or a combination of the following three ways:

1. Pass the placement exam in Algorithms and Data Structures, as well as two of the following five placement exams: Computer Architecture and Organization, Operating Systems, Automata, Programming Languages/Compilers, and Software Engineering.
2. Complete CS 2420 (algorithms and data structures) and CS 5050 (advanced algorithms) with a grade of at least *B-*. Also complete with a grade of at least *B-* two of the following courses: CS 2810 or ECE 5750 (architecture); CS 3100 (operating systems); CS 4700 or 5300 (programming languages); and CS 2450, 5370, or 6370 (software engineering).
3. Show on an official transcript from an accredited college or university the completion of three courses deemed by the department to be equivalent to its placement courses. These must be semester-based courses of at least 3 credits, and the corresponding grade must be at least a *B-*.

## Master of Science (MS)

Whether Plan A, Plan B, or Plan C (see School of Graduate Studies general requirements), all MS/CS students must meet the following general requirements:

1. Complete four Computer Science courses numbered 6000 and above. CS 6250 and 6900 are *not accepted* for these four courses. CS 6950 can count as *only one* of these four courses, and in that case must be taken for at least 3 credits in a single semester.
2. Complete 1 credit of CS 6900.

No more than 3 total credits in CS 5950, 6950, and 7950 and 1 credit of CS 6900 may be used to satisfy the MS degree requirements. CS 6250 cannot be used to meet MS coursework requirements. A maximum of 15 credits of committee-approved coursework below the 6000-level may be used for the MS degree.

Students completing a **Plan A MS degree** must fulfill the following requirements:

1. Complete at least 24 credits of graduate coursework. The total GPA must be at least 3.0, and no more than two class grades below *B-* and none below *C* may be included.
2. Successfully meet the departmental placement requirement.
3. Successfully complete and submit a graduate thesis proposal.
4. Successfully complete and defend a graduate thesis, based on original work (CS 6970, 6 credits).

Students completing a **Plan B MS degree** must fulfill the following requirements:

1. Complete at least 32 credits of graduate coursework. The total GPA must be at least 3.0, and no more than two class grades below *B-* and none below *C* may be included.
2. Successfully meet the departmental placement requirement.
3. Successfully complete and submit a graduate report proposal.
4. Successfully complete and defend a graduate report (CS 6970, 2 credits).

Students completing a **Plan C MS degree** must fulfill the following requirements:

1. Complete at least 37 credits of graduate coursework. The total GPA must be at least 3.0, and no more than two class grades below *B-* and none below *C* may be included. CS 6970 *cannot* be included.
2. Successfully meet the departmental placement requirement.
3. Successfully complete *one pair of courses* representing a sequence offered by the department. The sequences include: CS 5050 and 6050; CS 5200 and 6200; CS 5300 and 6300; CS 5600 and 6600; CS 5650 and 6650; CS 5700 and 6700; CS 5800 and 7670; CS 6100 and 7100; CS 6450 and 7450; *two* of CS 5370 or 6370, CS 7350, and 7380; *two* of CS 5500, 6500, 6550, and 7550; *two* of CS 5650, 6630, 6650, 7650, and 7680; and *two* of CS 5660, 5670, and 6670.

## Master of Computer Science (MCS)

The Master of Computer Science (MCS) is a terminal degree with coursework requirements similar to the PhD, but lacking the PhD's requirement for original research. Students completing an MCS degree must fulfill the following requirements:

1. Complete at least 60 credits of graduate coursework beyond the BS/CS or 30 credits of graduate coursework beyond the MS/CS with a minimum class grade of *B-* and a minimum cumulative GPA of 3.2.
2. No more than 15 credits of coursework numbered below 6000 may be used for the MCS.

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3. Complete at least 12 credits of 7000-level computer science coursework.
4. Successfully meet the departmental placement requirement.
5. Successfully complete and submit a research report proposal.
6. Successfully complete and defend a research report, based on original work (CS 7970, 6 credits).
7. Complete 1 credit of CS 6900.

## Doctor of Philosophy (PhD)

The Doctor of Philosophy in Computer Science is, above all else, a degree of quality. Simply completing a number of graduate courses or years of study is not sufficient to receive the degree. The successful candidate must demonstrate a breadth of understanding in computer science, as well as a depth of understanding in his or her chosen area(s) of emphasis. Also, students must show an ability to do creative research. This research should be carried out over a significant period of time (i.e., at least one year or three semesters). Thus, each successful PhD candidate will produce a significant piece of original research, presented in a written dissertation and defended in an oral examination. This work should be of such quality that one or more journal or conference articles can be derived from it.

Students completing a PhD/CS must fulfill the following requirements:

1. Complete at least 90 credits of graduate coursework (including at least 27 credits of dissertation/research) beyond a BS/CS or at least 60 credits (including at least 27 credits of dissertation research) beyond an MS/CS with a minimum class grade of *B* and a minimum cumulative GPA of 3.5.
2. If an MS/CS is completed first, then no more than 15 credits of the 60 credits required for the PhD may be taken in coursework numbered below the 6000 level. If an MS/CS is not completed first, then no more than 21 credits of the 90 credits required for the PhD may be taken in coursework numbered below the 6000 level.
3. Complete at least 12 credits of 7000-level computer science coursework.
4. Complete 2 credits of PhD Seminar (CS 7900).
5. Complete 9 credits of department-approved courses outside the department.
6. Pass a set of comprehensive written examinations and an oral examination showing depth and breadth of knowledge in computer science and the student's area(s) of emphasis.
7. Successfully complete and defend a research proposal.
8. Successfully complete and defend a dissertation (CS 7970, for at least 27 credits).

## Financial Assistance

Applicants for admission will automatically be considered for financial aid, with no need for additional application procedures. Continuing students will be requested to apply for aid during the spring semester. Acceptance into the program does not guarantee financial assistance.

## Computer Science Faculty

### Professors

*Scott R. Cannon*, parallel processing, real-time systems, space flight software systems applications

*Heng-Da Cheng*, image processing, artificial intelligence, parallel processing, computer vision, fuzzy logic, VLSI algorithms and architectures, neural networks

*Donald H. Cooley*, evolutionary algorithms, neural networks, multimedia systems

### Professor Emeritus

*Wendell L. Pope*, data structures, automatic software generation, programming languages

### Associate Professors

*Stephen J. Allan*, parallel processing, parallel programming, recognition of parallelism, program optimization

*Vicki H. Allan*, multi-agent systems, artificial intelligence, computer science education, pipelining program optimization

*Stephen W. Clyde*, software engineering, object orientation, distributed systems, database theory, multimedia systems

*Nicholas S. Flann*, computational biology, medical modeling, machine intelligence applications

*Vladimir Kulyukin*, assistive technology, robotics

*Xiaojun Qi*, image processing, pattern recognition, computer vision, image retrieval, data mining

*Daniel W. Watson*, parallel and cluster computing, interconnection networks

### Associate Professors Emeritus

*Nelson T. Dinerstein*, analysis and construction of information systems, database management systems, applications of small computers

*Larre N. Egbert*, scientific computing, computer graphics

*Gregory W. Jones*, theory of computing, software engineering

### Assistant Professors

*Daniel Bryce*, artificial intelligence, systems biology

*Renee Bryce*, software testing

*Curtis Dyreson*, databases, data warehousing

*Robert F. Erbacher*, digital forensics, situational awareness, computer security, intrusion detection, visualization, cyber-terrorism, cyber command and control

*Minghui Jiang*, design and analysis of algorithms, discrete and computational geometry, bioinformatics, computer biology

*Seungjin Lim*, data mining, databases

*Chad D. Mano*, computer security

*Supratik Mukhopadhyay*, distributed systems, software engineering, programming languages, service oriented computing

*Changhui Yan*, bioinformatics, data mining, machine learning, computational biology

### Lecturers

*Linda Duhadway*, computer science education, programming languages, web application design and deployment, computer problem solving across disciplines, user interface, software engineering

*Dean Mathias*, computer graphics, game development, massive virtual environments

## Course Descriptions

Computer Science (CS), pages 536-540

# Interdepartmental Program in Ecology

**Director:** James A. MacMahon  
**Location:** Natural Resources 314A  
**Phone:** (435) 797-2555  
**FAX:** (435) 797-3872  
**E-mail:** jim.macmahon@usu.edu  
**WWW:** <http://www.usu.edu/ecology/>

## **Associate Director for Administrative Affairs:**

Marvin C. Bennett, Natural Resources 314B, (435) 797-2090,  
marv.bennett@usu.edu

**Degrees offered:** Master of Science (MS) and Doctor of Philosophy (PhD) in the following departments: Biology; Environment and Society; Plants, Soils, and Climate; Watershed Sciences; and Wildland Resources

## **Graduate Program**

The ecology program at Utah State University is administered by the interdepartmental Ecology Center. Its goals are to promote research and graduate education in the science of ecology and to provide expert, professional information and advice for decision makers considering actions that affect the environment. The research carried out by the center's associates covers the full spectrum of ecology on several continents, but most of it is centered in the montane and desert regions of the western United States.

Students earn their degrees in ecology while maintaining residence in one of the participating departments; the center itself does not grant degrees. The candidate selects and is assigned a major professor from the department appropriate to his or her interests.

## **Degree Requirements**

Requirements for graduate degrees in ecology include the University and departmental degree requirements, as well as the Ecology Center requirements outlined below, which are formulated by the Ecology Center Faculty Advisory Committee. This committee is comprised of faculty representatives, designated by the respective department heads, from the departments of Biology; Environment and Society; Geology; Plants, Soils, and Climate; Watershed Sciences; and Wildland Resources. The Ecology Center director chairs the committee.

The ecology MS and PhD are research degrees requiring a research thesis or dissertation. The following course requirements for each of these degrees fall into two categories. The first is a general science category. Students receiving graduate degrees in ecology are expected to have some breadth and sophistication in modern science. The second category includes ecology course requirements. These are, for the most part, general requirements, with the specific courses taken by each student selected by his or her graduate committee and tailored to his or her needs and professional goals.

## **Ecology MS and PhD Degrees General Science Requirements**

For further details, see the USU Ecology Center website:  
<http://www.usu.edu/ecology/>

## **Mathematics and Statistics, Physics, and Chemistry**

By its very nature, ecology must draw upon knowledge from most branches of science. As a result, at least a reasonable facility with fundamental mathematics and physical sciences must be attained by students, since these concepts have expression throughout the sciences. In order to assure a minimal comprehension in these areas, students receiving graduate degrees in ecology are required to have had the following at some point in their university careers:

1. Equivalent of mathematics through one semester of calculus.
2. Equivalent of at least a one-semester overview course in physics.
3. Chemistry through organic.
4. One year of introductory statistics and one graduate-level statistics course.

These courses are the minimum requirements for the MS and PhD degrees. The committee strongly recommends developing greater facility by taking at least a full year of calculus; one or more courses from the set of three including linear algebra, differential equations, and multi-variable calculus; and a full year of professional-level physics.

## **Biology**

The following are required of all ecology graduate students, and must be taken at some point during their university career:

1. Genetics or evolution, one course.
2. One course in animal physiology for students emphasizing animal ecology.
3. One course each in plant physiology and soils for students emphasizing plant ecology.

## **Ecology Course Requirements**

### **Master of Science**

1. Attendance in Ecology Seminar (BIOL/ENVS/WATS/WILD/6870) is required each semester in residence, but students should only register once per academic year.
2. A one-semester course in Graduate General Ecology (BIOL/ENVS/WATS/WILD 6960) is also required.
3. One course must be taken in each of two functional (core) blocks. The three available blocks are shown on the following page.

### **Doctor of Philosophy**

1. Attendance in Ecology Seminar (BIOL/ENVS/WATS/WILD 6870) is required each semester in residence, but students should only register once per academic year.
2. A one-semester course in Graduate General Ecology (BIOL/ENVS/WATS/WILD 6960) is also required.
3. One course must be taken from each functional (core) block. Students continuing from the MS to the PhD degree can apply block courses taken for the MS degree to the PhD requirement. The three available blocks are shown on the following page.

# Interdepartmental Program in Ecology

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## Functional (Core) Blocks

1. Biophysical Ecology  
(CEE 6930 or WATS 6900, CLIM 6500, CLIM/GEO/WATS 6680, CLIM 6800, GEO/WATS 6150, SOIL 6130, SOIL/WILD 6350)
2. Organismic, Population, and Evolutionary Ecology  
(BIOL 6260, 6380, 6600, WATS 6230/7230, WILD 6400, 6720/7720, 7200, 7400)
3. Community, Ecosystem, and Landscape Ecology  
(BIOL 6010, BIOL/SOIL/WILD 6200, BIOL 6590, ENVS 6400, WATS 6310, 6820/7820, WILD 6710/7710, 6770, 6900)

# Department of Economics and Finance

**Department Head:** Tyler J. Bowles

**Location:** Business 615

**Phone:** (435) 797-2310

**FAX:** (435) 797-2701

**E-mail:** info@econ.usu.edu

**WWW:** <http://www.huntsman.usu.edu/economicsandfinance/>

## **Undergraduate Advisor:**

Ruth Harrison, Business 309, (435) 797-2275,  
ruth.harrison@usu.edu

## **Graduate Program Director:**

Tyler J. Bowles, Business 616, (435) 797-2310,  
tyler.bowles@usu.edu

**Degrees offered:** Bachelor of Science (BS) and Bachelor of Arts (BA) in Finance; BS, BA, Master of Science (MS), and Master of Arts (MA) in Economics; the department also participates in the Master of Business Administration (MBA). The Economics major is structured to facilitate a dual major with companion majors within or outside the Huntsman School of Business.

**Undergraduate emphases:** *BS, BA in Economics*—Economic Theory, Managerial Economics, Prelaw Economics

## **Undergraduate Programs**

### **Objectives**

The undergraduate economics and finance curricula provide students with the basic intellectual framework to understand and analyze economic and financial problems and to make informed decisions. A basic understanding of economics and finance is essential to becoming a well-informed citizen, as well as a successful business or public leader.

Students majoring in finance receive training leading to careers in banking, brokerage activities and investments, and positions as financial analysts in industry.

### **Admission Requirements**

Freshmen who meet the admission requirements and are accepted in good standing by the University are eligible for admission to the Department of Economics and Finance. All transfer students, whether transferring from within Utah State University or from other colleges and universities, must have an overall minimum GPA of 2.5 to be accepted as majors in the department. Additional requirements may apply for students who seek to be admitted to a dual major.

New students wishing to major in Economics or Finance may do so by listing the Economics or Finance major on their application when they apply for admission to USU. Students enrolled at USU may change to the Economics or Finance major by applying directly to the Department of Economics and Finance.

### **Graduation Requirements**

To receive a bachelor's degree in Economics or Finance, students must complete all University requirements and the college and departmental requirements as noted in this catalog section.

### **Matriculation Requirement and Transfer Limitation**

No more than 15 USU Huntsman School of Business credits (ACCT, BUS, FIN, MGT, MIS), numbered 2000 and above, earned as a nonbusiness major (before acceptance into the Huntsman School) can be applied to a Huntsman School degree. More than 15 business credits can be transferred from other accredited institutions. However, additional USU Huntsman School credits added to previously earned transfer business credits may not exceed a combined total of 15. Furthermore, to earn a bachelor's degree in a Huntsman School major, at least 50 percent of the required Huntsman School credits must be earned from coursework taken from the Utah State University Huntsman School of Business.

### **USU Credits and Business Credits**

At least 30 of the last 60 semester credits must be taken from Utah State University, at least 20 of which must be completed in upper-division courses, of which at least 10 credits must be completed in courses required by the student's major. At least 50 percent of the Huntsman School of Business credits required for a Huntsman School degree must be taken from the Utah State University Huntsman School or its departments, which include: School of Accountancy, Economics and Finance, Management, and Management Information Systems.

### **Business Core**

Finance majors in the Department of Economics and Finance must complete the following prerequisite courses and business core courses in addition to the specific courses listed for the major. (Check with the undergraduate advisor concerning the need for students in the economics major to complete the business core.)

#### **Prerequisite Courses (13 credits)**

<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su) .....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su) .....	4
<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) (3 cr) <b>or</b>	
<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp) (3 cr) .....	3

Business majors must take the above courses as prerequisite to 3000-, 4000-, and 5000-level courses in the Huntsman School of Business.

#### **Huntsman School of Business Core (37 credits)**

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>FIN 3400 (QI)</b> Corporate Finance (F,Sp,Su).....	3
<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su).....	3
<b>MGT 3700</b> Operations Management (F,Sp,Su).....	3
<b>BUS 3250</b> Discussions With Business Leaders (F,Sp) .....	1
<b>ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su) .....	3
<b>ECN 3400</b> International Economics for Business (F,Sp,Su).....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su) .....	3
<b>MGT 3110</b> Managing Organizations and People (F,Sp,Su).....	3
<b>MGT 4880 (CI)</b> Business Strategy in an Entrepreneurial Context (F,Sp,Su) (3 cr) <b>or</b>	
<b>MGT 4890 (CI)</b> Business Strategy in a Global Context (F,Sp,Su) (3 cr) .....	3
<b>MIS 2100</b> Principles of Management Information Systems (F,Sp,Su)....	3
<b>MIS 2200 (CI)</b> Business Communication (F,Sp,Su).....	3

All 3000-, 4000-, and 5000-level courses in the Huntsman School of Business are restricted to students admitted to the Huntsman School or another USU major with an overall GPA of at least 2.67 and completion of at least 40 credits.

# Department of Economics and Finance

## Economics Major

As the Economics major provides a strong grounding in economic theory, it helps open career opportunities that involve policy analysis. The Economics major has been a very popular dual major for Finance and Accounting majors because of the added theoretical and analytical dimension that advanced studies in economics can contribute to Finance and Accounting majors. This combination is excellent preparation for students interested in advanced studies in Accounting or Finance.

The Economics major also provides students in the humanities, and social and natural sciences with an opportunity to learn policy analysis tools. Whether the students are directly interested in policy or simply interested in the impact of policy within their chosen primary major, economics introduces a robust and empirically verified paradigm for explaining the behavior of social systems and their interaction with cultural, biological, and physical resources.

To graduate with a bachelor's degree in Economics, a student must have a minimum GPA of 2.5 in courses required for the major and a grade of C or better in each course required for the major. A C grade or better in ECN 1500, MATH 1100, and STAT 2300 and an overall GPA of 2.67 or higher is required for admission into some MGT courses required for the managerial emphasis. Economics majors with a dual major must satisfy the admission and graduation requirements of both majors. All required courses must be taken for a letter grade, and students must earn a C or better in each of these courses. For information regarding elective requirements, students should contact their academic advisor.

### Economics Major:

<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>ECN 3400 (DSS)</b> International Economics for Business (F,Sp,Su).....	3
<b>ECN 3010 (DSS)</b> Managerial Economics (F,Sp) (3 cr) <b>or</b>	
<b>ECN 4010</b> Intermediate Microeconomics (Sp) (3 cr).....	3
<b>ECN 4020</b> Intermediate Macroeconomics (F,Sp) (3 cr) <b>or</b>	
<b>ECN 5000</b> Advanced Macroeconomic Topics (F) (3 cr).....	3
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>MATH 1100 (QL)<sup>1</sup></b> Calculus Techniques (F,Sp,Su).....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su).....	4
Upper-division ECN electives <sup>2</sup> .....	6

The **Economic Theory Emphasis** is designed for students who are interested in preparing for graduate studies in economics or agricultural economics and for students who are preparing for a career that requires training in quantitative economic analysis. Graduates have employment opportunities in business and government, as well as opportunities for continuing their education in graduate economics programs or in professional schools. Economists are often involved in policy analysis for government agencies and nongovernmental organizations.

### Economics Major (Economic Theory Emphasis):

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>ECN 3400 (DSS)</b> International Economics for Business (F,Sp,Su).....	3
<b>ECN 4010</b> Intermediate Microeconomics (Sp).....	3
<b>ECN 4020</b> Intermediate Macroeconomics (F).....	3
<b>ECN 4310 (QI)</b> Mathematical Methods for Economics (F).....	3
<b>ECN 5100</b> History of Economic Thought (Sp).....	3
<b>ECN 5330 (QI)</b> Applied Econometrics (Sp).....	3
<b>ECN 5950 (CI)</b> Senior Project (Sp).....	3

<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>MATH 1100 (QL)<sup>1</sup></b> Calculus Techniques (F,Sp,Su).....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su).....	4
ECN electives (3000-level or above) <sup>2</sup> .....	12

The Managerial Economics Emphasis is for students who are planning for careers in business. The program can serve as a terminal program for those planning to enter the job market on graduation or as excellent preparation for students who intend to pursue an MBA or MPA.

### Economics Major (Managerial Economics Emphasis):

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>ECN 3010 (DSS)</b> Managerial Economics (F,Sp).....	3
<b>ECN 3400 (DSS)</b> International Economics for Business (F,Sp,Su).....	3
<b>ECN 4020</b> Intermediate Macroeconomics (F,Sp).....	3
<b>ECN 4310 (QI)</b> Mathematical Methods for Economics (F).....	3
<b>ECN 5330 (QI)</b> Applied Econometrics (Sp).....	3
<b>ECN 5950 (CI)</b> Senior Project (Sp).....	3
<b>FIN 3400 (QI)</b> Corporate Finance (F,Sp,Su).....	3
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>MATH 1100 (QL)<sup>1</sup></b> Calculus Techniques (F,Sp,Su).....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su).....	3
<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su).....	3
<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su).....	3
<b>MGT 3700</b> Operations Management (F,Sp,Su).....	3
<b>MIS 2100</b> Principles of Management Information Systems (F,Sp,Su).....	3
<b>MIS 2200 (CI)</b> Business Communication (F,Sp,Su).....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su).....	4
ECN electives (3000-level and above) <sup>2</sup> .....	6

The Prelaw Economics Emphasis is for students who plan to attend law school or pursue a career related to political science, and who want to obtain a strong foundation in economics. The large number of elective credits included in this emphasis area provides enough flexibility for students to custom design their program of study to meet individual interests and educational goals. Several students have taken advantage of this flexibility to design a dual major with Economics and Political Science.

### Economics Major (Prelaw Economics Emphasis):

<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>ECN 3170</b> Law and Economics (F) (3 cr) <b>or</b>	
<b>POLS 3170</b> Law and Economics (F) (3 cr).....	3
<b>ECN 3010 (DSS)</b> Managerial Economics (F,Sp) (3 cr) <b>or</b>	
<b>ECN 4010</b> Intermediate Microeconomics (Sp) (3 cr).....	3
<b>ECN 3400 (DSS)</b> International Economics for Business (F,Sp,Su).....	3
<b>ECN 4020</b> Intermediate Macroeconomics (F,Sp).....	3
<b>ECN 5950 (CI)</b> Senior Project (Sp).....	3
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>MATH 1100 (QL)<sup>1</sup></b> Calculus Techniques (F,Sp,Su).....	3
<b>POLS 1100 (BAI)</b> United States Government and Politics (F,Sp).....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su).....	4
ECN electives (3000-level or above) <sup>2</sup> .....	6
POLS electives (3000-level or above).....	3



# Department of Economics and Finance

## Finance Major

Finance is concerned with how individuals and firms allocate resources over time. Solutions to allocation problems rely upon the existence of capital markets that allow the exchange of resources over time, and firms that allow individuals to transform current resources into resources available in the future. In particular, finance deals with the financial management of firms, investment management, and the management of financial institutions. Before continuing with the following courses, students must receive a grade of *B-* or better in FIN 3400.

### Required Courses (12 credits)

<b>ECN 3010</b> Managerial Economics (F,Sp).....	3
<b>ECN 4020</b> Intermediate Macroeconomics (F,Sp).....	3
<b>FIN 4450</b> Financial Policy (F,Sp).....	3
<b>FIN 4460</b> Investments (F,Sp).....	3

### Electives (9 credits)

Three electives are required, two of which must be selected from the following list:

<b>FIN 4300</b> International Finance (F,Sp).....	3
<b>FIN 4410</b> Financial Institutions (F,Sp).....	3
<b>FIN 4420</b> Insurance (F).....	3
<b>FIN 4430</b> Real Estate Finance (Sp).....	3

The remaining elective may be chosen from the following, or from the list above:

<b>ACCT 3310</b> Strategic Cost Management (F,Sp,Su).....	3
<b>ACCT 3410</b> Income Taxation I (F,Sp,Su).....	3
<b>ECN 5330 (QI)</b> Applied Econometrics (Sp).....	3
<b>ECN 5600</b> Financial Economics (Sp).....	3
<b>MGT 3080 (QI)</b> Operations Research (F,Sp).....	3
<b>PFP 5060</b> Personal Financial Planning and Advising (F).....	3
<b>PFP 5070</b> Retirement Planning (Sp).....	3
<b>PFP 5080</b> Estate Planning (Sp).....	3

## Minor Requirements

### Economics Minor

<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>ECN 3010 (DSS)</b> Managerial Economics (F,Sp) (3 cr) <b>or</b>	
<b>ECN 4010</b> Intermediate Microeconomics (Sp) (3 cr).....	3
ECN electives (3000-level or above) <sup>2</sup> .....	6

<sup>1</sup>The regular calculus series (MATH 1210 and 1220) is recommended for students contemplating graduate studies in economics. MATH 1210 will fulfill the MATH 1100 requirement.

<sup>2</sup>For a list of acceptable electives, students should contact their advisor.

### Finance Minor

#### Required Courses (12 credits)

<b>FIN 3400 (QI)</b> Corporate Finance (F,Sp,Su).....	3
<b>FIN 4450</b> Financial Policy (F,Sp).....	3
<b>FIN 4460</b> Investments (F,Sp).....	3
<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su).....	3

#### Elective Course (3 credits)

Select one of the following courses:

<b>FIN 4300</b> International Finance (F,Sp).....	3
<b>FIN 4410</b> Financial Institutions (F,Sp).....	3
<b>FIN 4420</b> Insurance (F).....	3
<b>FIN 4430</b> Real Estate Finance (Sp).....	3

## Business Minor

A Business Minor is administered by the Huntsman School of Business. For further information, students should contact the Huntsman School of Business Programs and Advising Center, Business 309, (435) 797-2272.

## Four-year Degree Plans (8 semesters)

Four-year degree plans for majors offered by the Department of Economics and Finance can be found at:

<http://www.usu.edu/degreeplans/>

Students will need to meet with their advisor periodically to ensure all requirements are being met.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://honors.usu.edu/>

## Financial Support

The Department of Economics and Finance and the Huntsman School of Business award scholarships in addition to those available through the University Financial Aid Office. Information and application forms may be obtained from the college or departmental offices.

## Additional Information

For more information about undergraduate programs in the Department of Economics and Finance, see the major requirement sheet, available from the department, or accessed online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

The MA and MS in Economics are offered by the Department of Economics and Finance. The MBA is offered through the Huntsman School of Business.

# Department of Economics and Finance

## Objectives

Economics graduate training emphasizes economic theory, critical thinking, and quantitative analysis.

The **Master of Science** and **Master of Arts in Economics** are intended to prepare students for doctoral studies in economics. Consequently, students are required to take the same first-year core theory and econometrics courses as the PhD students, with specialization courses in the second year.

## Admission Requirements

Applicants must have earned a bachelor's degree from an accredited college or university, maintained a grade point average of at least 3.0 for the last 60 semester credits earned, and score in at least the 40th percentile on the Graduate Record Exam (GRE). In addition, international applicants from non-English-speaking countries must score at least 550 on the Test of English as a Foreign Language (TOEFL). Satisfaction of these minimum admission requirements does not guarantee admission. Applications for graduate study from students trained in disciplines other than economics are welcomed. However, all applicants are expected to have: (1) an understanding of intermediate microeconomic and macroeconomic theory, (2) preparation in mathematical economics, and (3) preparation in probability and statistics. In addition, applicants are expected to have strong written and oral communications skills.

## Degree Requirements

### Master of Science and Master of Arts in Economics

Students are required to complete the first-year core (ECN 7130, 7140, 7230, 7240, 7310, 7350, 7360) and to submit and orally defend a thesis (Plan A) or research report (Plan B). The department also accepts Plan C, which has no research component. MA students must satisfy the foreign language requirement. Plan A requires at least 30 credits and must include at least 6 thesis research credits. Plan B requires at least 30 credits and must include 2 to 3 thesis research credits. Plan C requires at least 33 credits. (No more than 6 undergraduate credits may be used in meeting degree requirements.)

### Master of Business Administration

A student may receive a Huntsman School of Business Master of Business Administration degree with a specialization in an economic field by completing the MBA advanced core (see the MBA program description on pages 194-195) and 9 specialization credits. These specialization credits should be coordinated with the MBA Program director.

## Research

The Department of Economics and Finance maintains an active and productive research program. The results of this research are published in professional journals, books, and technical reports. Financial support for the departmental research program is provided by the Huntsman School of Business, the Office of the Vice President for Research, and by a combination of public and private extramural sources. The Economics Research Institute provides support and coordination for some of the department's research activities. Graduate students are an integral part of departmental research programs.

## Financial Assistance and Assistantships

The Department of Economics and Finance offers teaching and research assistantships to qualified graduate students. These are awarded on a competitive basis, and all accepted students are considered eligible. However, while the department makes every effort to assist students in obtaining financial assistance, acceptance into department programs does not guarantee financial assistance.

## Economics and Finance Faculty

### Professors

*Basudeb Biswas*, international trade and economic development

*Tyler J. Bowles*, Department Head; econometrics and forensic economics

*Drew Dahl*, financial institutions and international finance

*Christopher Fawson*, public finance and econometrics

*Terrence F. Glover*, production economics and policy

*L. Dwight Israelsen*, comparative systems and economic history

*W. Cris Lewis*, regional-urban and managerial economics

*J. Robert Malko*, corporate and energy utility finance

*H. Craig Petersen*, regulation and antitrust and managerial economics

*Randy T. Simmons*, public choice, political economy

### Associate Professors

*John P. Gilbert*, international trade theory and policy, applied general equilibrium modeling, development economics

*Austin Kwag*, financial policy, investments, corporate finance

*Alan A. Stephens*, corporate finance and investments

### Assistant Professor

*Frank N. Caliendo*, macroeconomics and public economics

### Clinical Assistant Professor

*Shannon Peterson*, international policy and relations

### Adjunct Lecturers

*Steven R. Broadbent*

*Paul Fjelsted*

*Kent Hauetter*

### Instructor

*Doug Romrell*

### Professors Emeritus

*Roice H. Anderson*

*Larry K. Bond*

*Rondo A. Christensen*

*Lynn H. Davis*

*Reed R. Durtschi*

*Herbert H. Fullerton*

*Gary B. Hansen*

*Allen D. LeBaron*

*Darwin B. Nielsen*

*Philip R. Swensen*

*Morris D. Whitaker*

### Associate Professor Emeritus

*Glenn F. Marston*

## Course Descriptions

Economics (ECN), pages 545-546

Finance (FIN), pages 565-566

# Education, Interdepartmental Doctoral Program in Curriculum and Instruction

## Director, Curriculum and Instruction Doctoral Program:

Deborah A. Byrnes, Associate Department Head,  
School of Teacher Education and Leadership

**Location:** Emma Eccles Jones Education 399

**Phone:** (435) 797-0396

**FAX:** (435) 797-0372

**E-mail:** deborah.byrnes@usu.edu

**WWW:** <http://teal.usu.edu/hm/graduate-programs/>

**Faculty:** Faculty are listed with participating programs and departments (e.g., Elementary Education Program, Secondary Education Program, Engineering and Technology Education Department, and Agricultural Systems Technology and Education Department)

**Degrees offered:** Doctorate of Education (EdD) and Doctorate of Philosophy (PhD)

**Graduate specialization:** PhD or EdD—Curriculum and Instruction

## Admission Requirements

For admission information, contact: Dean, School of Graduate Studies, Utah State University, 0900 Old Main Hill, Logan UT 84322-0900; telephone (435) 797-1189; FAX (435) 797-1192; or visit: <http://www.usu.edu/graduateschool/>

To be evaluated against established criteria, students must submit to the School of Graduate Studies at Utah State University an **Application for Admission** along with the following:

1. A copy of transcripts of both undergraduate and graduate credits from all colleges or universities attended. An average grade of *B* (3.0) or better is required during the last two years of undergraduate work and for all graduate work.
2. Three letters of recommendation (required). At least two of these letters should come from individuals who can evaluate the student's academic abilities. All letters should address the student's potential for successful graduate study.
3. Documentation of a master's degree or equivalent coursework related to an area of specialization, or a statement of why admission is sought without a master's degree.
4. An official report of the Graduate Record Examination (GRE), including both the Verbal and the Quantitative subtests.
5. Evidence of writing competency.
6. A statement of specific reasons for wanting to enroll in the Curriculum and Instruction doctoral program. This essay is completed as part of the School of Graduate Studies online application.

Applicants to the Curriculum and Instruction PhD and EdD degrees must have the equivalent of two years of appropriate teaching experience.

## General Information About Doctorate in Curriculum and Instruction (C & I)

Both the **Doctorate of Education (EdD)** and the **Doctorate of Philosophy (PhD)** degrees are offered through the School of Teacher Education and Leadership (TEAL) in the Emma Eccles Jones College of Education and Human Services (CEHS). The C & I specialization prepares graduates for leadership, teaching, and research positions in curriculum and instruction.

The EdD degree program is intended for students who wish to be better prepared to (1) understand and deal effectively with curricular and instructional problems as administrators, supervisors, and curriculum specialists in public or private educational institutions and settings; and (2) teach in community colleges, four-year colleges, and universities. Areas of emphasis within the EdD include early childhood; engineering and technology education; instructional leadership; literacy; and schooling, culture, and society. The PhD degree program is intended for students who wish to be better prepared to (1) fulfill roles in teaching and research in colleges, universities, and education-related fields; and (2) conduct and direct research and development activities in public and private educational settings or in the corporate sector. Areas of emphasis are more flexible within the Curriculum and Instruction PhD program and are developed by each student with his or her doctoral committee.

## Planned Program

To complete a doctorate degree (PhD or EdD), a minimum of 60 total credits are required for students with a master's degree, and a minimum of 90 total credits are required for students without a master's degree. A student must:

1. Complete a Unifying Curriculum and Instruction Program of Studies Core (12-15 semester credits) and a Research and Statistics Core (12 semester credits).
2. Complete a planned program of supporting electives, as approved by the student's supervisory committee.
3. Pass a written comprehensive examination. This exam must be satisfactorily completed before the student advances to candidacy. Advancement to candidacy also requires an approved dissertation proposal.
4. Present at a professional conference.
5. Submit for publication an approved manuscript.
6. Complete and satisfactorily defend a doctoral research study directed and judged by a supervisory committee of faculty.
7. Complete all final requirements, as specified by the Curriculum and Instruction specialization, the Emma Eccles Jones College of Education and Human Services, and the School of Graduate Studies.

## Resident Coursework

The **Doctorate of Philosophy degree (PhD)** requires three semesters of full-time registration in residency with a minimum of two semesters of consecutive residency. Completion of 33 credits in residence on the Logan campus is required.

The **Doctorate of Education degree (EdD)** requires at least three semesters in full-time residency, but they need not be consecutive. At least two semesters must be spent on campus prior to registering for dissertation credit. Completion of 39 credits must be completed in residence.

It is strongly recommended that the applicant enroll on campus the first semester after admission, so that appropriate program planning can be completed.

## Doctoral Residency (PhD)

The PhD requires three full-time academic semesters of residency, two of which must be consecutive. It is the responsibility of the student's doctoral committee to provide guidance, supervision, and review of the doctoral residency requirement. The purpose of residency is to provide the doctoral student with significant time for sustained contact with faculty members and intense attention to coursework, projects, research, and participation in academic life. Residency is a time for socialization into the shared community of professional life. It should include opportunities for the student to engage in activities outside of coursework that serve to transition the student to the new role of future colleague.

It is difficult to accomplish these outcomes while physically distant from the campus. Thus, doctoral programs nationwide include "residency" requirements to assure that doctoral students, upon graduation, will be prepared for full professional participation in academic life.

## Research

Each student must complete a significant research study; present at a professional conference; and prepare an article for publication in an appropriate journal, based on the completed research and/or program of study.

## Financial Assistance

Students should contact department heads for all inquiries regarding assistantships and tuition waivers. Applications for University assistantships, fellowships, and all financial aid are processed through department offices. For a listing of fellowships and scholarships, see the *Graduate Financial Assistance* section of this catalog (pages 111-112).

## Career Opportunities

The doctoral specialization prepares educational leaders for positions as college and university researchers and teachers in education and education-related fields. Recipients of the doctorate degree are also prepared to conduct and direct research and development activities in public or private educational agencies or in the corporate sector; teach in community colleges, four-year colleges, and universities; serve as supervisors and curriculum specialists in public or private educational institutions and settings; and serve in a variety of other careers.

## Administrative/Supervisory Certificate Program

A doctorate in education is separate from the Administrative/Supervisory Certificate (A/SC) Program; however, a student may obtain the A/SC while pursuing the doctorate degree. Completion of the A/SC program qualifies a person for the certificate required of administrators and/or supervisors at any level in the public school systems of Utah. Students desiring an Administrative/Supervisory Certificate will need to take courses in addition to those required for the PhD and EdD degree.

## Emma Eccles Jones College of Education and Human Services Courses

Education courses are listed under the EDUC prefix, pages 546-547

# Department of Electrical and Computer Engineering

**Department Head:** Todd K. Moon  
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**Phone:** (435) 797-2840  
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## Undergraduate Advising:

Engineering Advising Center, Engineering 314A, (435) 797-2705,  
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## Graduate Program Coordinator:

YangQuan Chen, Engineering Laboratory 216, (435) 797-0148,  
yqchen@ece.usu.edu

**Degrees offered:** Bachelor of Science (BS), Master of Science (MS), and Doctor of Philosophy (PhD) in Electrical Engineering; BS and MS in Computer Engineering; Master of Engineering (ME)

**Graduate specializations:** ME—Electrical Engineering, Computer Engineering

## Undergraduate Programs

### Department Mission Statement

The mission of the Department of Electrical and Computer Engineering is to serve society through excellence in learning, discovery, and outreach. Undergraduate and graduate students are provided with an education in electrical and computer engineering, while developing attitudes, values, and vision preparing them for lifetimes of continued learning and leadership in their chosen careers. Through research the department strives to generate and disseminate new knowledge and technology for the benefit of the State of Utah, the nation, and beyond.

### Program Description

The ECE Department offers a balanced curriculum of classwork, laboratory work, and design experiences to prepare students for careers as practicing engineers. The Bachelor of Science programs in Electrical Engineering and Computer Engineering are accredited by the Engineering Accreditation Commission of ABET. The research program of the department, which includes undergraduates as well as graduate students, is internationally acclaimed in the fields of aerospace instrumentation and measurements, image compression, communications, electromagnetics, controls, and robotics.

### Program Objectives

The educational objectives of the Electrical Engineering and Computer Engineering programs at Utah State University are as follows:

To provide students with:

1. Education in the fundamental sciences and mathematics that underlie engineering, with a general breadth and depth in engineering analysis and design.
2. Awareness of current technology and the fundamental background to enable them to stay informed and become adept at new technologies.

3. The ability to put ideas into practice through effective analysis, problem solving, requirements development, design, and implementation.
4. A broad awareness of the world around them through general education, preparing them to achieve their potential and contribute through their professional and personal lives.
5. The foundation of communications and teamwork skills, as well as professional attitudes and ethics.

## Electrical Engineering

Each Electrical Engineering student is given a solid foundation in electricity, electronics, signals, and systems, with individual practical experience. Upon this basic foundation, the students then build expertise in advanced areas, stressing actual design practice, to prepare them for productive engineering careers. The focus areas can be categorized into the following: analog and digital electronics, controls, signal processing, communications, electromagnetics, microwaves, and space systems.

## Computer Engineering

Building on a solid curriculum in computing hardware and software, the Computer Engineering program begins with a strong foundation in electricity, digital logic design, and computer science, then leads into advanced software engineering and microcomputer systems. Advanced courses provide experience in formal design methods, high-performance architectures, data communications, concurrent programming, and real-time and embedded systems. Students are also required to complete advanced course sequences in computer science.

Students in the BS programs in both electrical engineering and computer engineering are permitted and encouraged to take courses in the other program. Many courses, such as controls, digital signal processing, and robotics, draw heavily on skills in both areas.

## Assessment

In addition to the regular national accreditation, the ECE Department employs a number of means to assess the quality of departmental programs. The primary indicator is the success of ECE graduates in obtaining professional employment. At intervals following graduation, the department keeps track of student placement. Other major tools include annual quantitative assessment of program objectives, semi-annual reviews of the curriculum and facilities by the ECE Industrial Advisory Board, interviews of undergraduate and graduate students upon completion of their programs, regular monitoring of faculty members by peers, and surveys of ECE graduates working in industry.

## Requirements

Prior to entry into the upper-division classes, the student must meet the standards for entry into the Professional Engineering Program. Additional information concerning these items is given in the College of Engineering write-up (pages 132-133). It is the responsibility of students to be aware of these rules and procedures; however, advisor assistance is available.

# Department of Electrical and Computer Engineering

## Admission to Pre-Professional Program

Admission requirements for students desiring to major in Electrical Engineering or Computer Engineering are the same as those governing admission to the College of Engineering (see page 131), *except* that students must also be “calculus ready.” That is, they must: (1) achieve a score of 27 or higher on the math ACT test; (2) complete MATH 1050 and 1060 *or* MATH 1210; or (3) achieve an AP score of at least 3 on the AB Calculus or BC Calculus test.

## Bachelor of Science in Electrical Engineering

The program leading to a Bachelor of Science degree in electrical engineering is nominally a four-year program. The required program consists of a basic foundation of mathematics, science, computer science, engineering fundamentals, and laboratory and design experiences. Elective courses providing for one or more areas of technical focus, communication skills, and University Studies complete the program and prepare students for productive and rewarding careers in the electrical engineering profession.

## Bachelor of Science in Computer Engineering

The program leading to a Bachelor of Science in computer engineering is nominally a four-year program. The required program consists of a basic foundation of mathematics, science, computer science, engineering fundamentals, and laboratory and design experiences. Elective courses providing for one or more areas of technical focus, communication skills, and University Studies complete the program and prepare students for productive and rewarding careers in the computer engineering profession.

## Required Courses

Required courses are shown in the accompanying paragraphs; however, because of differences in high school or transfer student preparation, it is strongly recommended that students meet with the college academic advisor to plan a detailed semester-by-semester schedule for completing the preprofessional requirements. Particular attention must be paid to course prerequisites, requiring some students to take longer than four semesters to complete the preprofessional program. Students transferring into the department should consult with the college academic advisor for transfer credit evaluation and proper placement in the curriculum.

AP and CLEP credit may be used to meet some of the required technical and University Studies courses. Details concerning courses acceptable as electives are available from the Electrical and Computer Engineering Department.

## Electrical Engineering

### Pre-professional Program

#### Suggested Semester Schedule (126 credits)

##### Freshman Year (30 credits)

##### Fall Semester (15 credits)

MATH 1210 (QL)* Calculus I.....	4
CS 1400* Introduction to Computer Science—CS 1.....	3
ECE 1000* Introduction to Electrical and Computer Engineering.....	2
University Studies Breadth courses.....	6

##### Spring Semester (15 credits)

MATH 1220 (QL)* Calculus II.....	4
CS 1410 (QI)* Introduction to Computer Science—CS 2.....	3
PHYS 2210 (QI)* General Physics—Science and Engineering I.....	4
ECE 2700* Digital Circuits.....	4

### Sophomore Year (32-33 credits)

#### Fall Semester (16 credits)

MATH 2210 (QI)* Multivariable Calculus.....	3
MATH 2270 (QI)* Linear Algebra.....	3
PHYS 2220 (BPS/QI)* General Physics— Science and Engineering II.....	4
University Studies Breadth courses.....	6

#### Spring Semester (16-17 credits)

MATH 2280 (QI)* Ordinary Differential Equations.....	3
ECE 2250* Electrical Circuits.....	4
ENGL 2010 (CL2)* Intermediate Writing: Research Writing in a Persuasive Mode.....	3
Technical Elective course.....	3-4
University Studies Breadth course.....	3

\*These classes are required for admission to the Professional Engineering Program (PEP). Courses are listed under the semesters in which they best fit.

## Professional Program

Because of the variations in schedules, it is recommended that students meet with an advisor to work out a schedule for their junior and senior years. The following courses are required for students selecting the **Professional Program in Electrical Engineering**.

### Suggested Semester Schedule

#### Junior Year (33-34 credits)<sup>1</sup>

##### Fall Semester (17 credits)

ECE 3620 Circuits and Signals.....	3
ECE 3710 Microcomputer Hardware and Software.....	4
ECE 3810** Engineering Professionalism.....	1
ECE 5530 Digital System Design.....	3
ENGL 3080 (CI)** Introduction to Technical Communication.....	3
MATH 5710 Introduction to Probability.....	3

##### Spring Semester (16-17 credits)

ECE 3410 Microelectronics I.....	4
ECE 3640 Signals and Systems.....	3
ECE 3870 Electromagnetics I.....	4
Math/Science elective course.....	3
University Studies Depth Humanities and Creative Arts (DHA) course.....	2-3

#### Senior Year (29-30 credits)

##### Fall Semester (15 credits)

ECE elective courses.....	15
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##### Spring Semester (14-15 credits)

ECE 4850 (CI)** Engineering Communications.....	2
ECE elective courses.....	6
University Studies Depth Social Sciences (DSS) course.....	3
ECE Capstone course***.....	3-4

<sup>1</sup>Some of the junior classes can be delayed until the senior year, but this may limit a student's choice of electives during his or her senior year.

\*\*ENGL 3080 and ECE 3810 must be taken concurrently.

\*\*\*ECE 4850 and a capstone course must be taken during the same semester.

### Capstone Courses (select 3-4 credits)

ECE 4840 (CI) Engineering Design (F,Sp).....	3
ECE 5240 Space System Design (Sp).....	3
ECE 5340 Mobile Robots (F).....	4
ECE 5770 Microcomputer Interfacing (Sp).....	4
ECE 5930 ST: Optical Systems (F).....	3
ECE 5930 ST: Digital Radio (ECE 5660 or 5810 should be taken concurrently) (Sp).....	3

# Department of Electrical and Computer Engineering

## Technical Elective Courses (select 28 or more credits)

### Electrical Engineering Electives (select 21-25 credits)

ECE 3720	Microcomputer Systems Programming (Sp)	3
ECE 4650 <sup>4</sup>	Optics I (F)	3
ECE 4680 <sup>4</sup>	Optics II (Sp)	3
ECE 4740	Computer and Data Communications (F)	3

Also, any ECE 5000-level course (including ECE 5930 when topic relates to electrical engineering) may be counted as an Electrical Engineering Elective.

### Math and Science Electives (select 3-7 credits)

MATH 3310	Discrete Mathematics (F,Sp,Su)	3
MATH 4200 (CI)	Foundations of Analysis (F,Sp)	3
MATH 4310 (CI)	Introduction to Algebraic Structures (F,Sp)	3
MATH 5210	Introduction to Analysis I (F)	3
MATH 5220	Introduction to Analysis II (Sp)	3
MATH 5270	Complex Variables (Sp)	3
MATH 5310	Introduction to Modern Algebra (Sp)	3
MATH 5340	Theory of Linear Algebra (F)	3
MATH 5410	Methods of Applied Mathematics (F)	3
MATH 5420	Partial Differential Equations (Sp)	3
MATH 5460	Introduction to the Theory and Application of Nonlinear Dynamical Systems (Sp)	3
MATH 5510	Introduction to Topology (Alt F)	3
MATH 5610	Computational Linear Algebra and Solution of Systems of Equations (F)	3
MATH 5620	Numerical Solution of Differential Equations (Sp)	3
MATH 5720	Introduction to Mathematical Statistics (Sp)	3
MATH 5760	Stochastic Processes (F)	3
AP Biology		4
BIOL 1610	Biology I (F)	4
BIOL 2420	Human Physiology (F,Sp,Su)	4
BIOL 3300	General Microbiology (F,Sp)	4
AP Chemistry		8
CHEM 1210	Principles of Chemistry I (F,Sp)	4
CHEM 1215	Chemical Principles Laboratory I (F,Sp)	1
CHEM 1220 (BPS)	Principles of Chemistry II (F,Sp,Su)	4
CHEM 2310	Organic Chemistry I (F)	4
CHEM 3700	Introductory Biochemistry (Sp)	3
CHEM 3710	Introductory Biochemistry Laboratory (Sp)	1
PHYS 2710	Introductory Modern Physics	3
PHYS 3550 <sup>2</sup>	Intermediate Classical Mechanics	3
PHYS 3600	Intermediate Electromagnetism	3
PHYS 3700 <sup>3</sup>	Thermal Physics	3
PHYS 3710	Intermediate Modern Physics	3
PHYS 3750	Foundations of Wave Phenomena	3
PHYS 4550	Advanced Classical Mechanics	3
PHYS 4600	Advanced Electromagnetism	3
PHYS 4650 <sup>4</sup>	Optics I	3
PHYS 4680 <sup>4</sup>	Optics II	3
PHYS 4700	Quantum Mechanics I	3
PHYS 4710	Quantum Mechanics II	3
WILD 2200 (BLS)	Ecology of Our Changing World (F,Sp)	3

### Technical Electives (select 0-4 credits)

CS 2420 (QI)	Algorithms and Data Structures—CS 3 (F,Sp,Su)	3
CS 2450 (CI)	Introduction to Software Engineering I (Sp)	3
CS 2810	Computer Systems Organization and Architecture I (F,Sp)	3
CS 3100	Operating Systems and Concurrency (F,Sp)	3
CS 3450	Introduction to Software Engineering II (F)	3
CS 4700	Programming Languages (F,Sp)	3
CS 5000	Theory of Computability (Sp)	3
CS 5050	Advanced Algorithms (F,Sp)	3
CS 5100	Graphical User Interfaces and Windows Programming (Sp)	4

CS 5200	Distributed and Network Programming (F)	4
CS 5300	Compiler Construction (F)	4
CS 5370	Advanced Software Engineering (Sp)	3
CS 5400	Computer Graphics I (Sp)	4
CS 5450	Multimedia Systems (Sp)	4
CS 5500	Parallel Programming (Sp)	3
CS 5600	AI: Problem Solving and Expert Systems (F)	3
CS 5650	CVPRIP I: Computer Vision, Pattern Recognition, and Image Processing (F)	3
CS 5700	Object-Oriented Software Development (F)	3
CS 5800	Introduction to Database Systems (F)	3
CS 5850	Systems Analysis (Sp)	3
CEE 4200	Engineering Economics (F)	2
ECE 4250	Internship/Co-op (F,Sp,Su)	3
ENGR 2010 <sup>2</sup>	Engineering Mechanics Statics (F,Sp)	2
ENGR 2030	Engineering Mechanics Dynamics (F,Sp,Su)	3
ENGR 2140	Strength of Materials (F,Sp,Su)	2
ENGR 5500	High Performance Computing for Engineers (F)	3
MAE 2160	Material Science (F,Sp)	3
MAE 2300 <sup>3</sup>	Thermodynamics I (Sp,Su)	3

<sup>2</sup>Students cannot receive credit for both Engineering Mechanics and Analytical Mechanics.  
<sup>3</sup>Students cannot receive credit for both Engineering Thermodynamics and Thermal Physics.  
<sup>4</sup>Students cannot receive credit for both ECE Optics and PHYS Optics.

## Computer Engineering

### Pre-professional Program

#### Suggested Semester Schedule

#### Freshman Year (30-31 credits)

##### Fall Semester (15-16 credits)

MATH 1210 (QL)*	Calculus I	4
CS 1400*	Introduction to Computer Science—CS 1	3
CS 1405*	Introduction to Computer Science—CS 1 Lab	(1)
ECE 1000*	Introduction to Electrical and Computer Engineering	2
University Studies	Breadth courses	6

##### Spring Semester (15 credits)

MATH 1220 (QL)*	Calculus II	4
CS 1410 (QI)*	Introduction to Computer Science—CS 2	3
PHYS 2210 (QI)*	General Physics—Science and Engineering I	4
ECE 2700*	Digital Circuits	4

#### Sophomore Year (31-32 credits)

##### Fall Semester (16 credits)

ENGL 2010 (CL2)*	Intermediate Writing: Research Writing in a Persuasive Mode	3
CS 2420 (QI)*	Algorithms and Data Structures—CS 3	3
MATH 2270 (QI)*	Linear Algebra	3
PHYS 2220 (BPS/QI)*	General Physics—Science and Engineering II	4
University Studies	Breadth course	3

##### Spring Semester (15-16 credits)

MATH 2280 (QI)*	Ordinary Differential Equations	3
MATH 3310	Discrete Mathematics	3
ECE 2250*	Electrical Circuits	4
Technical Elective course		2-3
University Studies	Breadth course	3

<sup>5</sup>Students desiring a Computer Science minor must take CS 1405 as a freshman. The rest of the minor is built into the curriculum. This lab is *not required* for the Computer Engineering major.

\*These classes are required for admission to the Professional Engineering Program (PEP). Courses are listed under the semesters in which they best fit.

# Department of Electrical and Computer Engineering

## Professional Program

### Suggested Semester Schedule

Because of the variation in schedules, it is recommended that students meet with an advisor to work out a schedule for their junior and senior years. The following courses are required for students selecting the Professional Program in Computer Engineering.

### Suggested Semester Schedule

#### Junior Year (33 credits)<sup>6</sup>

##### Fall Semester (17 credits)

CS 3100 Operating Systems and Concurrency.....	3
ECE 3620 Circuits and Signals .....	3
ECE 3710 Microcomputer Hardware and Software.....	4
ECE 3810** Engineering Professionalism.....	1
ECE 5530 Digital System Design .....	3
ENGL 3080 (CI)** Introduction to Technical Communication .....	3

##### Spring Semester (16 credits)

ECE 3410 Microelectronics I .....	4
ECE 3640 Signals and Systems.....	3
ECE 3720 Microcomputer Systems Programming.....	3
MATH 5710 Introduction to Probability.....	3
University Studies Breadth course .....	3

#### Senior Year (30-33 credits)

##### Fall Semester (16-17 credits)

ECE 4740 Computer and Data Communications .....	3
High-Level Technical Elective course .....	4
Computer Science elective course.....	4
Computer Engineering elective course.....	3
University Studies Depth Humanities and Creative Arts (DHA) course.....	2-3

##### Spring Semester (14-16 credits)

ECE 4850 (CI)** Engineering Communications .....	2
High-Level Technical Elective course .....	3-4
Math/Science elective course.....	3
University Studies Depth Social Sciences (DSS) course .....	3
ECE Capstone course*** .....	3-4

<sup>6</sup>Some of the junior classes can be delayed until the senior year, but this may limit a student's choice of electives during his or her senior year.

\*\*ENGL 3080 and ECE 3810 must be taken concurrently.

\*\*\*ECE 4850 and a capstone course must be taken during the same semester.

### Capstone Courses (select 3-4 credits)

ECE 4840 (CI) Engineering Design (F,Sp).....	3
ECE 5240 Space System Design (Sp).....	3
ECE 5340 Mobile Robots (F).....	4
ECE 5770 Microcomputer Interfacing (Sp).....	4
ECE 5930 ST: Optical Systems (F) .....	3
ECE 5930 ST: Digital Radio (ECE 5660 or 5810 should be taken concurrently) (Sp).....	3

### High-Level Technical Elective Courses

#### (select 14-17 credits)

Students must complete a total of *at least* 14 credits within high-level technical electives. Courses listed in this departmental section as Computer Engineering Electives or Computer Science Electives may be used to fulfill this requirement. Also, courses having an ECE or CS prefix, which are numbered at the 5000 level, may be used as high-level technical electives.

### Technical Elective Courses (select 20 or more credits)

#### Computer Engineering Electives (select 3-13 credits)

ECE 5320 Mechatronics (Sp).....	4
ECE 5640 Real-Time Processors (Sp).....	4
ECE 5740 Concurrent Programming (F).....	3
ECE 5750 High-Performance Microprocessor Architecture (Sp).....	3
ECE 5770 Microcomputer Interfacing (Sp).....	4
ECE 5780 Real-Time Systems (F).....	4

#### Computer Science Electives (select 4-14 credits)

CS 5100 Graphical User Interfaces and Windows Programming (Sp).....	4
CS 5200 Distributed and Network Programming (F).....	4
CS 5400 Computer Graphics I (Sp).....	4

#### Math and Science Electives (select 3-6 credits)

MATH 2210 (QI) Multivariable Calculus (F,Sp,Su).....	3
MATH 4200 (CI) Foundations of Analysis (F,Sp).....	3
MATH 4310 (CI) Introduction to Algebraic Structures (F,Sp).....	3
MATH 5210 Introduction to Analysis I (F).....	3
MATH 5220 Introduction to Analysis II (Sp).....	3
MATH 5270 Complex Variables (Sp).....	3
MATH 5310 Introduction to Modern Algebra (Sp) .....	3
MATH 5340 Theory of Linear Algebra (F) .....	3
MATH 5410 Methods of Applied Mathematics (F).....	3
MATH 5420 Partial Differential Equations (Sp) .....	3
MATH 5460 Introduction to the Theory and Application of Nonlinear Dynamical Systems (Sp).....	3
MATH 5510 Introduction to Topology (Alt F) .....	3
MATH 5610 Computational Linear Algebra and Solution of Systems of Equations (F).....	3
MATH 5620 Numerical Solution of Differential Equations (Sp) .....	3
MATH 5720 Introduction to Mathematical Statistics (Sp).....	3
MATH 5760 Stochastic Processes (F) .....	3
AP Biology .....	4
BIOL 1610 Biology I (F).....	4
BIOL 2420 Human Physiology (F,Sp,Su) .....	4
BIOL 3300 General Microbiology (F,Sp) .....	4
AP Chemistry.....	8
CHEM 1210 Principles of Chemistry I (F,Sp).....	4
CHEM 1215 Chemical Principles Laboratory I (F,Sp).....	1
CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su) .....	4
CHEM 2310 Organic Chemistry I (F).....	4
CHEM 3700 Introductory Biochemistry (Sp).....	3
CHEM 3710 Introductory Biochemistry Laboratory (Sp) .....	1
PHYS 2710 Introductory Modern Physics .....	3
PHYS 3550 <sup>7</sup> Intermediate Classical Mechanics .....	3
PHYS 3600 Intermediate Electromagnetism.....	3
PHYS 3700 <sup>8</sup> Thermal Physics.....	3
PHYS 3710 Intermediate Modern Physics .....	3
PHYS 3750 Foundations of Wave Phenomena .....	3
PHYS 4550 Advanced Classical Mechanics .....	3
PHYS 4600 Advanced Electromagnetism .....	3
PHYS 4650 <sup>9</sup> Optics I .....	3
PHYS 4680 <sup>9</sup> Optics II .....	3
PHYS 4700 Quantum Mechanics I.....	3
PHYS 4710 Quantum Mechanics II.....	3
WILD 2200 (BLS) Ecology of Our Changing World (F,Sp).....	3

#### Technical Electives (select 0-3 credits)

CS 2450 (CI) Introduction to Software Engineering I (Sp).....	3
CS 3450 Introduction to Software Engineering II (F).....	3
CS 2810 Computer Systems Organization and Architecture I (F,Sp)....	3
CS 4700 Programming Languages (F,Sp).....	3
CEE 4200 Engineering Economics (F).....	2
ECE 4250 Internship/Co-op (F,Sp,Su).....	3



# Department of Electrical and Computer Engineering

<b>ENGR 2010</b> Engineering Mechanics Statics (F,Sp) .....	2
<b>ENGR 2030</b> Engineering Mechanics Dynamics (F,Sp,Su).....	3
<b>ENGR 2140</b> Strength of Materials (F,Sp,Su).....	2
<b>MAE 2160</b> Material Science (F,Sp) .....	3
<b>MAE 2300</b> Thermodynamics I (Sp,Su).....	3
<b>ENGR 5500</b> High Performance Computing for Engineers (F).....	3

Any upper-division (3000, 4000, or 5000 level) ECE class not required by the major may also be used as a Technical Elective course. However, specific courses must be approved in writing before the student registers for the course.

<sup>7</sup>Students cannot receive credit for both Engineering Mechanics *and* Physics Mechanics.

<sup>8</sup>Students cannot receive credit for both Engineering Thermodynamics *and* Physics Thermodynamics.

<sup>9</sup>Students cannot receive credit for both ECE Optics *and* PHYS Optics.

## Minors

Students should have all minors approved by the minor department. Minors may be filled by using the Technical Electives credits for courses in the chosen minor area. All courses required for the minors must be completed with grades of C- or better.

### Mathematics Minor

Required courses include:

<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su) .....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su) .....	4
<b>MATH 2210 (QI)</b> Multivariable Calculus (F,Sp,Su) .....	3
<b>MATH 2270 (QI)</b> Linear Algebra (F) .....	3
<b>MATH 2280 (QI)</b> Ordinary Differential Equations (Sp) .....	3

Two additional courses (6 credits) numbered above 4000, excluding MATH 4300, 4400, 4500, 5570, and 5580, are also required.

### Physics Minor

<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I .....	4
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II .....	4

Students must also select 10 credits from PHYS 2500, 2710, and/or PHYS courses at the 3000 level and above (*not* to include PHYS courses designated as USU Depth courses).

### Computer Science Minor

A minimum of 16 credits (with a cumulative GPA of 2.5 or higher and a C- or better in each class) is required. Students must complete the following courses:

<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su) .....	3
<b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3

Students must also complete two additional computer science classes. At least one of these two classes must be numbered at the 3000 level or above. Students should contact the Computer Science Department for information about classes that may not be used toward the Computer Science Minor.

**Other minors** should be approved by the minor department.

## Student Research Opportunities

Undergraduate students are extensively involved with research activities in the department. Electrical engineering majors and computer engineering majors have presented papers at research conferences and have won prizes. They have also designed satellites for deployment from the space shuttle. Electrical and Computer Engineering faculty members are dedicated to helping students and

providing a challenging and interesting learning atmosphere. For additional information, see the *Research* section under *Graduate Programs* (page 242).

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances of obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, honors@usu.edu. Additional information can be found online at: <http://www.usu.edu/honors/>

## Financial Support

Scholarships, assistantships, grants-in-aid, and work-study programs are available through the University. In addition, the department employs undergraduate and graduate students to assist in engineering research and development.

## Concurrent BS/Master's Program

The concurrent BS/Master's program allows engineering students to begin taking graduate-level classes during their senior year. This permits them to complete requirements for both the BS degree and the master's degree concurrently in five years. Students in this program have a greater selection of graduate courses, since many graduate courses are taught during alternate years. In addition, the student's senior design project could be a start for a graduate design project or thesis. Both the BS and the master's degree can generally be earned with 150 total credits. The department requires that students have a minimum GPA of 3.3, both overall and during the last 60 semester credits, in order to qualify for acceptance into the concurrent BS/Master's program. (For more information, see the *College of Engineering* section of this catalog, pages 133-134.)

## Additional Information

For more information about Bachelor of Science requirements and the sequence in which courses should be taken, see the major requirement sheet, available from the Electrical and Computer Engineering Department, or online at: <http://www.usu.edu/majorsheets/>

# Department of Electrical and Computer Engineering

## Graduate Programs

### Admission Requirements

See general admission requirements on pages 36-37. Applicants with a bachelor's degree in Electrical or Computer Engineering from an ABET accredited program and having a 3.1 GPA or better can generally be admitted without restriction. Additional coursework in electrical and computer engineering fundamentals may be required in individual cases. Students must take the general GRE exam; however, the subject GRE is not required. All graduate students are expected to have a working knowledge of a high-level computer language (preferably C or C++).

Applications may be considered throughout the year. However, students desiring financial aid should submit application materials by January 1 to be considered for the following fall semester and July 1 to be considered for the following spring semester.

**No applications will be considered until all required information arrives in the office of the School of Graduate Studies.**

### Degree Requirements

Specific requirements for the ME, MS, and PhD degrees are outlined below; these are in addition to the general requirements of the School of Graduate Studies.

#### Master of Engineering (ME) and Master of Science (MS)

The ME degree is based on coursework and is designed to give graduates a strong practical foundation. The MS degree requires substantial thesis or project work in a specific area and prepares students for advanced study or advanced work in that area. The MS degree has two options. Under Plan A, the student completes a thesis. Under Plan B, the student prepares an engineering project report.

If a student initially chooses an MS degree, changing to the ME degree is only possible by approval of the major professor, ECE graduate committee, and the department head.

The MS and ME degrees require successful completion of 30 credits of 5000-level or above coursework in a program approved by the student's supervisory committee, with the following stipulations:

#### Master of Science (Electrical Engineering)

1. At least 3 credits of ECE coursework must be completed at the 7000 level.
2. At least 12 credits of ECE coursework (excluding thesis and ECE 6800 seminar) must be completed at or above the 6000 level.
3. MS Plan A students must complete 6 credits of Thesis Research (ECE 6970).
4. MS Plan B students must complete 3 credits of Thesis Research (ECE 6970) and 3 credits of Design Project (ECE 6950).
5. No more than 15 credits of ECE 5000-level courses, Independent Study courses, or non-ECE courses may be applied toward the MS in Electrical Engineering degree.
6. MS students must have a one- to two-page, double-spaced thesis or project proposal approved by their committee when a project has been identified.

#### Master of Science (Computer Engineering)

1. At least 12 credits (excluding thesis and ECE 6800 seminar) must be completed in Electrical or Computer Engineering.
2. At least two sequences in Electrical or Computer Engineering or Computer Science, with at least one of the sequences in core Computer Engineering courses, must be completed.
3. MS Plan A students must complete 6 credits of Thesis Research (ECE 6970).
4. MS Plan B students must complete 3 credits of Thesis Research (ECE 6970) and 3 credits of Design Project (ECE 6950).
5. No more than 15 credits of ECE 5000-level courses or CS 5000-level courses, or non-ECE/CS courses, or Independent Study courses may be applied toward the MS in Computer Engineering degree.

#### Master of Engineering (Electrical Engineering or Computer Engineering Specialization)

To obtain the specialization in Electrical Engineering or Computer Engineering, at least 9 credits of ECE coursework must be taken in the desired specialization area.

1. At least 18 credits of ECE coursework must be completed at or above the 5000 level.
2. At least one ECE depth course (having a graduate-level prerequisite) is required.
3. At least 15 credits of 6000-level or above coursework (excluding ECE 6800) are required.
4. No more than 15 credits of ECE 5000-level or Independent Study courses may be applied toward the ME degree.
5. At least 3 credits of Professional Experience (ECE 6250 Internship or a lab-intensive course) are required. Only 3 credits of ECE 6250 Internship are allowed and must have prior approval.
6. A maximum of 12 credits outside of the Electrical and Computer Engineering Department may be allowed, based upon a comprehensive academic plan. Courses must be approved by the Master of Engineering advisor.

#### All Master's Students

1. One credit of ECE 6800 (Electrical Engineering Colloquium) must be completed as soon as possible.
2. Each master's student must form a committee and have a program of study approved by the end of his or her first semester.
3. Any exceptions to the master's requirements must be approved by the student's committee and the ECE Graduate Committee.

A course in technical and professional writing, or equivalent writing experience, is required for MS students prior to beginning the thesis. This may be fulfilled as a requirement for a bachelor's degree. MS students may, at the discretion of their supervisors, be required to hire an editor to bring the thesis or paper into acceptable form.

#### Doctor of Philosophy

To qualify for a PhD degree, a student is expected *either* to complete at least 51 credits of coursework beyond the requirements for a BS degree; *or* to complete at least 21 credits of coursework beyond the requirements for an MS degree, *plus* complete enough credits of dissertation research to have a total of 90 credits beyond the BS degree or 60 credits beyond the MS degree. Completion of this coursework generally requires three semesters of study beyond the

# Department of Electrical and Computer Engineering

MS degree, and allowing up to 18 credits beyond the BS degree being taken in courses outside the Electrical and Computer Engineering Department.

After a student has completed at least 18 credits of coursework beyond the MS degree, he or she must pass a comprehensive examination based on graduate-level courses, as well as pass a dissertation research proposal defense. The comprehensive examination will be given *only* after a student has applied and received permission to take the exam. Near the end of the program, the results of the original (publishable) research work will be presented and publicly defended as a dissertation.

For further information, visit the departmental website at: <http://www.engineering.usu.edu/ece/>

## Research

The department conducts extensive research through the following centers:

1. Center for Self-Organizing Intelligent Systems (CSOIS)
2. Information Dynamics Laboratory (IDL)
3. Space Dynamics Laboratory (SDL)
4. Anderson Center for Wireless Teaching and Research
5. Rocky Mountain NASA Space Grant
6. Center for Advanced Imagery LADAR (CAIL)
7. Micron Research Center
8. CHAMP

Research activities include: robotics, control systems, digital system design, computer networks, concurrent systems, antennas, space systems, image processing, digital signal processing, wireless communications, acoustics, electromagnetic compatibility, and LADAR systems.

## Financial Assistance

All applicants who are accepted academically are automatically considered for financial aid. Many successful graduate students in the department do receive some level of financial aid during their degree program.

## Electrical and Computer Engineering Faculty

### Professors

*Doran J. Baker*, electromagnetics, infrared measurements, engineering systems in space  
*H. Scott Hinton*, photonic switching  
*Todd K. Moon*, communications and signal processing  
*Charles M. Swenson*, space science and space engineering

### Adjunct Professor

*Heng-Da Cheng*, pattern recognition, image processing

### Trustee Professor Emeritus

*Kay D. Baker*, electronics, space science

### Professors Emeritus

*Robert W. Gunderson*, control systems, pattern recognition, robotics  
*Ronney D. Harris*, microwaves, transmission line circuits, atmospheric modeling  
*William L. Jones*, integrated circuits  
*Alan W. Shaw*, electromagnetics, controls, microcomputers  
*Allan J. Steed*, electro-optics, aerospace measurement systems  
*Gardiner S. "Dyke" Stiles*, concurrent systems  
*Ronald L. Thurgood*, computers, database systems

### Associate Professors

*Scott E. Budge*, signal processing, image processing  
*YangQuan Chen*, control systems  
*Jacob H. Gunther*, communications and signal processing  
*Paul A. Wheeler*, microprocessors, acoustics

### Research Associate Professors

*Paul D. Israelsen*, integrative services, digital systems design  
*Robert T. Pack*, geological and geomatics engineering

### Adjunct Associate Professors

*R. Rees Fullmer*, control systems, space engineering  
*Ronald J. Huppi*, space research  
*John C. Kemp*, robotics, electro-optics  
*Tsung-Cheng Shen*, physics  
*Gene A. Ware*, computer systems

### Associate Professor Emeritus

*Duane G. Chadwick*, remote sensors, instrumentation

### Assistant Professors

*Reyhan Baktur*, electromagnetics  
*Bedri Cetiner*, microwaves, electromagnetics  
*Koushik Chakraborty*, computer engineering  
*Aravind Dasu*, computer engineering  
*Brandon K. Eames*, computer engineering  
*Wei Ren*, controls  
*Sanghamitra Roy*, computer engineering  
*Edmund Spencer*, space science and engineering  
*Chris Winstead*, analog VLSI

### Principal Lecturers

*Fon R. Brown*, networking  
*Donald L. Cripps*, control systems, robotics

### Research Assistant Professor

*Hui Fang Dou*, precision instruments, mechatronics

### Adjunct Assistant Professor

*Patric L. Patterson*, space research

### Adjunct Research Assistant Professor

*Randy J. Jost*, electromagnetic fields, solid state, microwaves

## Course Descriptions

Electrical and Computer Engineering (ECE), pages 541-544

# Elementary Education Program, School of Teacher Education and Leadership

## Associate Dean/Department Head of School of Teacher Education and Leadership: Martha T. Dever

**Location:** Emma Eccles Jones Education 385A

**Phone:** (435) 797-2225

**FAX:** (435) 797-0372

**E-mail:** teal@usu.edu

**WWW:** <http://www.teal.usu.edu/htm/eled>

## Associate Department Head, Doctoral Program:

Deborah A. Byrnes, Education 399, (435) 797-0396,  
deborah.byrnes@usu.edu

## Associate Department Head, Elementary Education Program:

Parker C. Fawson, Edith Bowen Laboratory School 235,  
(435) 797-0866, parker.fawson@usu.edu

## Associate Department Head, Regional Campuses and Distance Education:

James J. Barta, Salt Lake City, (801) 646-5570, jim.barta@usu.edu

## Student Teaching Director:

Vesna Jenkins, Education 330, (435) 797-0371,  
vesna.jenkins@usu.edu

## Director of Advising:

Denise E. Taylor, Education 383, (435) 797-0391,  
denise.taylor@usu.edu

## Undergraduate Advisors:

Shannon M. Burgin, Coordinator of Recruitment, Education 377,  
(435) 797-0377, shannon.burgin@usu.edu

Chad Downs, Education 378, (435) 797-3397,  
chad.downs@usu.edu

Janey Stoddard, RCDE Advising Coordinator, Education 376,  
(435) 797-2224, janey.stoddard@usu.edu

Shelly Wiegand, Education 375, (435) 797-0383,  
shelly.wiegand@usu.edu

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), Master of Arts (MA), Master of Education (MEd), and Educational Specialist (EdS) in Elementary Education; BS and BA in Early Childhood Education; Kindergarten through Grade 6 (K-6) Licensure Program. The School of TEAL administers the Doctor of Education (EdD) and Doctor of Philosophy (PhD) programs, with a Curriculum and Instruction specialization.

**Graduate specializations:** MA, MS, MEd—Early Childhood Education; Educational Leadership; ESL Education; Gifted and Talented Education; Math and Science Education; Middle Education; Reading, Writing, and Language Arts; and Social Studies Education

## Undergraduate Programs

### Objectives

The purposes of the Elementary Education Program are:

1. To develop professional educators;
2. To advance knowledge in the field of education.

These purposes are realized through teaching, scholarly activities, and service. The program provides leadership in the preparation of teachers, supervisors, curriculum specialists, and other professional personnel for careers in elementary education, early childhood education, and middle education.

The Elementary Education Program at Utah State University offers nine programs leading to licensure as a teacher. In the following list, each program name is followed by the licensure obtained (shown in parentheses). (1) Elementary Education (grades 1 through 6); (2) Early Childhood Education (preschool through grade 3); (3) Elementary Education K-6 (kindergarten through grade 6); (4) Elementary and Early Childhood Education (preschool through grade 6); (5) Composite Elementary Education/Special Education—Mild/Moderate (grades 1 through 6, K through 6, and Special Education grades kindergarten through 12); (6) Composite Elementary Education/Special Education—Severe (grades 1 through 6, K through 6, and Special Education grades kindergarten through 12); (7) Composite Early Childhood Education/Special Education—Early Childhood (preschool through grade 3, and Special Education birth through age 5); (8) Composite Elementary Education/Deaf Education (grades 1-6, K through 6, and Master's in Deaf Education); (9) Composite Early Childhood Education/Deaf Education (preschool through grade 3, and Master's in Deaf Education).

### Undergraduate Research

Undergraduate research opportunities are available with many departmental faculty members. Interested students should contact Francine Johnson, Associate Dean in the Emma Eccles Jones College of Education and Human Services, (435) 797-2714, francine.johnson@usu.edu.

### Assessment

To review Elementary Education Program assessment information, visit: <http://www.teal.usu.edu/htm/eled/assessment/>

### University Studies Requirements

Elementary Education Majors and Early Childhood Education Majors are required to take certain classes to fulfill the University Studies requirements. The following sections list the specific courses to choose from:

#### Computer and Information Literacy (0-3 credits)

Passing grade on six computer and information literacy related examinations. Although no specific course is required, USU 1000 and OSS 1400 teach the required skills.

#### Quantitative Literacy (QL) (3 credits)

(A grade lower than a C- will not be accepted in these courses.)

**STAT 1040 (QL)** Introduction to Statistics (F,Sp,Su) ..... 3  
(MATH 1050 or Math ACT score of 25 or higher is required to apply to the Teacher Education Program.)

#### Breadth Requirements (18-19 credits)

Choose one course from the following to meet the BAI requirement:  
ECN 1500, HIST 2700, POLS 1100, USU 1300 ..... 3

Choose one course from the following to meet the BCA requirement:  
MUSC 1010, USU 1330 ..... 3

Choose one course from the following to meet the BHU requirement:  
ANTH 2210, HIST 1110, HIST 1510, PHIL 1000, PHIL 1120,  
PHIL 1200, PHIL 2400, USU 1320 ..... 3

Choose one course from the following to meet the BSS requirement:  
ANTH 1010, ANTH 2010, ASTE 2900, ENVS 2340, GEOG 1300,  
GEOG 1400, JCOM 1500, NR 1010, POLS 2200, SOC 1010,  
USU 1340 ..... 3

# Elementary Education Program, School of Teacher Education and Leadership

Choose one course from the following to meet the BLS requirement:  
 BIOL 1010, NFS 1020, PLSC 2100, USU 1350, WATS 1200,  
 WILD 2200 ..... 3

Choose one course from the following to meet the BPS requirement:  
 CHEM 1010, CLIM 2000, GEO 1010, GEO 1110, GEOG 1000,  
 PHYS 1040, SOIL 2000, USU 1360 ..... 3

### Exploration Requirement (3-4 credits)

Students in the Elementary and Early Childhood Education majors should fulfill this requirement by completing PHYS 1200 (BPS).

### Depth Education Requirements

#### Communications Intensive (CI) (2 courses) (included in major)

**ELED 3000 (CI)** Foundation Studies and Practicum in Teaching and Classroom Management Level II (F,Sp) ..... 4-6  
**ELED 4030 (CI)** Teaching Language Arts and Practicum Level III (F,Sp,Su) ..... 3

#### Quantitative Intensive (QI) (1 course)

(A grade lower than a C- will not be accepted in this course.)  
**MATH 2020 (QI)**<sup>1</sup> Introduction to Logic and Geometry (F,Sp,Su) ..... 3

#### Depth Course Requirements (4 credits minimum)

Complete at least 4 credits in approved University Studies depth courses designated DSC, DHA, or DSS (outside of area of emphasis).

<sup>1</sup>Prerequisite: MATH 1050, Math ACT score of 25 or higher, or Math SAT score of 580 or higher (also required to apply to the Teacher Education Program).

## Requirements

### Provisional Admission Process and Requirements

More students major in Elementary Education at USU than in any other major. Therefore, competition for admission into the program is very keen. Due to increased demands for admission, coupled with limited resources, a ceiling of 180 students has been placed on admissions each year. Thus, admission to USU does not necessarily guarantee admission into the Elementary Education Program.

Provisional admission to the Elementary and Early Childhood Teacher Education Program is determined by (1) the student's GPA in a set of core courses, (2) ACT scores or PPST test results, (3) the number of credits a student has taken, and (4) successful completion of a group assessment interview. (Additional factors to be weighted may be gender and/or minority status consistent with applicable law.) Additional requirements for application to the program are the CIL (Computer and Information Literacy) exams, a speech and hearing test, a Teacher Education Writing Exam, and a background check through the Utah State Office of Education. Applications are accepted each semester. Because there are typically more applicants than there is space available, the number accepted is limited. **Students who are not accepted may reapply.** Provisional admission requires formal action by the Office of the Dean of the Emma Eccles Jones College of Education and Human Services, as well as by the student's department.

Admission to the Teacher Education Program is a prerequisite for enrollment in the major, starting with Level II. A student desiring admission to the Teacher Education Program should file an application in the Elementary Education Office, located in room 373 of the Emma Eccles Jones Education Building.

### Elementary Education SODIA Program

The acronym SODIA represents the Elementary Education Teacher Education Program. The name is derived from the initial letter of descriptive words (Self, Others, Discipline, Implementation, and Application) which represent emphasis placed at each level of the program.

The elementary education SODIA program is performance-based and field-centered. It utilizes public schools as partners in each phase of the Teacher Education Program. SODIA is an interdisciplinary and interdepartmental program utilizing staff members from the Departments of Psychology; Special Education and Rehabilitation; Family, Consumer, and Human Development; Health, Physical Education and Recreation; Music; Art; Theatre Arts; and Instructional Technology and Learning Sciences who work in conjunction with the Elementary Education Program. These University faculty members work with teachers and principals of cooperating public schools and the Edith Bowen Laboratory School on the USU campus in an integrated program.

**Level I, Self**, is represented by the "S" in the acronym SODIA. This includes the first-level course (ELED 1010) introducing the teacher training program at USU, exploring teaching as a career field (with emphasis on the INTASC standards), and emphasizing the student's self-assessment in relation to his or her ability and desire to teach. A minimum of 15 hours is spent observing in an elementary or middle school classroom, completing volunteer service in other community settings, and participating in personal development activities. In addition, a human growth and development course (FCHD 1500) is required. The two courses in Level I are prerequisites to applying to the Teacher Education Program.

**Level II, Others**, is represented by the "O" in the acronym SODIA. This stands for the many "others" who make up the education community or who have a vested interest in the education community. During the Level II semester, students take interdisciplinary coursework in the social foundations of education, educational psychology, special education, instructional technology, and their first course in teaching reading. Additionally, they are assigned as teacher assistants in elementary school classrooms. Entrance to Level II requires prior admission to the Teacher Education Program.

**Level III, Disciplines**, is represented by the "D" in the acronym SODIA. This stands for the disciplines that comprise the elementary curriculum. During the Level III semester, students take 16 credits of methods coursework, including reading, social studies, language arts, mathematics, science, and classroom management. Students apply what they have learned in this coursework during a five-week practicum.

**Level IV, Implementation**, is represented by the "I" in the acronym SODIA. This is the student teaching phase of the program. Student teaching constitutes full days of actual teaching experience for the entire semester.

**Level V, Application**, is represented by the "A" in the acronym SODIA. At this level, graduates of the program make a transition into the profession of teaching.

National INTASC Principles also receive major emphasis through SODIA's levels of progression. These principles are: Content Pedagogy, Student Development, Diverse Learners, Critical Thinking, Motivation and Management, Communication, Planning, Assessment, Professional Development, and School/Community Development. A student performance portfolio process (based around the INTASC Principles) is also included.

# Elementary Education Program, School of Teacher Education and Leadership

## Continuing Status Requirements

A minimum GPA of 2.75 is required to remain in good standing and to graduate from the program.

All students majoring in Elementary Education must be registered in the Emma Eccles Jones College of Education and Human Services. An advisor will be assigned from the Elementary Education Program. Programs of professional education courses, as well as teaching support courses and an area of emphasis, have been developed by the Elementary Education Program and approved by the Council on Teacher Education and the Utah State Office of Education. For a complete description of the program and requirements for graduation and licensure, students should visit the Elementary Education Program website: <http://www.teal.usu.edu/htm/eled/>

Prior to applying for student teaching, students are *required* to take and pass the Praxis II content test (10014) with a score of 150 or higher.

Each student completes a professional semester of student teaching. An application for student teaching must be made at least one semester in advance, and credentials are reevaluated at that time. Since not all student teachers can be accommodated by the schools located within Cache Valley, placements are made on a first-come, first-served basis. Students should be financially prepared to spend that time off campus in the event such an arrangement is necessary. Students must be responsible for their own transportation.

Students who carefully select their elective courses may also qualify for a special endorsement to the basic professional teaching license. Additional Praxis exams may be necessary for teaching minors and endorsements. All students complete an area of emphasis in a subject matter field, in addition to the teaching support courses. Information concerning special endorsements and additional areas of specialization may be obtained from the Elementary Education Program.

Students who have teaching licenses in areas other than elementary education may obtain the elementary license by meeting the same or equivalent requirements for licensure expected of an elementary education major. Those desiring to acquire a dual license should work with an advisor from the Elementary Education Program.

All courses listed as major subject courses must be taken on an *A-B-C-D-F* basis and the grade point average for these courses must be 2.75 or better. Major subject courses passed with less than a *C* grade must be repeated.

## Course Requirements

### Elementary Education Major (78-80 credits) (includes Teaching Support Courses and Emphasis)

Students majoring in Elementary Education should complete all the following courses as indicated.

**Note:** Teaching License requires 2.75 cumulative Grade Point Average (GPA). (Grades lower than a *C* will not be accepted in the major.)

#### Level I (6 credits) (2.75 GPA required in Level I courses)

ELED 1010 Orientation to Elementary Education (F,Sp,Su) ..... 3  
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp) ... 3

#### Level II (17 credits) (courses taken concurrently)

Students must be admitted to the Teacher Education Program prior to taking these classes.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II (F,Sp)..... 6  
ELED 3005 Beginning Classroom Management (F,Sp) ..... 1  
SPED 4000 Education of Exceptional Individuals (F,Sp,Su) ..... 2  
PSY 3660 Educational Psychology for Teachers (F,Sp)..... 2  
INST 4010 Principles and Practices of Technology for Elementary Teachers (F,Sp) ..... 3  
ELED 3100<sup>2</sup> Classroom Reading Instruction (F,Sp,Su) ..... 3

<sup>2</sup>ELED 3100 may be taken after Level II, but is required before Level III.

#### Level III (16 credits; must follow Level II) (courses taken concurrently)

ELED 4000 Teaching Science and Practicum Level III (F,Sp,Su) ..... 3  
ELED 4005 Intermediate Classroom Management (F,Sp,Su)..... 1  
ELED 4030 (CI) Teaching Language Arts and Practicum Level III (F,Sp,Su) ..... 3  
ELED 4040 (CI) Assessment and Instruction for Struggling Readers (F,Sp,Su) ..... 3  
ELED 4050 Teaching Social Studies and Practicum Level III (F,Sp,Su) ..... 3  
ELED 4060 Teaching Mathematics and Practicum Level III (F,Sp,Su)..... 3

#### Level IV (15 credits; must follow Level III)

ELED 5100 Student Teaching—Primary Grades (1-3) (F,Sp) ..... 6  
ELED 5150 Student Teaching—Elementary (Grades 4-6) (F,Sp) ..... 6  
ELED 5250 Student Teaching—Seminar: Classroom Management (F,Sp)..... 3

#### Teaching Support Courses (Elementary Education Major, 13-15 credits; Early Childhood and Elementary Education Dual Major, 10-11 credits) (Grade of C- or better is required.) Required Courses (5 credits)

MUSC 3260 Elementary School Music (F,Sp,Su) ..... 2  
PEP 3050 Physical Education in the Elementary School (F,Sp,Su) ..... 3

#### Teaching Support Electives (two or three courses, depending on major)

Choose *one* course from the following:  
HEP 2000 First Aid and Emergency Care (F,Sp,Su) ..... 2  
HEP 2500 Health and Wellness (F,Sp,Su) ..... 2  
HEP 3000 Drugs and Human Behavior (F,Su) ..... 3  
HEP 3500 Elementary School Health Education (F,Sp)..... 2

From the following, Elementary Education Majors choose *two* courses; Early Childhood and Elementary Education Dual Majors choose *one* course:

ART 3700 Elementary Art Methods (F,Sp) ..... 3  
ELED 4410 Gifted Education in the Regular Classroom (F,Sp) ..... 3  
ELED 4480 Early Childhood Education Kindergarten through Grade 3 (F,Sp)..... 3  
ELED 4710 Diversity in Education (F,Sp)..... 3  
ENGL 3530 Children's Literature (Sp)..... 3  
ENVS 5110 Environmental Education (Sp) ..... 3  
FCHD 2610 Child Guidance (F,Sp) ..... 3  
TEAL 4730 Educational Linguistics (F) ..... 3  
TEAL 4745 Second Language Acquisition in the Classroom (Sp)..... 3  
THEA 4030 (DHA) Storytelling (F,Sp,Su)..... 3  
THEA 4330 Drama and Theatre for Youth: Grades K-6 (F,Sp,Su) ..... 3

# Elementary Education Program, School of Teacher Education and Leadership

## Emphasis (12 credits) (C- or better required)

Available Emphasis areas are shown below. For a listing of required and recommended courses, students should contact their advisor.

## Early Childhood Education Major (80 credits) or Elementary Education K-6 Licensure Program (79 credits)

(includes Teaching Support Courses and Emphasis)

Note: Grades lower than a C will not be accepted toward major requirements.

### Level I (6 credits) (2.75 GPA required in Level I courses)

ELED 1010 Orientation to Elementary Education (F,Sp,Su)	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)	3

### Level II (14 credits) (courses taken concurrently)

Students must be admitted to the Teacher Education Program prior to taking these classes.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II (F,Sp)	4
ELED 3005 Beginning Classroom Management (F,Sp)	1
FCHD 2600 Seminar in Early Childhood Education (F,Sp)	2
FCHD 2630 Practicum in Early Childhood Education (F,Sp)	2
PSY 3660 Educational Psychology for Teachers (F,Sp)	2
ELED 3100 Classroom Reading Instruction (F,Sp,Su)	3

(ELED 3100 may be taken during transition semester, if desired.)

### Transition (11 credits)

SPED 4000 Education of Exceptional Individuals (F,Sp,Su)	2
INST 4010 Principles and Practices of Technology for Elementary Teachers (F,Sp,Su)	3
FCHD 4550 <sup>3</sup> Preschool Methods and Curriculum (F,Sp)	3
ELED 4480 <sup>3</sup> Early Childhood Education Kindergarten through Grade 3 (F,Sp)	3

### Level III (16 credits; must follow Level II) (courses taken concurrently during fall, spring, or summer semester)

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4005 Intermediate Classroom Management	1
ELED 4030 (CI) Teaching Language Arts and Practicum Level III	3
ELED 4040 (CI) Assessment and Instruction for Struggling Readers	3
ELED 4050 Teaching Social Studies and Practicum Level III	3
ELED 4060 Teaching Mathematics and Practicum Level III	3

### Level IV (21 credits for Early Child. Educ. or 23 credits for K-6) (taken during two semesters)

ELED 5050 <sup>4</sup> Student Teaching—Kindergarten (F,Sp)	6
ELED 5100 <sup>4</sup> Student Teaching—Primary Grades (1-3) (F,Sp) (for Early Childhood Education majors) (6 cr) or	
ELED 5150 <sup>4</sup> Student Teaching—Elementary (Grades 4-6) (F,Sp) (for Dual majors) (6 cr)	6
ELED 5250 <sup>4</sup> Student Teaching—Seminar: Classroom Management (F,Sp)	3
FCHD 4960 <sup>5</sup> Practice Teaching in Child Development Laboratories (F,Sp)	3 (for K-6) or 6 (for Early Child. Educ.)
MUSC 3260 Elementary School Music (F,Sp,Su) (required for K-6 program <i>only</i> )	(2)
PEP 3050 Physical Education in the Elementary School (F,Sp,Su) (required for K-6 program <i>only</i> )	(3)

<sup>3</sup>Level II must be completed prior to taking this course.

<sup>4</sup>Level III and ELED 4480 must be completed prior to taking this course.

<sup>5</sup>FCHD 4550 must be completed prior to taking this course.

## Emphasis (9 credits for Elementary Education K-6 Licensure Program, 12 credits for Early Childhood Education Major) (C- or better required)

A listing of available Emphasis areas is shown below. For a listing of required and recommended courses, students should contact their advisor.

### Electives (to complete 120 credits)

The following courses are recommended to be taken as electives.

ART 3700 Elementary Art Methods (F,Sp)	3
MUSC 3260 Elementary School Music (F,Sp,Su)	2
PEP 3050 Physical Education in the Elementary School (F,Sp,Su)	3
HEP 3500 Elementary School Health Education (F,Sp)	2
FCHD 2610 Child Guidance (F,Sp)	3

## Elementary/Early Childhood Areas of Emphasis

Students majoring in Elementary Education or Early Childhood Education are required to complete an area of Emphasis. All students majoring in Elementary Education or Early Childhood Education must complete an area of Emphasis consisting of 9-12 credits. (For the K-6 Licensure Program 9 credits are required, while 12 credits are required for all other programs.) The area of Emphasis must be chosen from the following fields: Language Arts, Social Studies, Mathematics, Mathematics/General Science, General Science, Fine Arts, Art, Music, Physical Education, Health/Wellness/ Nutrition, School Library Media, a Foreign Language, or an English as a Second Language (ESL) Endorsement.

## Composite Elementary Education and Special Education Major

### Elementary Education Major (65 credits) (includes Teaching Support Courses)

Students should complete all of the following courses as indicated.

Note: Teaching licensure requires a 2.75 cumulative grade point average (GPA). (Grades lower than a C will not be accepted toward the major.)

### Level I (6 credits) (2.75 GPA required in Level I courses)

ELED 1010 Orientation to Elementary Education (F,Sp,Su)	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)	3

### Level II (courses taken concurrently during spring semester) (17 credits)

Students must be admitted to the Teacher Education Program prior to taking these classes.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II	6
ELED 3005 Beginning Classroom Management	1
SPED 4000 Education of Exceptional Individuals	2
PSY 3660 Educational Psychology for Teachers	2
SPED 5530 Technology for Teaching Exceptional Learners	3
ELED 3100 Classroom Reading Instruction	3

### Level III (courses taken concurrently during fall, spring, or summer semester) (16 credits)

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4005 Intermediate Classroom Management	1
ELED 4030 (CI) Teaching Language Arts and Practicum Level III	3
ELED 4040 (CI) Assessment and Instruction for Struggling Readers	3
ELED 4050 Teaching Social Studies and Practicum Level III	3
ELED 4060 Teaching Mathematics and Practicum Level III	3

# Elementary Education Program, School of Teacher Education and Leadership

## Level IV (15 credits) (taken during fall or spring semester)

ELED 5100 Student Teaching—Primary Grades (1-3) (6 cr) or	
ELED 5150 Student Teaching—Elementary (Grades 4-6) (6 cr).....	6
SPED 5210 (CI) <sup>6</sup> Student Teaching in Special Education:	
Dual Majors .....	6
ELED 5250 Student Teaching—Seminar: Classroom Management.....	3

<sup>6</sup>Students must complete Special Education major coursework prior to student teaching.

## Teaching Support Courses

MUSC 3260 Elementary School Music (F,Sp,Su) .....	2
PEP 3050 Physical Education in the Elementary School (F,Sp,Su).....	3
COMD 2910 (CI) <sup>7</sup> Sign Language I (F,Sp,Su) .....	4
HEP 2000 <sup>7</sup> First Aid and Emergency Care (F,Sp,Su).....	2

<sup>7</sup>Required for Special Education—Severe specialization only.

## Special Education Major (33 or 29 credits)

Students should choose *either* the **Mild/Moderate** specialization or the **Severe** specialization.

Students must be admitted to the Special Education program prior to taking these courses.

### Mild/Moderate Specialization (33 credits)

#### Fall:

SPED 5010 (QI) Applied Behavioral Analysis 1: Principles, Assessment, and Analysis.....	3
SPED 5040 Foundations of Effective Assessment and Instructional Practices .....	3
SPED 5070 Policies and Procedures in Special Education .....	3
SPED 5310 Teaching Reading and Language Arts to Students with Mild/Moderate Disabilities .....	4
SPED 5330 Eligibility Assessment for Students with Mild/Moderate Disabilities .....	1
SPED 5410 Practicum: Direct Instruction Reading and Language Arts for Students with Mild/Moderate Disabilities .....	3

#### Spring:

SPED 5050 Applied Behavioral Analysis 2: Applications .....	3
SPED 5060 Consulting with Parents and Teachers .....	3
SPED 5320 Teaching Content Areas and Transition to Students with Mild/Moderate Disabilities .....	3
SPED 5340 Teaching Math to Students with Mild/Moderate Disabilities .....	3
SPED 5420 Practicum: Teaching Mathematics to Students with Mild/Moderate Disabilities .....	4

### Severe Specialization (29 credits)

#### Fall:

SPED 5010 (QI) Applied Behavioral Analysis 1: Principles, Assessment, and Analysis.....	3
SPED 5040 Foundations of Effective Assessment and Instructional Practices .....	3
SPED 5070 Policies and Procedures in Special Education .....	3
SPED 5510 Curriculum for Students with Severe Disabilities.....	4
SPED 5600 Practicum: Introduction to Instruction of Students with Severe Disabilities.....	3

#### Spring:

SPED 5050 Applied Behavioral Analysis 2: Applications.....	3
SPED 5060 Consulting with Parents and Teachers .....	3
SPED 5520 Curriculum for Secondary-Level Students with Severe Disabilities .....	3
SPED 5610 Practicum: Advanced Systematic Instruction of Students with Severe Disabilities .....	4

## Composite Early Childhood Education and Special Education—Early Childhood Major

### Early Childhood Education Major (68 credits)

Students should complete all of the following courses as indicated.

**Note:** Teaching licensure requires a 2.75 cumulative grade point average (GPA). (Grades lower than a C will not be accepted toward the major.)

#### Level I (6 credits) (2.75 GPA required in Level I courses)

ELED 1010 Orientation to Elementary Education (F,Sp,Su) .....	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)...	3

#### Level II (courses taken concurrently during fall or spring semester) (14 credits)

Students must be admitted to the Teacher Education Program prior to taking these classes.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II (F,Sp) .....	4
ELED 3005 Beginning Classroom Management (F,Sp) .....	1
FCHD 2600 Seminar in Early Childhood Education (F,Sp) .....	2
FCHD 2630 Practicum in Early Childhood Education (F,Sp).....	2
PSY 3660 Educational Psychology for Teachers (F,Sp).....	2
ELED 3100 Classroom Reading Instruction (F,Sp,Su).....	3

#### Transition (11 credits)

SPED 4000 Education of Exceptional Individuals (F,Sp,Su) .....	2
SPED 5530 Technology for Teaching Exceptional Learners (Sp <i>only</i> )..	3
FCHD 4550 <sup>8</sup> Preschool Methods and Curriculum (F,Sp) .....	3
ELED 4480 <sup>8</sup> Early Childhood Education Kindergarten through Grade 3 (F,Sp).....	3

#### Level III (courses taken concurrently during fall, spring, or summer semester) (16 credits)

ELED 4000 Teaching Science and Practicum Level III .....	3
ELED 4005 Intermediate Classroom Management.....	1
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3
ELED 4040 (CI) Assessment and Instruction for Struggling Readers...	3
ELED 4050 Teaching Social Studies and Practicum Level III .....	3
ELED 4060 Teaching Mathematics and Practicum Level III.....	3

#### Level IV (courses taken during two semesters, fall and spring) (21 credits)

ELED 5250 <sup>9</sup> Student Teaching—Seminar: Classroom Management....	3
ELED 5050 <sup>9</sup> Student Teaching—Kindergarten.....	3
ELED 5100 <sup>9</sup> Student Teaching Primary Grades (1-3) .....	6
SPED 5210 (CI) <sup>9</sup> Student Teaching in Special Education:	
Dual Majors .....	6
FCHD 4960 <sup>10</sup> Practice Teaching in Child Development Laboratories ...	3

<sup>8</sup>Level II must be completed prior to taking this course.

<sup>9</sup>Level III, Special Education major, and ELED 4480 must be completed prior to taking this course.

<sup>10</sup>FCHD 4550 must be completed prior to taking this course.

## Special Education—Early Childhood Major (31 credits)

Students must be admitted to the Special Education program prior to taking these courses.

#### Fall:

SPED 5010 (QI) Applied Behavioral Analysis 1: Principles, Assessment, and Analysis.....	3
SPED 5040 Foundations of Effective Assessment and Instructional Practices.....	3



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SPED 5070 Policies and Procedures in Special Education .....	3
SPED 5730 Intervention Strategies for Young Children with Disabilities .....	3
SPED 5820 Preschool Practicum with Young Children with Disabilities in Community Environments .....	4
SPED 5840 Seminar: Preschool Practicum with Young Children with Disabilities .....	2
<b>Spring:</b>	
SPED 5050 Applied Behavioral Analysis 2: Applications .....	3
SPED 5060 Consulting with Parents and Teachers .....	3
SPED 5710 Young Children with Disabilities: Characteristics and Services .....	3
SPED 5810 Seminar and Field Experiences with Infants and Families .....	4

## Composite Elementary Education and Deaf Education Major

### Elementary Education Major (61 credits) (includes Teaching Support Courses)

Students should complete all of the following courses as indicated.

**Note:** Teaching licensure requires a 2.75 cumulative grade point average (GPA). (Grades lower than a C will not be accepted toward the major.)

#### Level I (6 credits) (2.75 GPA required in Level I courses)

ELED 1010 Orientation to Elementary Education (F,Sp,Su) .....	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp) ...	3

#### Level II (courses taken concurrently during fall or spring semester) (17 credits)

Students must be admitted to the Teacher Education Program prior to taking these classes.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II .....	6
ELED 3005 Beginning Classroom Management .....	1
SPED 4000 Education of Exceptional Individuals .....	2
PSY 3660 Educational Psychology for Teachers .....	2
INST 4010 Principles and Practices of Technology for Elementary Teachers .....	3
ELED 3100 Classroom Reading Instruction .....	3

#### Level III (courses taken concurrently during fall, spring, or summer semester) (16 credits)

ELED 4000 Teaching Science and Practicum Level III .....	3
ELED 4005 Intermediate Classroom Management (F,Sp,Su) .....	1
ELED 4030 (CI) Teaching Language Arts and Practicum Level III .....	3
ELED 4040 (CI) Assessment and Instruction for Struggling Readers ...	3
ELED 4050 Teaching Social Studies and Practicum Level III .....	3
ELED 4060 Teaching Mathematics and Practicum Level III .....	3

#### Level IV (Student Teaching—taken during Master’s Program)

#### Teaching Support Courses

MUSC 3260 Elementary School Music (F,Sp,Su) .....	2
PEP 3050 Physical Education in the Elementary School (F,Sp,Su) .....	3
HEP 3500 Elementary School Health Education (F,Sp) .....	2

## Deaf Education Requirements (47-49 credits)

COMD 2500 Language, Speech, and Hearing Development (F,Sp) .....	3
COMD 2910 (CI) Sign Language I (F,Sp,Su) .....	4
COMD 3080 American Sign Language Practicum (F,Sp) .....	1-3
COMD 3910 Sign Language II (F,Sp,Su) .....	4
COMD 5610 Introduction to Education of the Deaf and Hard of Hearing (F) .....	3

**Note:** COMD 2500, 2910, 3910, and 5610 should be completed prior to the Deaf Education blocks.

#### Fall:

COMD 4750 Teaching the English Language to Individuals who are Deaf and Hard of Hearing .....	3
COMD 4770 Audiology and Teachers of Children who are Deaf and Hard of Hearing .....	3
COMD 4780 Socio-Cultural Aspects of Deafness .....	3
COMD 4910 (CI) Sign Language III .....	4
COMD 5740 Teaching Reading to Deaf and Hard of Hearing Children .....	3

#### Spring:

COMD 4630 Teaching Speech to Deaf and Hard of Hearing Children .....	3
COMD 4790 Psychological Principles and Individuals who are Deaf and Hard of Hearing .....	3
COMD 4920 Sign Language IV .....	4
COMD 5600 Classroom Teaching Using American Sign Language .....	3
COMD 5620 Teaching School Subjects to Students who are Deaf and Hard of Hearing .....	3

## Composite Early Childhood Education and Deaf Education Major

### Early Childhood Education Major (50 credits)

Students should complete all of the following courses as indicated.

**Note:** Teaching licensure requires a 2.75 cumulative grade point average (GPA). (Grades lower than a C will not be accepted toward the major.)

#### Level I (6 credits) (2.75 GPA required in Level I courses)

ELED 1010 Orientation to Elementary Education (F,Sp,Su) .....	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp) ...	3

#### Level II (courses taken concurrently during fall or spring semester) (14 credits)

Students must be admitted to the Teacher Education Program prior to taking these classes.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II .....	4
ELED 3005 Beginning Classroom Management .....	1
ELED 3100 Classroom Reading Instruction .....	3
FCHD 2600 Seminar in Early Childhood Education .....	2
FCHD 2630 Practicum in Early Childhood Education .....	2
PSY 3660 Educational Psychology for Teachers .....	2

#### Transition (11 credits)

SPED 4000 Education of Exceptional Individuals .....	2
INST 4010 Principles and Practices of Technology for Elementary Teachers .....	3
FCHD 4550 <sup>11</sup> Preschool Methods and Curriculum .....	3
ELED 4480 <sup>11</sup> Early Childhood Education Kindergarten through Grade 3 .....	3

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## Level III (courses taken concurrently during fall, spring, or summer semester) (19 credits)

ELED 4000 Teaching Science and Practicum Level III .....	3
ELED 4005 Intermediate Classroom Management (F,Sp,Su) .....	1
ELED 4030 (CI) Teaching Language Arts and Practicum Level III .....	3
ELED 4040 (CI) Assessment and Instruction for Struggling Readers ...	3
ELED 4050 Teaching Social Studies and Practicum Level III .....	3
ELED 4060 Teaching Mathematics and Practicum Level III .....	3
FCHD 4960 Practice Teaching in Child Development Laboratories .....	3

<sup>11</sup>Level II must be completed prior to taking this course.

## Deaf Education Requirements (47-49 credits)

COMD 2500 Language, Speech, and Hearing Development (F,Sp) .....	3
COMD 2910 (CI) Sign Language I (F,Sp,Su) .....	4
COMD 3080 American Sign Language Practicum (F,Sp) .....	1-3
COMD 3910 Sign Language II (F,Sp,Su) .....	4
COMD 5610 Introduction to Education of the Deaf and Hard of Hearing (F) .....	3

**Note:** COMD 2500, 2910, 3910, and 5610 should be completed prior to the Deaf Education blocks.

### Fall:

COMD 4750 Teaching the English Language to Individuals who are Deaf and Hard of Hearing .....	3
COMD 4770 Audiology and Teachers of Children who are Deaf and Hard of Hearing .....	3
COMD 4780 Socio-Cultural Aspects of Deafness .....	3
COMD 4910 (CI) Sign Language III .....	4
COMD 5740 Teaching Reading to Deaf and Hard of Hearing Children .....	3

### Spring:

COMD 4630 Teaching Speech to Deaf and Hard of Hearing Children .....	3
COMD 4790 Psychological Principles and Individuals who are Deaf and Hard of Hearing .....	3
COMD 4920 Sign Language IV .....	4
COMD 5600 Classroom Teaching Using American Sign Language .....	3
COMD 5620 Teaching School Subjects to Students who are Deaf and Hard of Hearing .....	3

## Endorsements

The USU Elementary Education Program and Secondary Education Program jointly offer a K-12 English as a Second Language (ESL) Endorsement, as well as a Middle-Level Math Endorsement. Graduate endorsements are also available in Early Childhood Education, ESL, Reading, Gifted and Talented, and Middle-Level Education.

## Suggested Four-year Plans

Suggested semester-by-semester four-year plans for students working toward bachelor's degrees within the Elementary Education Program of the School of TEAL can be found at:

<http://www.usu.edu/degreeplans/>

These plans are models of the requirements and possible sequences of courses. However, students may progress through their program or have more flexibility if they have high ACT scores, CLEP credit, concurrent enrollment credit, AP credit, and/or transfer credit; or if they attend during summer semesters.

Students should consult with their advisor to develop a plan of study tailored to their individual circumstances.

## Departmental Honors

Students having majors within the Elementary Education Program may choose to add breadth and depth to their regular course offerings by enrolling in the departmental honors program. A cumulative GPA above 3.5 is required for enrollment.

Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level.

For additional information about departmental honors within the Elementary Education Program, contact Deborah Byrnes, (435) 797-0396, [deborah.byrnes@usu.edu](mailto:deborah.byrnes@usu.edu).

## Additional Information

For more information concerning requirements for University graduation and for basic professional teaching licensure in elementary education, early childhood education, and middle education, see major requirement sheets available from the Elementary Education Program Advisement Center, Emma Eccles Jones Education Building, Room 373. Major requirement sheets can also be found online at: <http://www.usu.edu/majorsheets/>

## Financial Support

The following scholarships are available to junior and senior students: Ballam, Blair, Bowen, DeHart, Frye, Hales, Jackson, Kurzhals, McEvoy, Stewart, Taylor, Vest, Watterson, and Young. To be eligible, students must have completed Level II of the Elementary Education Program and have a cumulative GPA of 3.5 or higher. Applications are available from the Elementary Education Program and are due by February 1.

## Graduate Programs

### Admission Requirements

Students applying for admission to master's programs must have GRE scores at or above the 40th percentile. This same percentile is the minimum required on the MAT. For the Educational Specialist (EdS) degree and the doctorate degree, GRE scores at or above the 40th percentile are also required on the verbal and quantitative tests. Admission committees also consider experience, undergraduate record, curricula completed, and formal recommendations. One year of successful elementary school teaching experience is required for the master's program. Two years of teaching experience or the equivalent is required for admission to the EdS or doctorate program. Students with deficient oral or written English skills will be required to complete additional coursework to improve their skills.

## Elementary Education Program, School of Teacher Education and Leadership

Admission to graduate programs is contingent upon (1) completion of an application to graduate school and (2) recommendation by the School of TEAL screening committee for the master's program or the management admissions committee for the EdS or doctoral program. In addition to the requirements of the School of Graduate Studies (see pages 36-37), letters of recommendation must be received from three professionals in education.

### Degree Programs—On Campus

Three avenues exist for on-campus students wishing to pursue a master's degree in the School of TEAL at Utah State University. They are as follows:

#### Master of Arts/Master of Science—Plan A

Students planning to pursue a future doctoral degree or wishing to follow a traditional master's degree should complete a Master of Arts or Master of Science (Plan A) degree. This is a 36-credit program, including 6 credits for the thesis. EDUC 6570 is required as a research course (rather than EDUC 6550). A copy of the Program of Study form listing other required core and professional option courses is available from the School of TEAL office. A committee chair and two committee members will work with students pursuing the Plan A master's degree. Plan A students should submit an Appointment for Examination form to their major professor, committee, and the Graduate School at least five working days before the final examination is to be held.

Requirements for the Master of Arts degree include two years of an acceptable foreign language or the equivalent, as determined by testing arranged by the supervisory committee and approved by the School of TEAL and the graduate dean. One year each, or the equivalent, of two languages is acceptable if approved by the student's committee.

#### Master of Education—Plan B

Students wishing to include a creative project as part of their master's degree program should enroll in the Master of Education (Plan B) program. Three credits will be given for TEAL 6960, Master's Creative Project. All MEd students will complete EDUC 6550 (Research for Classroom Teachers, 3 credits) and other courses listed on the current Program of Study form. A committee chair and two committee members will work with students completing the creative project; however, the chairperson will have major responsibility in approving the proposal and primarily work as the program advisor, with the committee members being involved more directly in the presentation of the creative project.

#### Master of Education—Plan C

In order to provide another option for prospective elementary education master's degree students, the School of TEAL conducts a Plan C option within its Master of Education Degree. The basic elements of a Plan C option include completion of 40 credits of prior approved graduate courses, completion of an exit paper, and an oral review.

The exit paper should be a pre-planned scholarly activity. It could be a paper discussing coursework applicability to the student's teaching assignment, or a written plan for changing curriculum and/or instruction drawing on coursework and the student's role, etc. The intent is that the exit paper be an integral part of the planned course of study.

A notice of intent to complete the degree must be filed with the School of Graduate Studies *at the beginning of the last semester of coursework*. A letter of completion should be filed by the School of TEAL chairperson upon successful completion of all requirements.

### Degree Programs—Off Campus

Two avenues exist for students wishing to pursue a master's degree in the School of TEAL at Utah State University primarily through offerings at USU Distance Education centers. They are as follows.

#### Master of Education—Plan B

Off-campus students wishing to include a creative project as part of their master's degree program should enroll in the Master of Education Program. Three credits will be given for TEAL 6960 (Master's Creative Project). All MEd students will complete the required core and other courses listed on the current Program of Study form. A committee chair and two committee members will work with students completing the creative project; however, the chairperson will have major responsibility in approving the proposal and primarily work as the program advisor, with the committee members being involved more directly in the presentation of the creative project (oral exam).

#### Master of Education—Plan C

In order to provide another option for prospective off-campus elementary education master's degree students, the Elementary Education Program conducts a Plan C option within its Master of Education Degree. The basic elements of a Plan C option include completion of 40 credits or prior approved graduate courses, completion of an exit paper, and an oral review.

The exit paper should be a pre-planned scholarly activity. It could be a paper discussing coursework applicability to the student's teaching assignment, or a written plan for changing curriculum and/or instruction drawing on coursework and the student's role, etc. The intent is that the exit paper be an integral part of the planned course of study.

A notice of intent to complete the program should be filed by the student with the School of TEAL and the School of Graduate Studies *at the beginning of the semester the candidate is to finish the degree*. A letter of completion should be filed by the committee chairperson upon successful completion of all requirements.

### Educational Specialist Degree (EdS)

The EdS is a 36-42 credit post-master's degree designed to enable experienced educators to specialize and improve their professional competence in specific areas or fields. The EdS degree meets the advanced study needs of persons seeking leadership roles in public education, junior colleges, and small private and state colleges. The coursework requirements extend competencies for individuals serving in such positions as program developers, trainers, curriculum specialists, supervisors, instructional leaders, and college instructors. The EdS is also related to certification needs of some educational leaders. Areas of emphasis in the Elementary Education Program are: Early Childhood; Instructional Leadership; Supervision and Leadership; Schooling, Culture, and Society; and Reading and Writing. The EdS is especially appropriate for those individuals who wish preparation beyond the master's degree level, but who are not interested in doctoral work with its greater emphasis on developing proficiencies in conducting independent research.

### Doctoral Programs (PhD and EdD)

The School of TEAL administers the Doctoral Program in Education, which includes the Doctor of Philosophy (PhD) and the Doctor of Education (EdD). For information about admission requirements, procedures to follow, and research sponsored, as well as other information, see pages 234-235 of this catalog.

## Additional Information

All students completing master's degrees in Elementary Education must enroll for a minimum of 9 credits *on the USU campus*, except for students completing their degrees at the following USU distance education centers: Uintah Basin Campus (Vernal and Roosevelt), Moab Center, Price Center, and Blanding Center.

The Program of Study form for the appropriate degree and plan described above should be approved by the committee and submitted to the School of Graduate Studies *at least two months prior to the oral exam, oral review, or presentation appropriate to that degree.*

After matriculation into the program, a master's degree must be completed within a six-year time period. Pass/fail grades will be accepted only for seminars, special problems, interdisciplinary workshops, thesis or dissertation research, and continuing graduate advisement. A maximum of 8 workshop credits may be included. Transfer credit accepted toward a degree is normally limited to 6 credits; however, with prior approval, 12 transfer credits may be accepted. A maximum of 15 credits taken during one summer may be counted toward the degree. A maximum of 12 credits taken before admission to the program may be counted toward the degree. All coursework in a student's area of specialization must be taken at the 6000 level or above, in order to be applied toward a graduate degree in the School of TEAL. Coursework goes out-of-date after eight years.

Admission deadlines for students applying to graduate programs are: June 15 for fall semester, October 15 for spring semester, and March 15 for summer semester.

## Research

Cooperation with other departments and research centers at the University, as well as with public school and State Office of Education collaborators, permits strong graduate programs in all phases of elementary education. Research opportunities are available with the Edith Bowen Laboratory School, cooperating school districts in Utah and surrounding states, the Utah State Office of Education, and the United States Department of Education.

## Financial Assistance

Both departmental and School of Graduate Studies support are available for the regular academic program and are awarded on a competitive basis. Students requesting financial support should apply to the School of TEAL by March 15. To be eligible for financial assistance, a student must attend USU full-time. No financial assistance is available for summer semester.

## Assistantships

Teaching assistantships are available through the School of TEAL. Some research assistantships are available through faculty members who have ongoing projects with off-campus funding agencies.

Students are not eligible for assistantships or any form of financial assistance from the University until all application procedures are completed and the student is formally admitted to a program of studies.

Acceptance to pursue graduate study does not guarantee student financial assistance. Inasmuch as funds are limited, the assistantships are awarded by the School of TEAL to cover specific teaching assignments and by the faculty to provide for research.

Doctoral students desiring information about financial assistance should write to: Deborah A. Byrnes, Associate TEAL Department Head for Doctoral Program, Emma Eccles Jones College of Education and Human Services, 2800 Old Main Hill, Utah State University, Logan UT 84322-2800.

## Career Opportunities

### Positions in Higher Education— Master Teachers

Many school districts support and encourage teachers to further their education and expertise by obtaining a master's degree. Added financial remuneration generally accompanies the completion of such a degree. Supervisors, curriculum specialists, and other professional careers are enhanced by completion of a master's degree.

Completion of a doctorate degree qualifies the graduate for a wide variety of careers, including positions in higher education, curriculum specialist positions in school districts and state offices of education, positions in educational agencies of the United States government, and educational specialist positions in business and industry.

## Elementary Education Program Faculty

**Emma Eccles Jones Distinguished Professor**  
*D. Ray Reutzell*, reading

### Professors

*Deborah A. Byrnes*, Associate Department Head for Doctoral Program; social studies education, early childhood education  
*Martha T. Dever*, Department Head; foundations, early childhood education  
*James T. Dorward*, Associate Dean for Research; mathematics, program evaluation  
*Patricia Moyer-Packenham*, mathematics education

### Associate Professors

*Parker C. Fawson*, Associate Department Head for Elementary Education Program; reading  
*Michael K. Freeman*, Associate Dean for Education Outreach; educational leadership  
*Scott L. Hunsaker*, gifted/talented education, foundations  
*Francine Fukui Johnson*, Associate Dean for Teacher Education, Graduation, and Licensure; foundations, gifted/talented education, supervision  
*Rebecca M. Monhardt*, science education  
*Martha L. Whitaker*, Associate Department Head for Secondary Education; foundations

### Clinical Associate Professor

*Steven Laing*, Coordinator of Administrative/Supervisory Certificate Program

### Assistant Professors

*Steve Camicia*, social studies  
*Cindy Jones*, literacy  
*Sylvia Read*, language arts education  
*Cinthya Saavedra*, Coordinator of English-as-a-second-language Education

## **Elementary Education Program, School of Teacher Education and Leadership**

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### **Clinical Assistant Professors**

*Barbara DeBoer*, early childhood education  
*Richard Rhees*, Coordinator of Teacher Education Accreditation  
Council (TEAC)

### **Senior Lecturer**

*Eric Packenham*, science education

### **Lecturers**

*Dorothy Dobson*, social studies  
*Judy Greene*, language arts/foundations

### **Temporary Lecturers**

*Janet Adams*  
*Chad Downs*, advisor; generalist  
*Kristen Whoolery*

### **RCDE Faculty**

*James J. Barta*, Associate Department Head for RCDE;  
associate professor; mathematics, early childhood education  
*Amy Brown*, assistant professor—Tooele  
*Laura Foley*, assistant professor—Uintah Basin/Vernal  
*Amy Morris*, assistant professor—Price  
*Gary Ockey*, assistant professor—Ephraim  
*Jennifer Peterson*, assistant professor—Brigham City  
*Janey Stoddard*, RCDE Advising Coordinator

### **Elementary Education Student Teaching Director**

*Vesna Jenkins*

## **Course Descriptions**

Elementary Education (ELED), pages 547-548  
Teacher Education and Leadership (TEAL), pages 667-671

# Department of Engineering and Technology Education

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**Degrees offered:** Bachelor of Science (BS) and Master of Science (MS) in Engineering and Technology Education, BS in Aviation Technology—Maintenance Management, BS in Aviation Technology—Professional Pilot, A&P Certificate in Aircraft Maintenance Technician—Airframe & Powerplant, Doctor of Philosophy (PhD) in Engineering Education

**Undergraduate emphases:** *BS in Engineering and Technology Education—Technology Education and Trade and Technical Education*

## Undergraduate Programs

### Objectives

The Department of Engineering and Technology Education offers degrees in two fields: **engineering and technology education** and **aviation technology**. The department values the integration of academic knowledge with hands-on technical skills. This is achieved by emphasizing the application of scientific and technological principles in extensive laboratory activities. The department strives to ensure that all graduates will obtain employment to match their interests and preparation.

The **Engineering and Technology Education** programs prepare graduates to teach in public schools, applied technology colleges, and community colleges. **Aviation Technology—Maintenance Management** graduates fill aviation maintenance management positions in government and industry. The **Aviation Technology—Professional Pilot** program prepares graduates to be professional pilots. The **A&P Certificate in Aircraft Maintenance Technician—Airframe & Powerplant** provides training and FAA licensing for graduates to perform maintenance and repairs on aircraft.

### Admission Requirements

Admission requirements for incoming freshmen are commensurate with those outlined for the University. See pages 30-35 in this catalog.

For the **Aviation Technology—Maintenance Management** and **Aviation Technology—Professional Pilot** majors, transfer students from other institutions need a 2.5 total GPA for admission in good standing. Students transferring from other USU majors need a total GPA of 2.4 in major courses for admission to these majors in good standing. A cumulative GPA of 2.5 must be maintained.

For the **Engineering and Technology Education** major, transfer students from other institutions need a 2.75 total GPA for admission in good standing. Students transferring from other USU majors need a total GPA of 2.75 for admission to this major in good standing.

## Graduation Requirements for Aviation Technology Majors (Professional Pilot and Maintenance Management)

A student can repeat no more than six of the required courses in order to satisfy the graduation requirements. Multiple repeats of the same course are included in the total of six repeats. Audits count as a time taking a class unless prior written approval is obtained from a college academic advisor.

Although transfer credit accepted by the department and the college may be applied toward graduation requirements, the grades received will not be used in the USU GPA calculation.

For all aviation technology majors, the following academic regulations apply in addition to University regulations:

1. A minimum GPA of 2.4 must be maintained in technology/math/science/business courses required for, or used as technical electives in, the chosen major. University Studies courses are not included in this GPA calculation.
2. No more than 6 credits of *D* or *D+* credit may be applied toward meeting graduation requirements in technology/math/science/business classes.
3. College of Engineering courses may be repeated only once. Audits count as a time taking a class unless prior written approval is obtained from the department head. A maximum of six required or elective courses can be repeated in order to meet graduation requirements.
4. The *P-D-F* grading option may not be used in required or elective courses. (The *P-D-F* grading option is approved for University Studies courses.)
5. The academic regulations listed above (1-4) apply to required coursework and any technology/math/science/business course which could be used to satisfy graduation requirements for the chosen degree. That is, once a student completes a particular technical elective, it becomes a required course for that student.
6. Students in violation of departmental or college academic regulations, no longer eligible for graduation, or not making satisfactory progress toward a degree will have a registration hold placed on their record.
  - a. Students will be placed on probation (registration hold) if they (i) have more than 6 credits of *D* credit (see item 2 above); or (ii) have a GPA of less than 2.4 (see item 1 above).
  - b. The hold remains until they improve their standing by repeating classes to reduce the number of *D* credits to 6 or less, and/or by raising their GPA above 2.4. Students must meet with their advisor to have the hold removed.

The student must meet with a college academic advisor at least once each semester to work out a schedule having the primary goal of correcting the existing academic problems.

# Department of Engineering and Technology Education

## Bachelor of Science in Engineering and Technology Education (124-125 credits)

### Technology Education Emphasis

The Technology Education emphasis is designed to prepare students for teaching in junior and senior high schools. Students should follow the suggested semester schedule presented below, completing all courses listed. Consult with an advisor when choosing elective courses. All students in this program must maintain a cumulative GPA of 2.75 and gain admission to teacher education, in order to student teach and to receive secondary education licensure (Emma Eccles Jones College of Education and Human Services).

The Department of Engineering and Technology Education is partnered with Project Lead the Way (PLTW) and provides pre-service training for students to become qualified to teach selected PLTW courses. PLTW is a national program that has developed a curriculum introducing students to the scope, rigor, and discipline of engineering prior to entering college. Students opting to become qualified to teach selected PLTW courses must include MATH 1100 in their program of study, as well as an additional science course with a laboratory experience.

The suggested semester schedule is as follows:

#### Freshman Year (32 credits)

##### Fall Semester (17 credits)

ETE 1000	Orientation to Engineering and Technology Education.....	1
ETE 1010	Communications Technology.....	3
ETE 1030	Material Processing Systems.....	3
ETE 1200	Computer-Aided Drafting and Design.....	3
ENGL 1010 (CL1)	Introduction to Writing: Academic Prose.....	3
MATH 1050 (QL) <sup>4</sup>	College Algebra.....	4

##### Spring Semester (15 credits)

ETE 1040	Construction and Estimating.....	3
ETE 2300 (QI) <sup>6</sup>	Electronic Fundamentals.....	4
MATH 1060	Trigonometry.....	2
USU 1350 (BLS)	Integrated Life Science.....	3
	University Studies Breadth American Institutions (BAI) course.....	3

#### Sophomore Year (31-32 credits)

##### Fall Semester (15-16 credits)

**Note:** Students should apply to the Secondary Teacher Education Program (STEP) *early* (see advisor).

ETE 2030	Wood-Based Manufacturing Systems.....	3
ETE 2220	Civil Engineering and Architecture.....	3
	University Studies Breadth Humanities (BHU) course.....	3
	Elective course(s).....	3
	Exploration Requirement course.....	3-4

##### Spring Semester (16 credits)

ETE 1020	Energy, Power, Transportation Systems Control Technology.....	3
ENGL 2010 (CL2)	Intermediate Writing: Research Writing in a Persuasive Mode.....	3
PHYS 1800 (BPS) <sup>5,7</sup>	Physics of Technology.....	4
SPED 4000 <sup>2,3</sup>	Education of Exceptional Individuals.....	2
	Elective course(s).....	4

#### Junior Year (33 credits)

##### Fall Semester (16 credits)

ETE 3200 <sup>2,3</sup>	Methods of Teaching Engineering and Technology Education I.....	3
ETE 3300 <sup>2,3</sup>	Clinical Experience I.....	1
SCED 3100 <sup>2,3</sup>	Motivation and Classroom Management.....	3
SCED 3210 (CI/DSS) <sup>2,3,5</sup>	Educational and Multicultural Foundations.....	3
	University Studies Breadth Creative Arts (BCA) and Breadth Social Sciences (BSS) courses.....	6

##### Spring Semester (17 credits)

ETE 2020	Computer-Integrated Manufacturing Systems.....	3
ETE 3440 (DSC)	Science, Technology, and Modern Society.....	3
ETE 4300 <sup>2,3</sup>	Clinical Experience II.....	1
ETE 4400 <sup>2,3</sup>	Methods of Teaching Engineering and Technology Education II.....	3
SCED 4200 (CI) <sup>2,3</sup>	Reading, Writing and Technology.....	3
SCED 4210 <sup>2</sup>	Cognition and Evaluation of Student Learning.....	3
INST 3500 <sup>1</sup>	Technology Tools for Secondary Teachers.....	1

**Note:** Prior to Student Teaching, the Praxis Content Exam must be passed.

#### Senior Year (28 credits)

##### Fall Semester (12 credits)

ETE 5500 <sup>2,3</sup>	Student Teaching Seminar.....	2
ETE 5630 <sup>2,3</sup>	Student Teaching in Secondary Schools.....	10

##### Spring Semester (16 credits)

ETE 2660	Principles of Engineering Education.....	3
ETE 3050	Computer Systems and Networking.....	3
ETE 5220 (CI)	Program and Course Development.....	3
	University Studies Depth Humanities and Creative Arts (DHA) course.....	3
	Elective course(s).....	4

#### Project Lead The Way (PLTW) Option (7-8 credits)

##### Required Course (3 credits)

MATH 1100 (QL) <sup>6</sup>	Calculus Techniques (F,Sp,Su).....	3
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#### Additional Science Course(s) with Laboratory Experience (4-5 credits)

In addition to completing MATH 1100, students must also complete one of the following three science options, as shown below.

CHEM 1110 (BPS) <sup>6</sup>	General Chemistry I (F,Sp) (4 cr) and	
CHEM 1115	General Chemistry Laboratory (F,Sp) (1 cr).....	5
Or		
BIOL 1010 (BLS)	Biology and the Citizen (F,Sp,Su) (3 cr) and	
BIOL 1020	Biological Discovery: A Lab Course (F,Sp) (1 cr).....	4
Or		
PHYS 2110	The Physics of Living Systems I.....	4

#### Trade and Technical Education Emphasis

The Trade and Technical Education emphasis is designed to prepare students to teach vocational courses at the high school or post-high school level. Students should complete all courses listed below. All students in this emphasis must maintain a GPA of 2.75 in order to student teach.

INST 3500 <sup>1</sup>	Technology Tools for Secondary Teachers (F,Sp,Su).....	1
ETE 3200	Methods of Teaching Engineering and Technology Education I (F).....	3
ETE 3300	Clinical Experience I (F).....	1
ETE 3900	Principles and Objectives of Career and Technical Education.....	3
ETE 3930	Evaluation of Career and Technical Education.....	2

# Department of Engineering and Technology Education

ETE 4300 Clinical Experience II (Sp) .....	1
ETE 4400 Methods of Teaching Engineering and Technology Education II (Sp).....	3
ETE 4700 Student Teaching in Postsecondary Schools .....	4
ETE 5220 (CI) Program and Course Development (Sp) .....	3
ETE 5910 Special Problems in Engineering and Technology Education .....	1-4
SPED 4000 Education of Exceptional Individuals (F,Sp,Su) .....	2
ENGL 1010 (CL1) Introduction to Writing: Academic Prose (F,Sp,Su) 3	
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su).....	3
MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
SPCH 1020 (CI) Public Speaking (F,Sp) .....	3
STAT 2000 (QI) Statistical Methods (F,Sp) (3 cr) or Any Quantitative Intensive (QI) approved course (3 cr) .....	3
University Studies courses .....	24
General elective courses .....	12

State licensure requires a minimum of two years of approved vocational experience. Successful completion of a trade competency examination is accepted in lieu of vocational experience.

<sup>1</sup>The INST 3500 requirement has been waived. However, INST 4500 is recommended.  
<sup>2</sup>This course is included in the Secondary Education Licensure Requirements. Prior to enrolling in this course, students must be admitted to the STEP.  
<sup>3</sup>Students must maintain a cumulative 2.75 GPA for admission to the Emma Eccles Jones College of Education and Human Services, for student teaching, and to receive secondary education licensure.  
<sup>4</sup>A Math ACT score of 23 or higher is required for enrolment in MATH 1050. If Math ACT score is between 18 and 22, student should enroll in MATH 1010 first.  
<sup>5</sup>PHYS 1800 fulfills the University Studies Breadth Physical Sciences (BPS) requirement. SCED 3210 fulfills the University Studies Depth Social Sciences (DSS) requirement.  
<sup>6</sup>MATH 1050 is a prerequisite for these courses.  
<sup>7</sup>PHYS 1800 needs to be completed during the sophomore year.

## Bachelor of Science in Aviation Technology—Maintenance Management (126 credits)

Aviation Technology—Maintenance Management graduates are qualified to enter the work force in many rewarding career fields in aviation. Employment opportunities exist in target industries such as major airline carrier maintenance management, commuter airline maintenance management, fixed-base operator (FBO) maintenance, and Federal Aviation Administration (FAA) aircraft inspection after some field experience. This major has a great deal of depth in general maintenance, which applies to most industrial maintenance operations. Although the major's focus is aviation, the knowledge and skills gained can be used in other fields.

The suggested semester schedule for **Aviation Technology—Maintenance Management** is as follows:

### Freshman Year (32 credits)

#### Fall Semester (17 credits)

AV 1130 Flight Principles.....	2
AV 1140 Aircraft Components and Principles.....	2
AV 1170 Aircraft Structures .....	3
AV 2180 Aircraft Hydraulic and Pneumatic Systems.....	2
AV 2200 Aircraft Hydraulics and Pneumatic Systems Lab .....	1
MATH 1050 (QL) <sup>9</sup> College Algebra .....	4
University Studies Breadth American Institutions (BAI) course <sup>11,12</sup> .....	3

#### Spring Semester (15 credits)

AV 1240 Aircraft Maintenance .....	3
AV 2170 Aircraft Systems .....	2
AV 2190 Aircraft Systems Lab .....	1
ETE 1030 <sup>11</sup> Material Processing Systems .....	3
ETE 2300 (QI) <sup>9</sup> Electronic Fundamentals .....	4
MATH 1060 Trigonometry .....	2

### Sophomore Year (32 credits)<sup>8</sup>

#### Fall Semester (15 credits)

AV 2100 Aircraft Reciprocating Powerplants and Accessories.....	3
AV 2110 Aircraft Reciprocating Powerplants and Accessories Lab .....	3
ETE 1200 <sup>11</sup> Computer-Aided Drafting and Design .....	3
ENGL 1010 (CL1) <sup>11,12</sup> Introduction to Writing: Academic Prose .....	3
MATH 1100 (QL) <sup>11,12,14</sup> Calculus Techniques.....	3

#### Spring Semester (17 credits)

AV 1100 <sup>11</sup> The Aviation Profession .....	1
AV 2140 Aircraft Turbine Powerplants and Maintenance Operations....	3
AV 2150 Aircraft Turbine Powerplant Maintenance Operations Lab .....	3
AV 2430 Aircraft Electrical Systems and Components .....	2
AV 2440 Aircraft Electrical Systems Laboratory .....	2
ENGL 2010 (CL2) <sup>11,12</sup> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
University Studies Breadth Life Sciences (BLS) course <sup>11,12</sup> .....	3

### Junior Year (31 credits)

#### Fall Semester (15 credits)

AV 3280 Advanced Turbine Engines .....	2
AV 4280 <sup>11</sup> Airline Management.....	3
STAT 2300 (QL) <sup>9,12</sup> Business Statistics .....	4
Elective course(s) .....	3
Technical Elective course <sup>13</sup> .....	3

#### Spring Semester (16 credits)

AV 2420 FAA Regulations, Records, and Certification .....	2
AV 3610 AeroTechnology Design I .....	1
AV 4490 Human Factors in Aviation Safety.....	3
MGT 3110 (DSS) <sup>10,11,12,14</sup> Managing Organizations and People .....	3
PHYS 1800 (BPS) <sup>14</sup> Physics of Technology .....	4
University Studies Breadth Humanities (BHU) course <sup>11,12</sup> .....	3

### Senior Year (31 credits)

#### Fall Semester (15 credits)

AV 3120 Aviation Law.....	3
AV 4610 (CI) AeroTechnology Design II .....	3
MGT 3710 <sup>10,11,12</sup> Developing Team and Interpersonal Skills .....	3
University Studies Breadth Creative Arts (BCA) and Breadth Social Sciences (BSS) courses <sup>11,12</sup> .....	6

#### Spring Semester (16 credits)

AV 4200 Composite Manufacturing Processes and Repair .....	3
AV 4620 (CI) AeroTechnology Design III .....	3
University Studies Depth Humanities and Creative Arts (DHA) course <sup>11,12</sup> .....	3
Technical Elective courses <sup>13</sup> .....	7

Students must complete a total of 40 credits of stipulated upper-division coursework.

<sup>8</sup>Completion of the Computer and Information Literacy (CIL) exams with passing grades is required by the end of the sophomore year.  
<sup>9</sup>A Math ACT score of 23 or higher is required to enroll in MATH 1050. If Math ACT score is between 18 and 22, student should enroll in MATH 1010 first. MATH 1050 is a prerequisite for STAT 2300 and ETE 2300.  
<sup>10</sup>Students must have a cumulative GPA of at least 2.67 and have professional status to be admitted to these Huntsman School of Business courses.  
<sup>11</sup>Due to teaching load constraints, these courses may be offered during semesters other than those listed here. Check with the department regularly for possible changes. Most of these classes are offered only once each year.  
<sup>12</sup>These courses may be taken during summer semester to allow for more reasonable course loads during the academic year.  
<sup>13</sup>Students must take 10 credits of related technical electives which must be in upper-division courses (3000-level and above).  
<sup>14</sup>PHYS 1800 fulfills the University Studies Breadth Physical Sciences (BPS) requirement. MGT 3110 fulfills the University Studies Depth Social Sciences (DSS) requirement. MATH 1100 fulfills the University Studies Exploration requirement.



# Department of Engineering and Technology Education

## Bachelor of Science in Aviation Technology— Professional Pilot (126 credits)

Aviation Technology—Professional Pilot graduates are trained to be commercial pilots. The degree requirements include completion of the following FAA licenses: private, instrument, commercial, CFI, CFII, and Multi-Engine. The suggested semester schedule for this degree is as follows:

### Freshman Year (30 credits)

#### Fall Semester (15 credits)

AV 1100 The Aviation Profession .....	1
AV 1130 Flight Principles .....	2
AV 2330 Private Pilot Ground School .....	4
AV 2350 <sup>18</sup> Private Pilot Certification .....	1
MATH 1050 (QL) <sup>20</sup> College Algebra .....	4
University Studies Breadth American Institutions (BAI) course .....	3

#### Spring Semester (15 credits)

AV 2170 Aircraft Systems .....	2
AV 2510 <sup>18</sup> Intermediate Flight .....	1
CLIM 2000 (BPS) <sup>17</sup> The Atmosphere and Weather .....	3
ETE 2300 (QI) <sup>19</sup> Electronic Fundamentals .....	4
MATH 1060 Trigonometry .....	2
Elective courses .....	3

### Sophomore Year (31 credits)<sup>15</sup>

#### Fall Semester (16 credits)

AV 2180 Aircraft Hydraulic and Pneumatic Systems .....	2
AV 2520 <sup>21</sup> Instrument Pilot Ground School .....	4
AV 2540 <sup>18</sup> Instrument Pilot Certification I .....	1
ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
MATH 1100 (QL) <sup>19</sup> Calculus Techniques .....	3
University Studies Breadth Life Sciences (BLS) course .....	3

#### Spring Semester (15 credits)

AV 2430 Aircraft Electrical Systems and Components .....	2
AV 2550 <sup>18</sup> Instrument Pilot Certification II .....	1
CLIM 3250 <sup>21</sup> Aviation Weather .....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode .....	3
Any Communications Intensive (CI) approved course .....	3
University Studies Breadth Humanities (BHU) course .....	3

### Junior Year (31 credits)

#### Fall Semester (15 credits)

AV 2620 Commercial Pilot Ground School .....	2
AV 2660 <sup>18</sup> Commercial Pilot Certification .....	1
AV 3010 National Airspace, Air Traffic Control, and Airport Administration .....	3
AV 3120 Aviation Law .....	3
AV 3140 Advanced Avionics Systems and Flight Simulation .....	3
AV 4280 Airline Management .....	3

#### Spring Semester (16 credits)

AV 2720 CFI and CFII Ground School .....	3
AV 2880 <sup>18</sup> Multi-Engine Certification .....	1
AV 4490 Human Factors in Aviation Safety .....	3
AV 5400 Regional Jet Ground School I .....	4
MGT 3110 (DSS) <sup>16,17,22</sup> Managing Operations and People .....	3
Elective course(s) .....	2

### Senior Year (34 credits)

#### Fall Semester (17 credits)

AV 2740 <sup>18</sup> CFI Certification .....	1
AV 4660 (CI) Flight Senior Project .....	3
AV 5410 Regional Jet Ground School II .....	4
Elective course(s) .....	3
University Studies Breadth Creative Arts (BCA) course .....	3
University Studies Breadth Social Sciences (BSS) course .....	3

#### Spring Semester (17 credits)

AV 2860 <sup>18</sup> CFII Certification .....	1
AV 5420 Advanced Regional Jet Simulation .....	3
PHYS 1800 (BPS) <sup>17</sup> Physics of Technology .....	4
Upper-division elective courses <sup>16</sup> .....	6
University Studies Depth Humanities and Creative Arts (DHA) course .....	3

<sup>15</sup>Completion of the Computer and Information Literacy (CIL) exams with passing grades is required by the end of the sophomore year.

<sup>16</sup>Students should contact their advisor for a list of approved upper-division electives.

<sup>17</sup>MGT 3110 fulfills the University Studies Depth Social Sciences (DSS) requirement. PHYS 1800 fulfills the University Studies Breadth Physical Sciences (BPS) requirement. CLIM 2000 fulfills the University Studies Exploration requirement.

<sup>18</sup>Depending on weather and other factors, flying courses may be taken during semesters other than those indicated. It is imperative that students work with their advisors and flight instructor to determine the best arrangement for these courses.

<sup>19</sup>MATH 1050 is a prerequisite for ETE 2300 and MATH 1100.

<sup>20</sup>A Math ACT score of 23 or higher is required to enroll in MATH 1050. If Math ACT score is between 18 and 22, student should enroll in MATH 1010 first.

<sup>21</sup>Students should take CLIM 2000 prior to taking AV 2520 and CLIM 3250.

<sup>22</sup>All students must have a cumulative GPA of at least 2.67 and have professional status in order to be admitted to Huntsman School of Business classes.

Students must complete a total of 40 credits of stipulated upper-division coursework.

## A&P Certificate in Aircraft Maintenance Technician— Airframe & Powerplant

This two-year technical program emphasizes aircraft repair and maintenance. Required courses are:

AV 1130 Flight Principles (F) .....	2
AV 1140 Aircraft Components and Principles (F) .....	2
AV 1170 Aircraft Structures (F) .....	3
AV 1240 Aircraft Maintenance (Sp) .....	3
AV 2100 Aircraft Reciprocating Powerplants and Accessories (F) .....	3
AV 2110 Aircraft Reciprocating Powerplants and Accessories Lab (F) .....	3
AV 2140 Aircraft Turbine Powerplants and Maintenance Operations (Sp) .....	3
AV 2150 Aircraft Turbine Powerplant Maintenance Operations Lab (Sp) .....	3
AV 2170 Aircraft Systems (Sp) .....	2
AV 2180 Aircraft Hydraulic and Pneumatic Systems (F) .....	2
AV 2190 Aircraft Systems Lab (Sp) .....	1
AV 2200 Aircraft Hydraulics and Pneumatics Systems Lab (F) .....	1
AV 2420 FAA Regulations, Records, and Certification (Sp) .....	2
AV 2430 Aircraft Electrical Systems and Components (Sp) .....	2
AV 2440 Aircraft Electrical Systems Laboratory (Sp) .....	2
AV 3280 Advanced Turbine Engines (F) .....	2
AV 4200 Composite Manufacturing Processes and Repair (Sp) .....	3
ETE 1030 Material Processing Systems (F,Sp) .....	3
ETE 1200 Computer-Aided Drafting and Design (F,Sp) .....	3
ETE 2300 (QI) Electronic Fundamentals (Sp) .....	4
MATH 1050 (QL) College Algebra (F,Sp,Su) .....	4
MATH 1060 Trigonometry (F,Sp,Su) .....	2
PHYS 1800 (BPS) Physics of Technology (Sp) .....	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose (F,Sp,Su) .....	3

FAA regulations require students to earn a 70 percent or higher score to pass each course.

# Department of Engineering and Technology Education

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For more information about Bachelor of Science requirements and the sequence in which courses should be taken, see major requirement sheets, available from the Engineering and Technology Education Department, or online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

The Master of Science (MS) degree in Engineering and Technology Education is offered by the department. Candidates may choose the Plan A thesis option, the Plan B nonthesis program, or the Plan C coursework option. The department also offers the PhD/EdD degree in Education (Curriculum and Instruction) and the PhD degree in Engineering Education. Further details about these degrees are shown below.

## Admission Requirements

See the general admission requirements for graduate study in this catalog (pages 36-37). Students applying for admission to the MS program must complete the GRE with a minimum quantitative and verbal score of 1,000 and a 40th percentile minimum score on the verbal and quantitative tests or must complete the MAT with a minimum score of 43. Admission committees also consider experience, undergraduate record, and formal recommendations.

## MS Degree

The degree is designed for technology educators who want to strengthen their background in current educational theory and practice. Students are required to complete a professional core of courses relating to technology education or applied technology education and to select additional courses from a list of related courses. Plan A requires a minimum of 30 semester credits, including a thesis. Plan B is a nonthesis option that requires 33 semester credits, including a creative project. The core courses for this specialization are as follows: ETE 6090, 6100, 6150, 6450, and 6750. The Plan C option consists entirely of coursework. Students should contact the Engineering and Technology Education Department for information about the availability of this option.

## PhD Degree in Engineering Education

This degree is the culmination of a multi-year initiative to refocus the department and develop a new emphasis in engineering education. This new focus was supported by a ten million dollar grant from the National Science Foundation to establish the National Center for Engineering and Technology Education at Utah State. Because the new emphasis in engineering education within the department is sufficiently different than the technology education program, a new doctoral degree with a very different set of requirements is warranted.

This program will produce graduates who:

1. Are familiar with the theory and practice of engineering education and are adept at these aspects within their specific area of engineering specialization.
2. Have the ability to conduct research in engineering education in areas such as engineering epistemologies, engineering learning mechanisms, engineering learning systems, engineering diversity and inclusiveness, and engineering assessment.
3. Have the ability to develop/implement/assess engineering curricula at both the high school and university levels.

## PhD/EdD Degree in Education (Curriculum and Instruction)

This degree is a doctoral specialization in Curriculum and Instruction (C&I) and is offered through the School of Teacher Education and Leadership (TEAL). (See *Education, Interdepartmental Doctoral Program in Curriculum and Instruction* on pages 234-235.) Students who complete the C&I specialization program receive a degree with an area of emphasis in engineering and technology education. This is a research degree and is primarily chosen by people seeking teaching/research positions in colleges and universities. Depending on students' professional goals and their ability or inability to attend graduate school full time during the academic year, students will *either* be accepted into the Doctorate of Education (EdD) program *or* the Doctorate of Philosophy (PhD) program.

## Financial Assistance

The department offers a limited number of graduate research and teaching assistantships. For further information, contact the Engineering and Technology Education Department.

## Engineering and Technology Education Faculty

### Professors

*Kurt Becker*, technology education, construction technology, computer aided drafting

*Edward M. Reeve*, technology education, communication technology

### Professors Emeritus

*Jay C. Hicken*, technology education, wood technology, power/energy/transportation

*Maurice G. Thomas*, technology education

# Department of Engineering and Technology Education

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## Associate Professors

*Ward P. Belliston*, electronics technology  
*Ning Fang*, dynamics, manufacturing engineering  
*Gary A. Stewardson*, technology education, manufacturing technology

## Assistant Professors

*Oenardi Lawanto*, engineering education  
*Paul D. Schreuders*, engineering education

## Principal Lecturers

*Nolan D. Clifford*, director of Aviation Program, aviation technology, professional pilot  
*Lawrence Hemingway*, aviation technology, professional pilot

## Lecturer

*Randall W. Chesley*, aviation maintenance

## Chief Flight Instructor

*Sean E. Heiner*

## Assistant Chief Flight Instructors

*Aaron C. Dyches*  
*Gregory P. Walton*

## Course Descriptions

Aviation Technology (AV), pages 509-510

Engineering and Technology Education (ETE), pages 557-560

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**Chair, Theory and Practice of Professional  
Communication Doctoral Program:**

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**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA),  
Master of Science (MS), and Master of Arts (MA) in English; BS,  
BA, MS, and MA in American Studies; Doctor of Philosophy (PhD) in  
Theory and Practice of Professional Communication

**Undergraduate emphases:** *BS, BA in English*—Literary Studies,  
Professional and Technical Writing, English Teaching, and Creative  
Writing

**Graduate specializations:** *MS, MA in English*—Literature and Writing,  
Technical Writing; *MS, MA in American Studies*—Folklore, Public  
Sector Folklore

## Undergraduate Programs

### General Objectives

The undergraduate programs in English and American Studies encourage students to gain an appreciation of language and literature through reading, analysis, and writing as a means of enriching their lives as individuals, citizens and professionals. Through a variety of courses in literature, writing, and linguistics, students develop an awareness of these subjects in their personal and cultural contexts, a heightened sensitivity to human experience, and a capacity to adapt to a world of continually changing values and centers of conflict. Students majoring in English or American Studies thus acquire communicative, analytical, and interpretive skills that help prepare them for a wide range of careers.

After completing a set of core requirements, students in English fulfill the requirements in one of four emphases: (1) the **Literary Studies** emphasis, which gives students a knowledge of the texts and writers of American, British, and world literature and their cultural contexts; (2) the **Professional and Technical Writing** emphasis, which prepares students for various writing careers in professional organizations; (3) the **English Teaching** emphasis, which prepares students for teaching secondary-level English in the public school system; and (4) the **Creative Writing** emphasis, which trains students in the art of literary writing and prepares them for graduate study in creative writing programs. The English Department also offers a major in American Studies.

The English Department offers a Folklore minor and an interdisciplinary American Studies major and minor. The American Studies Program, situated within the English Department, offers students the opportunity to explore American life and cultures from interdisciplinary perspectives, while preparing them for careers in academic or professional fields. Students may pursue *either* an American Studies major or minor *or* a folklore minor. The English Department also offers an English Teaching Minor, an English Minor (Standard Nonteaching), and a minor in British and Commonwealth Studies.

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The English Department also offers specific courses supporting other fields of specialization, courses fulfilling University Studies requirements, and enriching educational experiences through opportunities for creativity and expression enhancing lifetime activities.

## Admission and Graduation Requirements

The requirements for admission and graduation are commensurate with those described on pages 30-35 and 76-79 of this catalog. To remain in good standing and to obtain approval for graduation as English majors or minors, students must earn a grade of C or better in all English classes and maintain a minimum grade point average of 2.75 in their major and minor courses. All courses listed as major or minor subject courses must be taken on an A-B-C-D-F basis, and major or minor subject courses passed with less than a C grade must be repeated. Transfer students are required to complete at least 15 semester credits of major subject courses and 10 semester credits of minor subject courses in residence at USU.

Students in the English Teaching major and minor may also apply to the Secondary Teacher Education Program (STEP). See pages 442-443 for procedures and requirements pertaining to teacher licensure and admission requirements, or go online to:  
<http://www.cehs.usu.edu>

## Course Requirements

### Core and Survey Requirements

Upon entering the major, all English majors must complete ENGL 1110 (English Orientation) as soon as possible. In addition, all English majors, except for students in the Professional and Technical Writing emphasis, are required to complete three of the 2000-level literature survey courses and ENGL 2600 (Literary Analysis) as soon as possible before enrolling in upper-division courses. Differing requirements for the Professional and Technical Writing Emphasis are shown below.

### Literary Studies Emphasis

**Minimum GPA for Admission:** 2.75, major; 2.75, USU; 2.75, Career

**Minimum GPA for Graduation:** 2.75, major courses; 2.0, USU; 2.0, Career

**Minimum Grade Accepted:** C in major courses

This 46-credit emphasis is devoted to the study of literature. Its fundamental premise is that literature is a field of diverse representations that gives shape and meaning to human experience.

Students first complete three of the 2000-level survey courses, which provide a traditional overview of the major periods, authors, and genres of American and British literature. At the same time, students take an introductory course on literary analysis which introduces them to the methodologies of literary criticism.

At the 3000 and 4000 levels, students closely examine the conventions and principles forming the more traditional survey courses. Focusing on specific literary periods, authors, and genres, these courses invite students to think critically about how literature is constructed and organized as a field of knowledge. They also take a course focusing on literary theory.

At the 5000 level, students pursue advanced study of literature in relation to issues of gender and sexuality, regional and national boundaries, and cultural differences. These courses provide the advanced theoretical tools necessary to analyze the relationship between literature and culture. These courses insist that literary texts both exist within and depend upon a complex network of other cultural representations.

### A. Core Requirements (4 credits)

ENGL 1110 English Orientation (F,Sp)	1
ENGL 2600 <sup>1</sup> Literary Analysis (F,Sp)	3

### B. Literary History (9 credits)

Select three courses from the following:

ENGL 2140 British Literary History: Anglo-Saxon to 18th Century (F,Sp)	3
ENGL 2150 British Literary History: Romanticism to Present (F,Sp)	3
ENGL 2160 American Literary History: Colonialism to 1865 (F,Sp)	3
ENGL 2170 American Literary History: 1865 to Present (F,Sp)	3

### C. American, British, and World Literature (9 credits)

Select ENGL 3330, plus two of the following three period courses:

ENGL 3300 <sup>2</sup> Period Studies in American Literature (F,Sp)	3
ENGL 3310 <sup>2</sup> Period Studies in British Literature (F,Sp)	3
ENGL 3320 <sup>2</sup> Period Studies in World Literature (F,Sp)	3
ENGL 3330 Literary Theory (F,Sp)	3

### D. Authors (6 credits)

Complete ENGL 4300 and one other course.

ENGL 4300 <sup>2</sup> Shakespeare (F,Sp)	3
ENGL 4310 <sup>2</sup> American Writers (F,Sp)	3
ENGL 4320 <sup>2</sup> British Writers (F,Sp)	3
ENGL 4330 <sup>2</sup> World Writers (F)	3

### E. Genre (6 credits)

Select two courses from the following:

ENGL 4340 <sup>2</sup> Studies in Prose (Sp)	3
ENGL 4350 <sup>2</sup> Studies in Poetry (F)	3
ENGL 4360 <sup>2</sup> Studies in Drama/Film (Sp)	3
ENGL 4370 <sup>2</sup> Studies in Nonfiction Prose (F)	3

### F. Literature and Culture (6 credits)

Select two courses from the following:

ENGL 5300 (CI) <sup>2</sup> Literature and Gender (F,Sp)	3
ENGL 5320 (CI) <sup>2</sup> Literature and Cultural Difference (Sp)	3
ENGL 5340 (CI) <sup>2</sup> Studies in Literary and Cultural Theory (F)	3

### G. Electives (6 credits)

Select two additional courses from categories C, D, E, or F. One linguistics course (ENGL 4200 or 4210) may also count as an elective.

**Note:** The Period Studies; Authors; Genre; and Literature and Culture courses vary according to the specialty of the faculty member teaching the course.

## Professional and Technical Writing Emphasis

**Minimum GPA for Admission:** 2.75, major; 2.75, USU; 2.75, Career  
**Minimum GPA for Graduation:** 2.75, major courses; 2.0, USU;  
 2.0, Career

**Minimum Grade Accepted:** C in major courses; B- in ENGL 1120, 3400, and 3410

This 48-credit emphasis prepares students for career opportunities in various writing-related careers in professional organizations. The emphasis consists of: (1) a theoretical foundation in rhetoric and linguistics, enabling students to assess any writing situation and adapt their writing to the context as audience-aware writers; and (2) writing practice in a variety of contexts using the most up-to-date tools of technology, so that students know how to write and why they are writing, thus preparing them for the ever-changing job markets of the twenty-first century.

Students begin their studies by completing one literature survey course and two introductory professional writing courses introducing students to the profession of writing and the current technologies used in all levels of text production. ENGL 3400 (Professional Writing) and ENGL 3410 (Professional Writing Technology), which are prerequisites for applications courses, must be passed with a grade of B- or better, in order for the student to continue in the program. At the same time, students also take two courses addressing rhetorical issues and strategies in the perception, reading, and writing of texts, and two courses in linguistics acquainting students with the structure and diversity of the English language.

In addition, all Professional and Technical Writing students must pass ENGL 1120 (Elements of Grammar) with a grade of B- or better, or pass the challenge exam offered by the Writing Center.

Students then take courses in professional editing, document design and graphics, interactive media, and publication production and management. Along with these, students may also take courses in creative writing, as well as those with more specific forms of writing, such as proposals, newsletters, and computer documentation. Internships provide students with an opportunity to learn through hands-on experiences in a variety of organizations. Students complete the program by taking a capstone course, in which they prepare portfolios, explore professional opportunities, and prepare to begin their careers.

### A. Core Requirement (3 credits)

**ENGL 1120<sup>4</sup>** Elements of Grammar (F,Sp).....3

### B. Literary History (3 credits)

Select one course from the following:

**ENGL 2140** British Literary History: Anglo-Saxon to 18th Century (F,Sp).....3

**ENGL 2150** British Literary History: Romanticism to Present (F,Sp).....3

**ENGL 2160** American Literary History: Colonialism to 1865 (F,Sp).....3

**ENGL 2170** American Literary History: 1865 to Present (F,Sp).....3

### C. Introductory Professional Writing Courses (6 credits)

**ENGL 3400 (CI)** Professional Writing (F,Sp).....3

**ENGL 3410** Professional Writing Technology (F,Sp).....3

### D. Theoretical Foundation Courses (6 credits)

**ENGL 3450** Methods and Research in Professional and Technical Communication (Sp).....3

**ENGL 3460** Modern Rhetorical Theory (F).....3

### E. Linguistics Courses (6 credits)

Select two courses from the following:

**ENGL 4200** Linguistic Structures (F,Sp,Su).....3

**ENGL 4210** History of the English Language (Sp).....3

**ENGL 4230** Language and Society (F).....3

**ENGL 5210** Topics in Linguistics (F).....3

### F. Applied and Creative Writing Courses (3 credits)

Complete 3 credits from the following:

**ENGL 3040** Perspectives in Writing and Rhetoric (F or Sp).....3

**ENGL 3420** Fiction Writing (F,Sp).....3

**ENGL 3430** Poetry Writing (F,Sp).....3

**ENGL 3440** Creative Nonfiction Writing (F,Sp).....3

**ENGL/THEA 4250<sup>9</sup>** Playwriting (F).....3

**ENGL 4420 (CI)<sup>2</sup>** Advanced Fiction Writing (Sp).....3

**ENGL 4430 (CI)<sup>2</sup>** Advanced Poetry Writing (Sp).....3

**ENGL 4900** Internship/Cooperative Work Experience (F,Sp,Su).....1-12

### G. Major Courses (18 credits)

**ENGL 4400 (CI)<sup>6</sup>** Professional Editing (Sp).....3

**ENGL 4410<sup>2,6</sup>** Document Design and Graphics (F,Sp).....3

**ENGL 5400<sup>2,5,6</sup>** Specialized Documents (F,Sp).....3

**ENGL 5410<sup>2,6,8</sup>** Studies in Writing for Digital Media Production (F).....3

**ENGL 5420<sup>6</sup>** Publications Production (F).....3

**ENGL 5490<sup>2,7</sup>** Topics in Professional and Technical Writing (Sp).....3

### H. Capstone Seminar (3 credits)

**ENGL 5430 (CI)<sup>3</sup>** Professional Writing Capstone (Workplace Culture and Communication) (F,Sp).....3

## English Teaching Emphasis

**Minimum GPA for Admission:** 2.75, major; 2.75, USU; 2.75, Career

**Additional Minimum GPA for Matriculation to STEP Program:**  
 2.75, USU

**Minimum GPA for Graduation:** 2.75, major courses; 2.0, USU;  
 2.75, Career (for certification)

**Minimum Grade Accepted:** C in major courses; C- in STEP courses

This 52-credit emphasis, leading to professional licensure in the teaching of secondary-level English, prepares prospective English teachers to participate actively in the many communities related to the profession. Students become well-versed in their academic subject matter (language, writing, literature, and multimedia); skilled in the methods of teaching the various components of the English curriculum and in classroom management techniques; and committed to the achievement of all students regardless of gender, race, ethnicity, religion, sexuality, or socioeconomic standing.

Students first complete 9 credits of literature survey courses and 3 credits of literary theory to acquire a broad understanding of the traditional literary canon and the current theoretical foundations of English Studies. They must also take ENGL 1120 (Elements of Grammar), or pass the challenge exam offered by the Writing Center. They then take 12 credits in upper-division literature and then courses which address the current understandings of the diversity of American language and culture as they impact the English classroom. Students take courses in young adult literature, Shakespeare, and 15 more credits of upper-division literature and writing courses to become

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familiar with the spectrum of theoretical, ideological, and scholarly issues at stake in English studies today. To become familiar with the art of teaching the many components of the English curriculum, students take two pedagogical courses, which approach reading and writing as interdependent aspects of communication. If students wish to obtain professional licensure at graduation, they must also fulfill the requirements of the 35-credit Secondary Teacher Education Program (STEP) prescribed by the Secondary Education Program of the School of Teacher Education and Leadership (TEAL).

## A. Core Requirements (4 credits)

ENGL 1110 English Orientation (F,Sp)	1
ENGL 2600 Literary Analysis (F,Sp)	3

## B. Literary History (9 credits)

Select three courses from the following:

ENGL 2140 British Literary History: Anglo-Saxon to 18th Century (F,Sp)	3
ENGL 2150 British Literary History: Romanticism to Present (F,Sp)	3
ENGL 2160 American Literary History: Colonialism to 1865 (F,Sp)	3
ENGL 2170 American Literary History: 1865 to Present (F,Sp)	3

## C. Linguistics (3 credits)

ENGL 4200 Linguistic Structures (F,Sp,Su)	3
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## D. Upper-division Writing Courses (3 credits)

Select one course from the following:

ENGL 3080 (CI) Introduction to Technical Communication (F,Sp)	3
ENGL 3420 Fiction Writing (F,Sp)	3
ENGL 3430 Poetry Writing (F,Sp)	3
ENGL 3440 Creative Nonfiction Writing (F,Sp)	3

## E. Upper-division Literature Courses (15 credits)

### 1. Required Course (3 credits)

ENGL 4300 Shakespeare (F,Sp)	3
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### 2. Select one course from each of the following groups:

#### a. Group 1 (3 credits)

ENGL 3300 Period Studies in American Literature (F,Sp)	3
ENGL 4310 American Writers (F,Sp)	3
ENGL 4610 Western American Literature (F,Sp)	3
ENGL 4630 American Nature Writers (F,Sp)	3

#### b. Group 2 (3 credits)

ENGL 3310 Period Studies in British Literature (F,Sp)	3
ENGL 4320 British Writers (F,Sp)	3

#### c. Group 3 (3 credits)

ENGL 3320 Period Studies in World Literature (F,Sp)	3
ENGL 4330 World Writers (F)	3
CLAS/ARTH 3210 Classical Mythology (Honors only) (F,Sp)	3

#### d. Group 4 (3 credits)

ENGL 4340 Studies in Prose (Sp)	3
ENGL 4350 Studies in Poetry (F)	3
ENGL 4360 Studies in Drama/Film (Sp)	3
ENGL 4370 Studies in Nonfiction Prose (F)	3
Folklore Courses: ENGL 3700 (Regional Folklore), 3710 (Folklore Colloquium), 4700 (Folk Material Culture), 4750 (Folklore Summer Workshop, Fife Conference), 5700 (Folk Narrative)	3

## F. English Education Courses (15 credits)

ENGL 3510 Young Adult Literature (F,Sp)	3
ENGL 3520 Multicultural American Literature (F,Sp)	3
ENGL 4220 Ethnic Literacy (F,Sp)	3
ENGL 4500 (CI) Teaching Writing (F,Sp)	3
ENGL 4510 (CI) Teaching Literature (F,Sp)	3

## Grammar Competency Requirement:

In addition to fulfilling the above requirements, students in the English teaching emphasis must fulfill a grammar competency requirement. This may be accomplished either by enrolling in ENGL 1120, Elements of Grammar, (also offered through Independent Study or online) or by passing a challenge exam in the English Department Writing Center (Ray B. West 104) with a score of 80 percent or better. See the English undergraduate advisor for further information.

## G. Teaching Minor

Students in the English Teaching emphasis are also required to complete a teaching minor selected from among the following: Chemistry, Geography, History, Mathematics, Modern Languages (French, German, Spanish), Physical Education Coaching, Physics, Political Science, Psychology, School Health, School Library Media, Sociology, Speech Communication, English as a Second Language, and Theatre Arts.

## H. Secondary Teacher Education Program (STEP) (35 credits)

To receive a license to teach in the public school system, students in the English Teaching emphasis must also complete the 35-credit STEP administered through the Secondary Education Program of the School of TEAL. The student enrolls in this three-semester sequence of courses after having completed nearly all teaching major and minor requirements and after having been granted full admission to the program, which entails meeting various admission criteria. See the Secondary Education Program of the School of TEAL for further information regarding this program.

## Creative Writing Emphasis

**Minimum GPA for Admission:** 2.75, major; 2.75, USU; 2.75, Career  
**Minimum GPA for Graduation:** 2.75, major courses; 2.0, USU; 2.0, Career

**Minimum Grade Accepted:** C in major courses

This 46-credit emphasis is devoted to the art of literary writing: fiction, poetry, creative nonfiction, and drama. Through practice in a chosen genre and a comprehensive study of literature, students learn the craft of literary writing as discovered and practiced over the last three thousand years of written human culture. The emphasis prepares undergraduates for graduate work in creative writing and develops critical, cognitive, and writing skills applicable in numerous professional fields.

Since creative writers must have a broad knowledge of literature, students first complete three of the 2000-level survey courses which provide an overview of major periods, authors, and genres in American and British literature. They also take an introductory course in literary theory which introduces methodologies of literary criticism.

At the 3000-level, students begin their work as creative writers, taking three introductory writing courses in three genres: fiction, poetry, and creative nonfiction. To continue their immersion in the study of literature, students take one course in Period Studies.

At the 4000-level, students concentrate their training as creative writers, taking two courses in advanced creative writing, courses which can be repeated. Also at the 4000-level, students take a course focused on the study of a single author and a course in the study of one's chosen genre. Students also select three courses (for 9 credits) from courses outside their emphasis, ideally from outside the English Department, to further broaden their knowledge of human culture and the natural world.

The emphasis culminates in a creative writing capstone, which encourages students to reflect upon and assess their experience in the creative writing program, and which also has students complete a portfolio of their best work.

## A. Core Requirements (4 credits)

ENGL 1110 English Orientation (F,Sp)	1
ENGL 2600 Literary Analysis (F,Sp)	3

## B. Literary History (6 credits)

Select two courses from the following:

ENGL 2140 British Literary History: Anglo-Saxon to 18th Century (F,Sp)	3
ENGL 2150 British Literary History: Romanticism to Present (F,Sp)	3
ENGL 2160 American Literary History: Colonialism to 1865 (F,Sp)	3
ENGL 2170 American Literary History: 1865 to Present (F,Sp)	3

## C. Creative Writing Courses (18 credits)

Select all three of the following courses:

ENGL 3420 Fiction Writing (F,Sp)	3
ENGL 3430 Poetry Writing (F,Sp)	3
ENGL 3440 Creative Nonfiction Writing (F,Sp)	3

Select three of the following courses:

ENGL/THEA 4250 <sup>9</sup> Playwriting (F)	3
ENGL 4420 (CI) <sup>2</sup> Advanced Fiction Writing (prereq. ENGL 3420) (Sp)	3
ENGL 4430 (CI) <sup>2</sup> Advanced Poetry Writing (prereq. ENGL 3430) (Sp)	3
ENGL 4440 (CI) <sup>2</sup> Advanced Nonfiction Writing (prereq. ENGL 3440) (Sp)	3

## D. American, British, and World Literature (3 credits)

Select one of the following courses:

ENGL 3300 <sup>2</sup> Period Studies in American Literature (F,Sp)	3
ENGL 3310 <sup>2</sup> Period Studies in British Literature (F,Sp)	3
ENGL 3320 <sup>2</sup> Period Studies in World Literature (F,Sp)	3

## E. Authors (3 credits)

Select one of the following courses:

ENGL 4300 <sup>2</sup> Shakespeare (F,Sp)	3
ENGL 4310 <sup>2</sup> American Writers (F,Sp)	3
ENGL 4320 <sup>2</sup> British Writers (F,Sp)	3
ENGL 4330 <sup>2</sup> World Writers (F)	3

**Note:** The Writers courses vary according to the specialty of the faculty member teaching the course.

## F. Genres (3 credits)

Select one of the following courses:

ENGL 4340 <sup>2</sup> Studies in Prose (Sp)	3
ENGL 4350 <sup>2</sup> Studies in Poetry (F)	3
ENGL 4360 <sup>2</sup> Studies in Drama/Film (Sp)	3
ENGL 4370 <sup>2</sup> Studies in Nonfiction Prose (F)	3

**Note:** The Genre courses vary according to the specialty of the faculty member teaching the course.

## G. Electives (9 credits)

Students should select electives with the guidance and approval of the English undergraduate advisor.

**Note:** The Period Studies, Authors, and Genre courses vary according to the specialty of the faculty member teaching the course.

<sup>1</sup>ENGL 2600 should be taken before registering for 3000 or above literature courses.

<sup>2</sup>These courses are repeatable for credit.

<sup>3</sup>This capstone course should be completed during the senior year.

<sup>4</sup>ENGL1120 is waived if students pass the grammar challenge exam. For further information, contact the undergraduate advisor.

<sup>5</sup>ENGL 5400 includes proposals, brochures, environmental impact statements, newsletters, computer documentation, etc. This course is repeatable for credit.

<sup>6</sup>Prerequisite: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better.

<sup>7</sup>Prior to enrolling in ENGL 5490, students must have completed both ENGL 3400 and 3410 with grades of B- or better.

<sup>8</sup>ENGL 5410 includes multimedia, interactive and electronic texts, etc. This course is repeatable for credit.

<sup>9</sup>ENGL/THEA 4250 requires a prerequisite of THEA 1713.

## American Studies Major and Minor

Many key issues tied to the roots, development, and expression of American culture transcend the boundaries of traditional subject areas and are best explored from a variety of perspectives or disciplines.

The American Studies major and minor provide students with the opportunity to integrate studies in various fields into a broader understanding of American culture and its antecedents. Although housed in the Department of English, the American Studies Program permits students to choose relevant courses for their cognate areas from a variety of participating departments throughout the University.

For admission and graduation, students must have and maintain a minimum grade point average of 2.75. All courses used to fulfill either the major or minor requirements must be taken on an *A-B-C-D-F* basis, and major or minor courses passed with less than a *C* grade must be repeated. However, up to 3 credits of internship credit, which is recorded as *P/F*, may be used to partially fulfill the major requirements. Transfer students are required to take at least 15 credits of major subject courses and 10 credits of minor subject courses in residence at USU.

## Major

**Minimum GPA for Admission:** 2.75, major; 2.75, USU; 2.75, Career

**Minimum GPA for Graduation:** 2.75, major courses; 2.0, USU; 2.0, Career

**Minimum Grade Accepted:** C in major courses

To obtain a degree in American Studies, students must complete a total of 51 credits, including 9 credits of core requirements that introduce foundations of American literature, region, and culture; 6 credits chosen from the 3000 or 4000 level that expose students to the diversity of American culture; and 12 credits of upper-division work (3000 or 4000 level) that allow students to approach American literature, history, and culture through various genres and historical periods.

In addition to completing the required English and history classes, students must complete 21 credits from two of the following seven cognate areas: creative writing, folklore, literature, history, nature



# Department of English

and environment, political science, and sociology and anthropology. Students will be required to meet with either the director or the undergraduate advisor (contact HASS Advising, Taggart Student Center 302) to determine appropriate courses for the cognate areas.

The final course, a senior capstone, encourages graduating students to reflect on their overall coursework, synthesizing the perspectives they have gained about American culture in an extended research project reflecting their interdisciplinary academic experience.

## Course Requirements

### A. Core Requirements (9 credits)

Choose *three* of the following courses:

<b>ENGL 2160</b> American Literary History: Colonialism to 1865 (F,Sp).....	3
<b>ENGL 2170</b> American Literary History: 1865 to Present (F,Sp) .....	3
<b>HIST 2700 (BAI)</b> United States to 1877 (F,Sp,Su) .....	3
<b>HIST 2710 (BAI)</b> United States 1877-Present (F,Sp,Su).....	3

### B. Choose two of the following courses (6 credits)

One selection must be from the ENGL course listings, and one selection must be from the HIST course listings.

<b>ENGL 2630 (BHU)</b> Survey of American Culture (F,Sp).....	3
<b>ENGL 3070 (DHA)</b> Perspectives in Folklore (F,Su).....	3
<b>ENGL 3300</b> Period Studies in American Literature (F,Sp).....	3
<b>ENGL 3520</b> Multicultural American Literature (F,Sp).....	3
<b>ENGL 3620</b> Native American Studies (F,Sp).....	3
<b>ENGL 4610</b> Western American Literature (F,Sp) .....	3

<b>HIST 3670</b> Slavery in the Atlantic World.....	3
<b>HIST 4550 (DHA/CI)</b> Women and Gender in America (F).....	3
<b>HIST 4600 (DHA/CI)</b> The History of the American West .....	3
<b>HIST 4630</b> The History of Mexican Americans .....	3
<b>HIST 4710</b> American Indian History (F).....	3
<b>HIST 4720 (DHA/CI)</b> The Civil Rights Movement (F,Sp).....	3
<b>HIST 4730 (CI)</b> History of Black America (Sp).....	3

### C. Choose four of the following courses (12 credits)

At least one selection must be from the ENGL course listings, and at least one selection must be from the HIST course listings.

<b>ENGL 4310</b> American Writers (F,Sp).....	3
<b>ENGL 4340</b> Studies in Prose (Sp).....	3
<b>ENGL 4350</b> Studies in Poetry (F).....	3
<b>ENGL 4360</b> Studies in Drama/Film (Sp) .....	3
<b>ENGL 4370</b> Studies in Nonfiction Prose (F).....	3
<b>ENGL/HIST 4620 (CI)</b> Advanced Seminar in American Studies (F,Sp).....	3
<b>ENGL 4630</b> American Nature Writers (F,Sp).....	3
<b>ENGL/HIST 4640 (CI)</b> Studies in the American West (F,Sp).....	3
<b>ENGL 4900</b> Internship/Cooperative Work Experience (F,Sp,Su) .....	1-3
<b>HIST 3720</b> Colonial America (F).....	3
<b>HIST 3730</b> The New American Nation (Sp).....	3
<b>HIST 3740</b> United States in the Age of Jefferson and Jackson (F) .....	3
<b>HIST 3750</b> Civil War and Reconstruction (Sp) .....	3
<b>HIST 3760 (DHA/CI)</b> The United States 1900-1945 (Sp).....	3
<b>HIST 3770</b> Contemporary America, 1945-Present (F) .....	3
<b>HIST 3840</b> Twentieth Century American West (Sp) .....	3
<b>HIST 3850 (DHA/CI)</b> History of Utah (Sp).....	3
<b>HIST 3950 (DHA/CI)</b> Environmental History .....	3
<b>HIST 4400 (DHA)</b> History of Aviation and Aeronautics.....	3
<b>HIST/ENGL 4640 (CI)</b> Studies in the American West (F,Sp).....	3
<b>HIST 4790</b> American Religious History .....	3
<b>HIST 4810</b> American Military History.....	3

### D. Cognate Areas (further information shown below) (21 credits)

Select two cognate areas and choose 9 credits from one and 12 credits from the other (21 credits total). Possible cognate course options are listed below.

1. Creative Writing
2. Folklore
3. History
4. American Literature
5. Nature and Environment
6. Political Science
7. Sociology and Anthropology

### E. Capstone Course (3 credits)

**ENGL/HIST 5690 (CI)** American Studies Capstone Seminar (Sp)..... 3

### Cognate Course Options

Students are required to select **two** cognate areas and choose 9 credits from one and 12 credits from the other (21 credits total). Cognate courses *cannot* be used to fill University Studies requirements. **A maximum of 3 credits can be completed in lower-division courses.** The following are partial lists of appropriate courses. The Director of American Studies or the American Studies Advisor (contact HASS Advising, Taggart Student Center 302) must approve substitutions.

#### 1. Creative Writing

Select *three* or *four* courses from the following:

<b>ENGL 3420</b> Fiction Writing (F,Sp) .....	3
<b>ENGL 3430</b> Poetry Writing (F,Sp) .....	3
<b>ENGL 3440</b> Creative Nonfiction Writing (F,Sp) .....	3
<b>ENGL 4420 (CI)</b> Advanced Fiction Writing (Sp) .....	3
<b>ENGL 4430 (CI)</b> Advanced Poetry Writing (Sp) .....	3
<b>ENGL 4440 (CI)</b> Advanced Nonfiction Writing (F,Sp) .....	3

#### 2. Folklore

Select *three* or *four* courses from the following:

<b>ENGL/HIST/ANTH 2210 (BHU)</b> Introduction to Folklore (F,Sp).....	3
<b>ENGL/HIST/ANTH 2720</b> Survey of American Folklore (F,Sp).....	3
<b>ENGL/HIST 3070</b> Perspectives in Folklore (F,Su).....	3
<b>ENGL/HIST 3700 (CI)</b> Regional Folklore (F,Sp).....	3
<b>ENGL/HIST/RELS 3710 (CI)</b> Folklore Colloquium (Sp) .....	3
<b>ENGL/HIST 4700</b> Folk Material Culture (Sp) .....	3
<b>ENGL/HIST 4750</b> Advanced Folklore Workshop: Fife Conference (Su).....	3
<b>ENGL/HIST/ANTH 5700</b> Folk Narrative (Sp) .....	3

#### 3. History

Select *three* or *four* courses from the following. Courses may *not* be "double-counted" to satisfy requirements in sections A, B, or C.

<b>HIST/ENGL 1600</b> American Cultures in Film (F,Sp).....	3
<b>HIST 2700 (BAI)</b> United States to 1877 (F,Sp,Su).....	3
<b>HIST 2710 (BAI)</b> United States 1877-Present (F,Sp,Su).....	3
<b>HIST 3720</b> Colonial America (F).....	3
<b>HIST 3730</b> The New American Nation (Sp).....	3
<b>HIST 3740</b> United States in the Age of Jefferson and Jackson (F) .....	3
<b>HIST 3750</b> Civil War and Reconstruction (Sp) .....	3
<b>HIST 3760 (CI)</b> The United States, 1900-1945 (Sp).....	3
<b>HIST 3850 (CI)</b> History of Utah (Sp).....	3
<b>HIST/WGS 4550 (CI)</b> Women and Gender in America (F).....	3
<b>HIST 4600 (CI)</b> The History of the American West .....	3
<b>HIST/ENGL 4640 (CI)</b> Studies in the American West (F,Sp).....	3
<b>HIST 4710</b> American Indian History (F).....	3
<b>HIST 4730 (CI)</b> History of Black America (Sp).....	3
<b>HIST 4790</b> American Religious History .....	3
<b>HIST 4810</b> American Military History.....	3

## 4. American Literature

Select *three* or *four* courses from the following. Courses may *not* be "double-counted" to satisfy requirements in sections A, B, or C.

<b>ENGL 3300</b> Period Studies in American Literature (F,Sp)	3
<b>ENGL 3520</b> Multicultural American Literature (F,Sp)	3
<b>ENGL 3620</b> Native American Studies (F,Sp)	3
<b>ENGL 4310</b> American Writers (F,Sp)	3
<b>ENGL 4340</b> Studies in Prose (Sp)	3
<b>ENGL 4350</b> Studies in Poetry (F)	3
<b>ENGL 4360</b> Studies in Drama/Film (Sp)	3
<b>ENGL 4370</b> Studies in Nonfiction Prose (F)	3
<b>ENGL 4610</b> Western American Literature (F,Sp)	3
<b>ENGL/HIST 4620 (CI)</b> Advanced Seminar in American Studies (F,Sp)	3
<b>ENGL 4630</b> American Nature Writers (F,Sp)	3
<b>ENGL/HIST 4640 (CI)</b> Studies in the American West (F,Sp)	3

## 5. Nature and Environment

Select *three* or *four* courses from the following:

<b>ENGL 4630</b> American Nature Writers (F,Sp)	3
<b>ENVS 2340 (BSS)</b> Natural Resources and Society (F,Sp)	3
<b>ENVS 5110</b> Environmental Education (Sp)	3
<b>HIST 3950 (CI)</b> Environmental History	3
<b>NR 1010 (BSS)</b> Humans and the Changing Global Environment	3
<b>NR 2220</b> General Ecology (F,Sp)	3
<b>PHIL 3510</b> Environmental Ethics (Sp)	3
<b>POLS 4820 (DSS)</b> Natural Resources and Environmental Policy (Sp)	3
<b>SOC 3600</b> Sociology of Urban Places (F)	3
<b>SOC 3610 (DSS)</b> Rural Sociology (F)	3
<b>SOC 4620 (DSS)</b> Sociology of the Environment and Natural Resources (Sp)	3
<b>SPCH 5250</b> Environmental Rhetoric (Sp)	3
<b>WILD 2200 (BLS)</b> Ecology of Our Changing World (F,Sp)	3

## 6. Political Science

Select *three* or *four* courses from the following:

<b>POLS 1100 (BAI)</b> United States Government and Politics (F,Sp)	3
<b>POLS 2200 (BSS)</b> Comparative Politics (F,Sp)	3
<b>POLS 3140 (DSS)</b> The Presidency (F)	3
<b>POLS/ECN 3170</b> Law and Economics (Sp)	3
<b>POLS 3310 (DSS)</b> American Political Thought (F)	3
<b>POLS 3320</b> The Foundations of American Constitutionalism	3
<b>POLS 3400 (DSS)</b> United States Foreign Policy (F,Sp)	3
<b>POLS 4130</b> Constitutional Theory (Sp)	3
<b>POLS 4140</b> Political Organizations	3

## 7. Sociology and Anthropology

Select *three* or *four* courses from the following:

<b>ANTH 1010 (BSS)</b> Cultural Anthropology (F,Sp)	3
<b>ANTH 3110</b> North American Indian Cultures (F)	3
<b>ANTH 3130 (CI)</b> Peoples of Latin America	3
<b>ANTH 3200 (DSS/CI)</b> Perspectives on Race (Sp)	3
<b>ANTH 3300 (DSS)</b> Archaeology in North America (F,Sp)	3
<b>ANTH 4110 (DSS)</b> Southwest Indian Cultures, Past and Present (F)	3
<b>ANTH 5800</b> Museum Development (F,Sp,Su)	1-3
<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp)	3
<b>SOC 3010</b> Social Inequality (F,Sp)	3
<b>SOC 4370</b> Sociology of Gender (F)	3

## American Studies Minor (21 credits)

American Studies minors must meet and maintain a 2.75 GPA admissions and graduation standard. Students are required to complete the following: (1) one introductory ENGL course (ENGL

2160, American Literary History: Colonialism to 1865; or ENGL 2170, American Literary History: 1865 to Present); (2) one introductory HIST course (HIST 2700, United States to 1877; or HIST 2710, United States 1877-Present); and (3) one 3000- or 4000-level ENGL or HIST course (listed on page 264 in sections B and C). In addition, students must also complete 12 credits of upper-division coursework drawn from two cognate areas (listed on page 264 in section D). These courses of study must be approved by the Director of American Studies or by the American Studies advisor (contact HASS Advising, Taggart Student Center 302) at least one year in advance of graduation. Courses used to fulfill requirements for the English and History majors may *not* be used for the American Studies minor.

## Folklore Minor (18 credits)

The 18-credit minor in folklore is an interdisciplinary program sponsored by the English Department and the History Department. The Director of the Folklore Program or the Folklore Advisor (contact HASS Advising, Taggart Student Center 302) must approve the coursework at least one year prior to graduation. Folklore minor students must maintain a 2.75 GPA admissions and graduation standard.

### A. Required Courses (6 credits)

<b>ENGL/HIST/ANTH 2210 (BHU)</b> Introduction to Folklore (F,Sp)	3
<b>ENGL/HIST/ANTH 5700</b> Folk Narrative (Sp)	3

### B. Survey of Folklore in Culture and Place (3 credits)

Select *one* of the following courses:

<b>ENGL/HIST/ANTH 2720</b> Survey of American Folklore (F,Sp)	3
<b>ENGL/HIST 3700 (CI)</b> Regional Folklore (F,Sp)	3

### C. Folklore Genres (3 credits)

Select *one* of the following courses:

<b>ENGL/HIST 3070 (DHA)</b> Perspectives in Folklore (F,Su)	3
<b>ENGL/HIST 4700</b> Folk Material Culture (Sp)	3

### D. Focused Approaches to the Study of Folklore (3 credits)

Select *one* of the following courses:

<b>ENGL/HIST/RELS 3710 (CI)</b> Folklore Colloquium (Sp)	3
<b>ENGL/HIST 4750</b> Advanced Folklore Workshop: Fife Conference (Su)	3

### E. Electives (3 credits)

Select *one* of the following courses:

<b>ANTH 1010 (BSS)</b> Cultural Anthropology (F,Sp)	3
<b>ANTH 2010 (BSS)</b> Peoples of the Contemporary World (Sp)	3
<b>ANTH 3110</b> North American Indian Cultures (F)	3
<b>ANTH 3130 (CI)</b> Peoples of Latin America	3
<b>ANTH 3160 (DSS)</b> Anthropology of Religion (F)	3
<b>ANTH 4110 (DSS)</b> Southwest Indian Cultures, Past and Present (F)	3
<b>ANTH 4120 (CI/DSS)</b> Anthropology of Childhood (Sp)	3
<b>ANTH 4230 (DSS)</b> Medical Anthropology: Matter, Culture, Spirit, and Health (Sp)	3
<b>ANTH 5190</b> Applied Anthropology Practicum	3
<b>ENGL/HIST 1600</b> American Cultures in Film (F)	3
<b>ENGL/HIST 3070 (DHA)</b> Perspectives in Folklore (F,Su)	3
<b>ENGL 3520</b> Multicultural American Literature (F,Sp)	3
<b>ENGL 3620</b> Native American Studies (F,Sp)	3
<b>ENGL/HIST/RELS 3710 (CI)</b> Folklore Colloquium (Sp)	3
<b>ENGL/HIST 4750</b> Advanced Folklore Workshop: Fife Conference (Su)	3
<b>HIST 4850</b> Interpreting the Past for Teachers (F,Sp)	3

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## English Teaching Minor (27 credits)

English Teaching minor students must meet and maintain a 2.75 GPA for admission and graduation. This minor is available *only* to students completing a teaching major. Students may not use the *P/D/F* option, and grades *C* and below must be repeated. Students must complete the following courses:

<b>ENGL 2140</b> British Literary History: Anglo-Saxon to 18th Century (F,Sp) (3 cr) <b>or</b>	
<b>ENGL 2150</b> British Literary History: Romanticism to Present (F,Sp) (3 cr) .....	3
<b>ENGL 2160</b> American Literary History: Colonialism to 1865 (F,Sp) (3 cr) <b>or</b>	
<b>ENGL 2170</b> American Literary History: 1865 to Present (F,Sp) (3 cr) .....	3
<b>ENGL 3510</b> Young Adult Literature (F,Sp) .....	3
<b>ENGL 3520</b> Multicultural American Literature (F,Sp) .....	3
<b>ENGL 4200</b> Linguistic Structures (F,Sp,Su) .....	3
<b>ENGL 4220</b> Ethnic Literacy (F,Sp) .....	3
<b>ENGL 4300</b> Shakespeare (F,Sp) .....	3
<b>ENGL 4500 (CI)</b> Teaching Writing (F,Sp) .....	3
<b>ENGL 4510 (CI)</b> Teaching Literature (F,Sp) .....	3

### Grammar Competency Requirement:

In addition to fulfilling the above requirements, students in the English teaching minor must fulfill a grammar competency requirement. They may meet this requirement by *either* enrolling in ENGL 1120, Elements of Grammar (also offered through Independent Study), *or* by passing a challenge exam in the English Department Writing Center (Ray B. West 104) with a score of 80 percent or better. For further information, contact the English undergraduate advisor (HASS Advising, Taggart Student Center 302).

## English Minor (Standard Nonteaching) (18 credits)

The standard nonteaching minor consists of 18 credits of various courses, 12 of which must be in upper-division coursework. Ten of the 18 credits must be earned in residence at USU. Advanced Placement credit, CLEP credit, and credit from ENGL 1010 and 2010 may **not** be counted toward this minor. The program must be approved by the Academic Advisor for the English Department at least one year prior to graduation.

## British and Commonwealth Studies Minor (18 credits)

The minor in British and Commonwealth Studies, sponsored jointly by the English and History departments, allows undergraduates to experience interdisciplinary study and broaden their international perspectives. Students engage in interdisciplinary study by doing extended work outside their home departments, while at the same time integrating their study around a single area. They enhance their international experience by deepening their knowledge of the British Isles and of the British Empire's contact with world cultures in the Commonwealth and other postcolonial nations. This minor requires a minimum of 18 credits. Up to three of these courses (9 credits) from the list in *Section A* below may also be used to fulfill requirements for the English or History majors. The program selected must be approved by the coordinator of the British and Commonwealth Studies Minor *at least one year prior to graduation*. Alternatives to this program are possible, but any alternative must be approved by the coordinator.

## A. Select five courses relevant to British and Commonwealth Studies (15 credits)

Each semester, applicable courses will be listed on the program's website (click on link at <http://english.usu.edu/>). Several courses which may fulfill the requirements are listed below. Other courses may also be applicable, depending on the topic. At least one course must be chosen from the English Department offerings, and at least one course must be chosen from the History Department. Furthermore, at least one course must focus on some aspect of the Commonwealth (each of these courses is designated by an asterisk on the website). Students engaged in a formal program of study in Britain or any Commonwealth country may apply this experience toward the British and Commonwealth Studies minor, at the program coordinator's discretion.

<b>ENGL 2140</b> British Literary History: Anglo-Saxon to 18th Century (F,Sp) .....	3
<b>ENGL 2150</b> British Literary History: Romanticism to Present (F,Sp) .....	3
<b>ENGL 3060 (DHA)</b> British and Commonwealth Cultures .....	3
<b>ENGL 3310</b> Period Studies in British Literature (F,Sp) .....	3
<b>ENGL 3320</b> Period Studies in World Literature (F,Sp) .....	3
<b>ENGL/HIST 3700 (CI)</b> Regional Folklore (F,Sp) .....	3
<b>ENGL 4300</b> Shakespeare (F,Sp) .....	3
<b>ENGL 4320</b> British Writers (F,Sp) .....	3
<b>ENGL 4330</b> World Writers (F) .....	3
<b>HIST 3240</b> Modern Europe from 1789 to the Present .....	3
<b>HIST 3510</b> Africa and the World .....	3
<b>HIST 3720</b> Colonial America (F) .....	3
<b>HIST/ARTH 4210</b> Celtic Europe (F) .....	3
<b>HIST 4250</b> The Reformation in Britain: 1450-1688 .....	3
<b>HIST 4390</b> British Imperialism from 1688 to the Present .....	3

## B. Complete one of the following two courses (3 credits)

These courses will culminate in the student producing a research paper of approximately 20 pages, which should be on some topic relevant to Britain and/or the Commonwealth.

<b>ENGL 5920</b> Directed Study (F,Sp,Su) .....	3
<b>HIST 4930</b> Directed Readings .....	3

For further information about the British and Commonwealth Studies Minor, contact the program coordinator (Shane Graham, Ray B. West 301B, (435) 797-2719, [sgraham@english.usu.edu](mailto:sgraham@english.usu.edu)).

## Sample Four-year Plans

Sample semester-by-semester four-year plans for students working toward a bachelor's degree within the English Department can be found at:

<http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Program Assessment

For information about how the English Department assesses its programs, click on the **Assessment** link on the departmental home page at: <http://english.usu.edu/>

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school.

Students are eligible for admission to the English departmental honors program if they: (1) are majoring in English or in American Studies, (2) have a cumulative GPA of at least 3.3, and (3) have a GPA in English courses (excluding ENGL 1010 and 2010) of at least 3.5. In order to earn a departmental honors degree, students must maintain these GPA levels, take 15 credits of approved upper-division English coursework for Honors credit, and complete and orally defend a Senior Honors Thesis. Typically, students take four 3-credit courses with honors contracts and one 3-credit independent study course (ENGL 5910, Senior Honors Thesis) in order to complete the 15 required credits for the program. For more information, follow the Honors Program link at: <http://english.usu.edu/>

## Additional Information and Updates

English programs are constantly being updated. Students should therefore confer with the English advisor (contact HASS Advising, Taggart Student Center 302). Current requirement sheets are available online at: <http://www.usu.edu/majorsheets/>

## Financial Support and Scholarships

Scholarships, assistantships, grants-in-aid, and work-study programs are available through the University. In addition, the English Department employs a few students as tutors in The Writing Center and oversees various cooperative education and internship opportunities for students. Departmental scholarships are available on a competitive basis to juniors and seniors, as well as to some sophomores. Applications are accepted in January and February and are available in the college dean's office, Main 338. For further information, click on the scholarships link at: <http://english.usu.edu>

## Graduate Programs

### PhD in Theory and Practice of Professional Communication

The Theory and Practice of Professional Communication (TPPC) program is designed to meet the interests and needs of students who aspire to conduct advanced study of and research into the communicative practices of organizations and the professions. The program offers the opportunity to study professional communication, technology, and culture in a department with a long history of expertise and achievement in writing and technology. The defining features of this program include opportunities to study and work with advanced communication technologies, to engage in extended fieldwork research experiences, and to pursue a program of study that can largely be tailored to work with different research interests within the field of professional communication. The program prepares students to become academic instructors/researchers in English departments

or to move into administrative or research positions in nonacademic workplaces.

The TPPC program has a website providing details about the application process, financial assistance, and graduation requirements. This website may be accessed at: <http://tppc.usu.edu/>

## Research

PhD students have opportunities to participate in unique research activities available at facilities associated with the Department of English, such as computer classrooms and labs directed by faculty members. These research activities complement faculty expertise and curriculum strengths in the department, including workplace-focused graduate research, theory and practice of online education, and training in writing and professional communication.

The TPPC program makes extensive use of Web-based communications systems. The English Department at Utah State has a national reputation for its achievements in online education and continues to develop innovative ways to deliver state-of-the-art, Web-based instruction to students in Utah, across the U.S., and around the world. Depending on their research and teaching interests, TPPC students may be actively involved in these efforts.

## Coursework

As part of the work on their degree, students in the program complete a minimum of 60 approved semester credits beyond their master's degree. The required courses include ENGL 7000 (Advanced Research Methods in Professional Communication), ENGL 7410 (Theory and Research in Professional Communication), ENGL 7900 (Research Internship), and ENGL 7970 (Dissertation Research). Additional coursework is completed through a rotating series of seminars focused on the ongoing research projects and interests of faculty. In addition, to support the breadth of perspective required to understand professional communication as it operates in society at large, students are required to take at least 6 credits (and a maximum of 18 credits) of graduate-level coursework outside of the Department of English. Students are encouraged to select courses that will help them develop expertise in an area (either disciplinary or interdisciplinary) that will complement their research and/or pedagogical goals.

## Admission Procedure

Applicants for admission to the program must have a master's degree in a subject area that complements their professional reason(s) for earning a PhD in Theory and Practice of Professional Communication. They must also have earned scores *no lower than the 40th percentile* in the Verbal section and in *either* the Quantitative *or* the Analytical section of the Graduate Record Examination (GRE) General Test.

Applicants to the program should send materials to two offices at Utah State University, as described below.

To the **School of Graduate Studies**, applicants should send four items:

1. A completed application form, along with the application fee.
2. Two copies of all official undergraduate and graduate transcripts, showing GPA. The minimum requirement is 3.00 on a 4.00 scale for the last 60 credits of undergraduate courses taken and for all graduate credits taken.

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3. Three letters of recommendation (at least two of which must be from former professors if the applicant has been enrolled in school during the last five years).
4. GRE scores no older than five years.

To the **Director of Graduate Studies in the Department of English**, applicants should send four items:

1. A letter of intent providing background information about the applicant's training, interests, and experiences, as well as an overview of the applicant's career goals and specific reasons why graduate training in professional communication is important to the applicant.
2. A completed *Graduate Instructorship Application for PhD Students* form (indicating whether or not the applicant wishes to be considered for a graduate instructorship).
3. A current vita.
4. Two writing samples (a total of 20-40 pages). The samples may include academic or nonacademic writing, but should demonstrate *both* the applicant's critical *and* research skills. Each sample must be accompanied by a 1-page introductory preface. For additional details, including current application deadline, see the TPPC website at: <http://tppc.usu.edu/>

## Financial Assistance

Both departmental support and formal research grant support are available to graduate students on a competitive basis. Highly qualified graduate students may also be nominated to compete for University fellowships. Students who wish to be considered for financial aid must meet the application deadlines described above.

Graduate instructorships are available through the Department of English. The assignment will be 50 percent time—approximately 20 hours of work per week. The normal teaching load is two sections of writing classes (e.g., composition or introduction to technical communication) for fall and spring semesters.

In addition, students are normally responsible for paying resident (instate) tuition and fees if they are residents of Utah, and *both* resident and nonresident (out-of-state) tuition and fees if they are *not* Utah residents. However, PhD students who are employed as graduate instructors (or who are recipients of certain fellowships) are eligible for tuition waivers. If they are Utah residents, their resident tuition costs will be waived. If they are *not* Utah residents, *both* the resident and nonresident tuition costs will be waived. Recipients of these tuition waivers will *still* be responsible for paying fees each semester.

## Master's Degree Programs

The Department of English offers courses of study leading to the MS and MA degrees in English and in American Studies. Applicants seeking the English degree may be admitted into the Literature and Writing specialization or the Technical Writing specialization. Applicants seeking the interdisciplinary American Studies degree may draw from a combination of courses dealing with American culture: literature, history, art, government, etc. Folklore is one of the specializations in American Studies, with courses in all aspects of folklore study, including public sector folklore.

For a more complete description of the Department of English graduate programs, see the department's website: <http://english.usu.edu/>

## Admission Requirements

In addition to the requirements specified on pages 36-37 (Admission Procedures), applicants for admission to the English Department master's degree programs should have a BS or BA degree with an undergraduate major in a subject area relevant to the master's program they desire to enter. The English Department accepts the Miller Analogies Test in place of the GRE general test, but encourages applicants to take the GRE. The department also requires a 5-10 page writing sample appropriate to the program the applicant desires to enter. The Technical Writing specialization has additional requirements; see the following website: <http://techcomm.usu.edu/grad/>

International applicants from non-English-speaking countries who desire an MS or MA degree in English should have a BS or BA degree in English from an accredited, English-speaking university. Students whose command of written English is not adequate to the demands of writing a graduate thesis in English may be required to take courses in Intensive English or may be counseled to obtain a second bachelor's degree at USU (30 credits minimum).

The annual application deadline is **January 15** for those who wish to be considered for a graduate instructor position. The final annual deadline is **April 20** for all other applicants who wish to begin their course of study fall semester.

Anyone who has not been accepted into a graduate program in the English Department must have permission from the department's Director of Graduate Studies to enroll in English graduate courses.

## MA/MS in English Requirements

Applicants will be admitted to the English degree for one of two specializations: Literature and Writing (30-33 credits) or Technical Writing (33 credits).

### Literature and Writing

The graduate specialization in Literature and Writing offers an MA or MS in English to students who wish to do advanced work in the fields of literary criticism, composition, rhetoric, and creative writing. The aim is to professionalize students, helping them to become scholars and teachers of English. While any student having a strong undergraduate education in English, along with a desire to pursue that education further, is welcome to pursue the Literature and Writing specialization, the specialization does cater most directly to future PhD students in English, future two-year college instructors, and secondary educators. Under the guidance of a faculty committee, students are encouraged to write a thesis as the culmination of their studies. With approval, this thesis may consist of a creative writing work with a critical reflective essay. Students not wishing to write a thesis may complete the Plan C option by taking 33 credits of coursework.

In both seminars and independent study with faculty, Literature and Writing students consider literary and nonliterary texts, learning not only how to interpret such texts, but also how to produce them. The course of study thus includes both theory and practice: students take part in the reading and the writing of literature, criticism, essays, and arguments. The curriculum is divided into three groups of courses: (1) Literature, (2) Writing, and (3) Teaching Literature and Writing. Students who are particularly interested in one of these three areas may take as many courses in that group as are available. However, they should *not* expect to be able to take *all* their courses from any

one group; rather, they are encouraged to take courses from *all three* groups before they graduate.

Although most of their courses will be completed within the Literature and Writing curriculum, students may also pursue their interests by taking some courses in the department's other master's programs (American Studies, Folklore, and Technical Writing), as well as doctoral courses in the Theory and Practice of Professional Communication PhD program. Permission of the Director of Graduate Studies in English is required. Coursework may include some online courses; however, Literature and Writing is an on-campus specialization and *may not* be completed by taking *only* online classes.

## Technical Writing (online)

The graduate specialization in Technical Writing is designed for students who already have some training and/or experience as practitioners of technical writing. It is taught entirely online, via the Internet, and aims to prepare students to enter or reenter nonacademic workplaces, not just as practitioners, but also as developers and managers of technical documents. When they graduate, students will be qualified to determine and defend writing policy and practices in their workplaces.

To prepare students for these leadership roles, the Technical Writing specialization provides them with a strong theoretical understanding of their profession. In their online graduate seminars, students will read widely in research and theory relating to workplace writing practices. They will critically examine both the theories and the practices, and they will explore ways in which each can enhance the other. They will also learn how to manage teams of writers, and they will explore ethical issues in the profession. The specialization balances the theoretical training with opportunities for students to improve their own practical skills as technical writers, learning how to apply theory and current technology to the production of a variety of technical documents. This practical training will include multimedia presentations and graphic design.

The Technical Writing specialization is designed primarily for nontraditional students—working professional writers who want to enhance their credentials and build a strong theoretical understanding of their profession. However, it may also accept some traditional students who have just finished their undergraduate studies, provided they have some practical experience.

Students in Technical Writing must complete 33 credits under the Plan C option. Courses may be taken in any sequence. Students in this specialization pursue the MS degree.

## MA/MS in American Studies Requirements

Those applicants who have been admitted to the American Studies degree program will work out a program of study with either the American Studies Director or the Folklore Director. Generally, students develop their programs with a focus in American literature, folklore, or history. Interdisciplinary connections with many other departments at USU are possible. Students may choose the American Studies Standard specialization, with or without an emphasis in creative nonfiction writing on the cultures and landscapes of the American West; or the Folklore specialization, with or without an emphasis in public sector folklore. The American Studies degree requires 30 credits, with a preference for the MA and the Plan A (thesis) options, although the MS and the Plan B options are also accepted.

Students in the American Studies Standard specialization must take ENGL/HIST 6600 (American Studies Theory and Method) early in their course of study. Students must also take *at least one course* in a department *other than English*. Students selecting the Creative Nonfiction emphasis will follow the same requirements as the students in the American Studies Standard specialization, with the following exception: all students in the Creative Nonfiction emphasis are required to take two courses in which a major part of their coursework focuses on some form of creative nonfiction. If approved, it is possible for one course in *either* fiction *or* poetry writing to be applied toward this emphasis.

Students in the Folklore specialization must take ENGL/HIST 6700 (Folklore Theory and Method) early in their course of study. Students selecting the Public Sector Folklore emphasis will follow the same requirements as the students in the Folklore specialization, with the following exception: all students in the Public Sector Folklore emphasis are required to take ENGL/HIST 6720 (Folklore Fieldwork), ENGL/HIST 6730 (Public Folklore), and ENGL 6900 (Graduate Internship).

Of special interest to students in American Studies are the *Western Historical Quarterly* and the *Western American Literature* journals published at USU, which often provide editorial and clerical positions for graduate students. Also, The Mountain West Center for Regional Studies sponsors lectures and programs and provides research assistance for students working in the field of regional studies. The Merrill-Cazier Library is a regional depository for federal publications and receives 60,000 to 70,000 government titles each year. The library's Special Collections division contains thousands of historical photographs, an immense store of pioneer diaries and papers, and a strong collection of books and manuscripts relating to the West, the pioneers, the Mormons, cowboys, and cowboy poetry. The Fife Folklore Archives, one of the best folklore archives in the country, contains over 3,400 books on folklore and folklore-related topics. The Special Collections division also serves as the national depository for the American Folklore Society's Papers, more than 50 linear feet of records and documents accumulated during the 114-year history of the organization.

## General Requirements

All candidates for the MS and MA degrees must meet the School of Graduate Studies requirements (see pages 116-119 of this catalog). Only grades of *B-* or better will be accepted for credits in support of the degree programs, and students must maintain an overall GPA of 3.0 to remain in the program.

All candidates must complete a comprehensive examination covering the material of their graduate program; however, the nature of this examination varies according to the particular specialization and the advice of the candidate's supervisory committee.

All candidates are required to defend their Plan A thesis or Plan B papers. After successfully defending their Plan A thesis, students must submit a department-approved final draft to the School of Graduate Studies assistant dean (Main 164). After successfully defending their Plan B papers, students must submit a department-approved copy to University Library Special Collections.

All candidates who are first-year graduate instructors are required to take ENGL 6820 (Practicum in Teaching English) during their first semester. The candidate's supervisory committee will determine whether ENGL 6820 will be accepted as part of the candidate's graduate program.

# Department of English

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## Financial Assistance

The Department of English has a limited number of graduate instructor positions and Moyle Q. Rice Scholarships available on a competitive basis for both English and American Studies graduate students. Additional financial aid is available through the journal of *Western American Literature*. All applicants who wish to be considered for a graduate instructorship should contact the Director of Graduate Studies in the English Department. The application deadline for instructorships is January 15.

## English Faculty

### Professors

*Melody Graulich*, American Literature, American Studies, Western American literature, feminist studies; editor, *Western American Literature*  
*Patricia Gantt*, teacher education, young adult literature, American studies, women and gender studies, southern literature  
*Christine Hult*, composition and rhetoric, teacher education (Associate Dean, College of Humanities, Arts and Social Sciences)  
*Joyce A. Kinkead*, composition and rhetoric (Vice Provost for Undergraduate Studies and Research)  
*Stephen C. Siporin*, folklore, folk narrative, material culture, folk ethnicity  
*Jeffrey Smitten*, eighteenth century British literature, Scottish literature, literary theory and criticism  
*Jeannie B. Thomas*, folklore, legend, oral narrative, humor and gender

### Professors Emeritus

*Jan Bakker*, nineteenth- and early twentieth-century American literature  
*Barre Toelken*, folklore, Native American studies, medieval literature

### Associate Professors

*Kelli Cargile Cook*, technical communication  
*Paul J. Crumbley*, American poetry, nineteenth century American women writers, American identity, the wilderness experience  
*Brock Dethier*, composition, creative writing  
*Evelyn I. Funda*, American literature, Western American literature  
*Keith A. Grant-Davie*, composition and rhetoric, reading theory, technical communication  
*David E. Hailey, Jr.*, technical communication, online information, CBT technology  
*Phebe Jensen*, sixteenth- and seventeenth-century British literature, Shakespeare  
*Sonia Manuel-Dupont*, linguistics, technical communication, teacher education  
*Brian W. McCuskey*, nineteenth-century British literature  
*John E. McLaughlin*, linguistics, technical communication, Native American languages  
*Kristine A. Miller*, twentieth-century British literature

*Jan E. Roush*, American Studies, folklore  
*Anne Shifrer*, twentieth-century literature, women writers, poetry, literary theory and criticism  
*Ronald R. Shook*, technical communication, linguistics  
*Jennifer Sinor*, rhetoric and composition, teacher education  
*Michael Sowder*, creative writing (poetry), American literature

### Associate Professors Emeritus

*Theodore Andra*, British literature, technical writing  
*Kate M. Begnal*, twentieth-century literature, postmodernism, literary theory and criticism  
*Patricia Gardner*, world literature, children's and young adult literature, folklore

### Assistant Professors

*Christopher Cokinos*, creative nonfiction, poetry writing, science and nature writing; editor, *Isotope*  
*Christine Cooper-Rampato*, medieval literature, commonwealth  
*Lisa Ann Gabbert*, folklore, American studies  
*Keith Gibson*, rhetoric and technical communication  
*Shane Graham*, postcolonial literature and theory, contemporary fiction and drama, multicultural literature  
*Ryan M. Moeller*, professional writing, rhetorical theory, rhetorics of technology  
*Roberta S. Stearman*, American literature, fiction writing  
*Charles Waugh*, fiction writing, literature and globalization

### Adjunct Assistant Professor

*Christie L. Fox*, folklore; Program Coordinator of Honors Program

### Lecturers

*Susan Andersen*, literature and writing  
*Shanan L. Ballam*, writing, creative writing  
*Star Coulbrooke*, Associate Director of Writing Center  
*John Engler*, literature and writing  
*Nikole Eyre*, literature and writing, professional and technical writing  
*Julie R. Foust*, writing; Director of Rhetoric Associates  
*Marina L. Hall*, Coordinator of Public Relations and Educational Outreach  
*Maria Melendez*, literature and writing  
*Susan Nyikos*, literature and writing  
*Robin Parent*, American studies, folklore, distance education  
*Rachel Rich*, literature and writing  
*Paige Smitten*, literature and writing  
*Anne H. Stark*, literature and writing  
*Michael Ward*, literature and writing

## Course Descriptions

English (ENGL), pages 548-553

# Department of Environment and Society

**Department Head:** Joseph A. Tainter

**Location:** Natural Resources 201

**Phone:** (435) 797-1790

**FAX:** (435) 797-4048

**WWW:** <http://www.cnr.usu.edu/envs>

**Undergraduate Advisor:**

Maureen A. Wagner, Natural Resources 120, (435) 797-2448,  
[maureen.wagner@usu.edu](mailto:maureen.wagner@usu.edu)

**Degrees offered:** Bachelor of Science (BS) in Environmental Studies; BS, Master of Science (MS), and Doctor of Philosophy (PhD) in Recreation Resource Management; BS, Bachelor of Arts (BA), MS, and Master of Arts (MA) in Geography; MS in Bioregional Planning (offered jointly with Department of Landscape Architecture and Environmental Planning); MS and PhD in Human Dimensions of Ecosystem Science and Management; MS and PhD in Ecology

**Undergraduate emphases:** *Environmental Studies BS*—Human Impacts on the Environment, Communications, Business and Economics, Environmental Policy, International, Planning and Analysis, Environmental Stewardship; *Geography BS, BA*—Human Impacts on the Environment, Cultural/Social Geography, Planning and Analysis, Geographic Perspectives

**Vision/Mission:** The vision of the Department of Environment and Society is one of bringing people and science together for healthy communities and enduring ecosystems. The mission of the department is based on three goals: (1) to promote scholarship and creativity in the discovery, synthesis, and transfer of knowledge relating to the human dimensions of natural resource and environmental management; (2) to apply social science concepts and approaches to better understand human-environment interactions at a range of spatial scales; and (3) to enhance the effectiveness of policies, planning, and administrative processes that affect sustainable use of the natural world.

To this end, the department's academic programs provide undergraduate and graduate students with a balanced exposure to the social, physical, and biological sciences within an interdisciplinary framework. This combination has great relevance for students aspiring to careers in natural resource and environmental policy, planning, management, education, and science, as well as careers in geography. The program is designed to provide students with a working knowledge of the human aspects of ecosystems and a speaking knowledge of the biophysical aspects, as well as experience using "state of the art" tools and techniques for integrating this knowledge.

## Undergraduate Programs

### Objectives

The department offers the following undergraduate degree programs: Environmental Studies, Geography, and Recreation Resource Management. Each of these programs offers a balanced exposure to key ideas and principles of the social, biological, and physical sciences, placing special emphasis on the human dimensions of natural resources and environmental management. The department's goal is to train professionals who can lead the way toward finding and keeping a sustainable balance between protecting the environment and enhancing human societies.

Departmental programs offer learning experiences in the classroom and in the field, frequent individual contacts with faculty as teachers and advisors, and opportunities to take part in student and professional organizations. Seasonal employment, internships, and other activities promoting hands-on experience in natural resource and geographic professions are strongly encouraged.

The **Environmental Studies** curriculum is designed for students who wish to acquire a broad understanding of natural resources and human-environment relationships, together with the technical background needed to understand environmental issues. In many ways, the curriculum provides a traditional "liberal arts education" with a strong natural resources emphasis. Moreover, it provides an opportunity for students to select from several areas of emphasis, depending upon their career goals.

The **Geography** curriculum provides a broad background in the basic themes of geography—human (cultural), physical, and regional geography. In addition, students acquire technical geographic analysis skills. As with the Environmental Studies major, students also have the opportunity to select from several areas of emphasis, depending upon their career goals.

The **Geography Teaching** curriculum offers students an opportunity to prepare for a career in secondary education with a geography emphasis.

The **Recreation Resource Management** curriculum prepares students for careers in planning and management of visitor use in wildland recreation settings, such as state and national parks, forests, monuments, and wilderness areas. Because such jobs require an understanding of the landscape, its natural resources, and the people who visit, the major offers courses in both the bio-physical and social sciences, along with an emphasis on communication and collaboration skills.

### Environment and Society Minors

The department offers minors in Environmental Studies, Geography, Geography Teaching, and Recreation Resources.

## Requirements

### Admission Requirements

Admission requirements for the Department of Environment and Society are the same as those described for the College of Natural Resources (see pages 138-139).

### Graduation Requirements

All courses listed as major subject courses must be taken on an *A-B-C-D-F* basis. Students must achieve a grade of *C-* or better in all ENVS and GEOG courses used to satisfy the requirements for a major in the Department of Environment and Society. The grade point average for all courses taught by the College of Natural Resources must be 2.5 or higher.

All students in the Environmental Studies and Recreation Resource Management majors must complete a series of basic lower-division courses providing the disciplinary foundation for natural resource professions before moving on to professional coursework. Equivalents of these foundation courses may be taken at many two- and four-year colleges. Some foundation and core courses may also be used toward the University Studies requirements, as shown by the University Studies designations listed in parentheses following the course numbers. Students should consult their academic advisor if they have questions about University graduation requirements.



# Department of Environment and Society

## Environmental Studies Major

The Environmental Studies major consists of 84-87 credits. This total includes the disciplinary foundation, professional courses, and an emphasis area of 15 or more credits.

### A. Disciplinary Foundation (18 credits)

BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su)	3
BIOL 1020 Biological Discovery: A Lab Course (F,Sp)	1
CHEM 1110 (BPS) General Chemistry I (F,Sp)	4
HIST 3950 (DHA/CI) Environmental History (3 cr) <b>or</b>	
PHIL 3510 (DHA) Environmental Ethics (Sp) (3 cr)	3
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
STAT 2000 (QI) Statistical Methods (F,Sp)	3

### B. Professional Coursework (43-44 credits)

ENVS 1990 Professional Orientation for Environment and Society (F)	2
ENVS 2340 (BSS) Natural Resources and Society (F,Sp)	3
ENVS 3000 Natural Resources Policy and Economics (F)	4
ENVS 3330 Environment and Society (Sp)	3
ENVS 3500 (QI) Quantitative Assessment of Environmental and Natural Resource Problems (F)	3
ENVS 4000 Human Dimensions of Natural Resource Management (F)	3
ENVS 4400 Economic Applications in Natural Resource Management (Sp)	4
ENVS 4990 Environmental and Natural Resource Professionalism Seminar (F)	2
ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources (Sp)	3
GEOG 1000 (BPS) Physical Geography (F,Sp,Su) (3 cr) <b>or</b>	
GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp) (4 cr)	3 or 4
GEOG 3850 Map, Air Photo, and GIS Interpretation (F)	4
WATS 3700 (CI) Fundamentals of Watershed Science (Sp)	3
WILD 2200 (BLS) Ecology of Our Changing World (F,Sp)	3
WILD 4900 Managing Dynamic Ecological Systems (Sp)	3

### C. Animal Course (select 3 credits)

ENVS 3600 (DSC) Living With Wildlife (Sp)	3
WATS 3100 (CI/DSC) Fish Diversity and Conservation (F)	3

### D. Plant Course (select 3-4 credits)

BIOL 3040 (DSC) Plants and Civilization (F)	3
PLSC 3500 The Structure and Function of Economic Crop Plants (Sp)	3
WILD 3600 Wildland Plant Ecology and Identification (F)	4

### E. Policy Course (select 2-3 credits)

The course chosen from this section *cannot* also be applied toward the emphasis area.

ENVS 4130 Recreation Policy and Planning (Sp)	3
ENVS 5300 Natural Resources Law and Policy (Sp)	2
ENVS 5320 Water Law and Policy in the United States (Sp)	3
ENVS 5570 Sustainable Living (Sp)	3
ENVS/SOC 5640 Conflict Management in Natural Resources (Sp)	3
Another course related to natural resource or environmental policy, numbered 3000 or higher	3

### F. Area of Emphasis (15 credits)

Students majoring in Environmental Studies are required to select an emphasis of at least 15 credits to complement their general professional foundation. Students must file an approved emphasis plan prior to applying for graduation, but it is recommended that they meet with their advisor to develop and gain approval for the emphasis *no later* than midway through the first semester of their junior year.

Complete 15 credits chosen from one of the following seven emphasis areas:

#### Business and Economics

APEC 5560 Natural Resource and Environmental Economics (Sp)	3
ECN 3170 Law and Economics (Sp)	3
ENVS 5550 Sustainable Development (Sp)	3
MGT 2050 Legal and Ethical Environment of Business (F,Sp,Su)	3
MGT 3110 (DSS) Managing Organizations and People (F,Sp,Su)	3
MGT 3500 Fundamentals of Marketing (F,Sp,Su)	3
Other business or economics course approved by faculty advisor	3-4

#### Communications

ENGL 3440 Creative Nonfiction Writing (F,Sp)	3
ENGL 4630 American Nature Writers (F,Sp)	3
ENVS 4600 Natural Resource Interpretation (F)	3
ENVS 5110 Environmental Education (Sp)	3
JCOM 1130 Beginning Newswriting for the Mass Media (F,Sp,Su)	3
SPCH 5250 Environmental Rhetoric (Sp)	3
Other communications course approved by faculty advisor	3-4

#### Environmental Policy

ENVS 4130 Recreation Policy and Planning (Sp)	3
ENVS 5300 Natural Resources Law and Policy (Sp)	3
ENVS 5320 Water Law and Policy in the United States (Sp)	3
ENVS 5570 Sustainable Living (Sp)	3
ENVS/SOC 5640 Conflict Management in Natural Resources (Sp)	3
POLS 5180 Natural Resource Policy (Sp)	3
Other policy course approved by faculty advisor	3-4

#### Human Impacts on the Environment

ENVS 5570 Sustainable Living (Sp)	3
GEO 3100 (DSC) Natural Disasters (Sp)	3
HIST 3950 (DHA/CI) Environmental History (cannot be applied toward this option if already used to fulfill requirements in <i>Section A</i> )	3
SOC 4620 (DSS) Sociology of the Environment and Natural Resources (Sp)	3
WATS/CLIM 3820 (DSC/QI) Climate Change (Sp)	3
WILD 4600 Conservation Biology (Sp)	3
Other appropriate course approved by faculty advisor	3-4

#### International

ANTH 2010 (BSS) Peoples of the Contemporary World (Sp)	3
ECN 5400 International Trade Theory (F)	3
ENVS 5550 Sustainable Development (Sp)	3
GEOG 1300 (BSS) World Regional Geography (F)	3
GEOG 4200 (CI) Regional Geography (F,Sp,Su)	3
GEOG/ANTH/SOC 5650 Developing Societies (F)	3
SOC 4730 Women in International Development (Sp)	3
Other course with international focus approved by faculty advisor	3-4

#### Planning and Analysis

BIOL 5010 Biogeography (Sp)	3
ENVS/SOC 5640 Conflict Management in Natural Resources (Sp)	3
GEO 3100 (DSC) Natural Disasters (Sp)	3
GEOG 3610 Geography of Rural/Urban Planning (F)	3
LAEP 3700 City and Regional Planning (Sp)	3
WATS 4930 Geographic Information Systems (F)	4
WATS 5330 Large River Management (Sp)	3
Other planning course approved by faculty advisor	3-4

#### Environmental Stewardship

In consultation with his or her advisor, a student may develop a custom emphasis of at least 15 credits. Students pursuing this option must fill out an emphasis form describing educational goals and specific

# Department of Environment and Society

courses to be taken. A University-approved minor may be used to meet this requirement, subject to approval by the student's advisor and department head.

## G. Electives

Students may take the remainder of the 120 credits from any department. The guidelines described under "Breadth Requirements" (see pages 67-69) and "Depth Education Requirements" (see pages 70-75) should be consulted to ensure meeting University Studies Requirements.

## Environmental Studies Minor (15-17 credits)

The Environmental Studies minor is open to all majors, *except* those in the College of Natural Resources. However, this minor *is available* to students enrolled in the Geography major. Students wishing to minor in Environmental Studies should contact the Department of Environment and Society to meet with the department's designated minor advisor. All courses required for the minor must be taken on an *A-B-C-D-F* basis. A grade of C- or better is required for all ENVS courses taken to meet requirements for the minor. A minimum GPA of 2.5 is required for courses taken to complete the minor.

### A. Required Courses (10 credits)

ENVS 2340 (BSS) Natural Resources and Society (F,Sp)	3
ENVS 3000 Natural Resources Policy and Economics (F)	4
WILD 2200 (BLS) Ecology of Our Changing World (F,Sp)	3

### B. Policy or Economics Course (2-4 credits)

Select one of the following courses in natural resources policy or economics:

ENVS 4130 Recreation Policy and Planning (Sp)	3
ENVS 4400 Economic Applications in Natural Resource Management (Sp)	4
ENVS 5300 Natural Resources Law and Policy (Sp)	2
ENVS 5320 Water Law and Policy in the United States (Sp)	3
ENVS 5570 Sustainable Living (Sp)	3

### C. Electives (3 credits)

Select one additional upper-division (3000-level or higher) course of 3 credits or more, which provides greater depth in an area of natural or social sciences that can be applied to the management of natural resources and the environment, to be selected in consultation with the Environmental Studies minor advisor.

## Geography Major

The Geography major consists of 48 credits. After meeting the University Studies, USU upper-division, and geography major requirements, students may take the remainder of their 120 required credits in any discipline from any department. Students interested in using their elective credits to develop a field of specialization should consult with their advisor to select appropriate courses.

### A. Disciplinary Foundation Courses (29 credits)

ENVS 1990 Professional Orientation for Environment and Society (F)	2
ENVS 3330 Environment and Society (Sp)	3
GEOG 1000 (BPS) Physical Geography (F,Sp,Su)	3
GEOG 1005 Physical Geography Lab (F,Sp)	1
GEOG 1300 (BSS) World Regional Geography (F)	3
GEOG 1400 (BSS) Human Geography (Sp)	3
GEOG 3850 Map, Air Photo, and GIS Interpretation (F)	4
GEOG 4200 (CI) Regional Geography (F,Sp,Su)	3
GEOG 4850 Cartographic Design (Sp)	3
WATS 4930 Geographic Information Systems (F)	4

### B. Quantitative Foundation (7 credits)

MATH 1050 (QL) College Algebra (F,Sp,Su)	4
STAT 2000 (QI) Statistical Methods (F,Sp)	3

### C. Emphasis Area (12 credits)

Students majoring in Geography are required to select an emphasis of at least 12 credits to complement their disciplinary foundation. Students must file an approved emphasis plan prior to applying for graduation, but it is recommended they meet with their faculty advisor to develop and gain approval for the emphasis no later than midway through the first semester of the junior year. Some courses may require prerequisites; for additional information, see course descriptions.

Complete 12 credits chosen from one of the following four emphasis areas.

#### Cultural/Social Geography

ANTH 3160 (DSS) Anthropology of Religion (F)	3
ENVS 5550 Sustainable Development (Sp)	3
FREN 3550 (DHA) French Civilization (3 cr) or JAPN 3100 Readings in Contemporary Japanese Culture (F) (3 cr) or Any other culture course offered as part of a foreign language program (3 cr)	3
GEOG 4200 (CI) Regional Geography (F,Sp,Su) (Must be the <i>second</i> geographic area of study <i>beyond</i> the area chosen in the <i>Disciplinary Foundation Courses</i> .)	3
GEOG 5650 (DSS) Developing Societies (F)	3
SOC 4710 Asian Societies (Sp)	3
Other course related to cultural/social geography approved by faculty advisor	3-4

#### Human Impacts on the Environment

ENVS 3600 (DSC) Living with Wildlife (Sp)	3
ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources (Sp)	3
ENVS 5550 Sustainable Development (Sp)	3
ENVS 5570 Sustainable Living (Sp)	3
HIST 3950 (DHA/CI) Environmental History	3
WILD 2200 (BLS) Ecology of Our Changing World (F,Sp) (3 cr) or NR 2220 General Ecology (F,Sp) (3 cr) (Students can count <i>either</i> WILD 2200 <i>or</i> NR 2220 toward the emphasis area, but <i>cannot</i> count both.)	3
WILD 4600 Conservation Biology (Sp)	3
Other appropriate course approved by faculty advisor	3-4

#### Planning and Analysis

ENVS 3000 Natural Resource Policy and Economics (F)	4
ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources (Sp)	3
ENVS 5300 Natural Resources Law and Policy (Sp)	2
GEOG 3610 Geography of Rural/Urban Planning (F)	3
LAEP 3700 City and Regional Planning (Sp)	3
Other planning course approved by faculty advisor	3-4

#### Geographic Perspectives

In consultation with his or her advisor, a student may develop a customized emphasis that meets specific career goals not addressed in the other three emphases. Students pursuing this option must complete an emphasis form describing educational goals and specific courses to be taken. A University-approved minor may be used to meet this requirement, subject to approval by the student's advisor and department head.

# Department of Environment and Society

## Geography Minor (24 credits minimum)

All courses required for the Geography minor *must* be taken on an A-B-C-D-F basis. A grade of C- or better is required for all GEOG courses taken to meet requirements for the minor. In order to graduate, students must maintain a 2.5 or higher grade point average in all courses taken from offerings within the College of Natural Resources.

<b>GEOG 1000 (BPS)</b> Physical Geography (F,Sp,Su).....	3
<b>GEOG 1005</b> Physical Geography Lab (F,Sp).....	1
<b>GEOG 1300 (BSS)</b> World Regional Geography (F).....	3
<b>GEOG 1400 (BSS)</b> Human Geography (Sp).....	3
<b>GEOG 3850</b> Map, Air Photo, and GIS Interpretation (F).....	4
<b>GEOG 4200 (CI)</b> Regional Geography (F,Sp,Su).....	3
<b>GEOG 4850</b> Cartographic Design (Sp).....	3
<b>WATS 4930</b> Geographic Information Systems (F).....	4

## Geography Teaching Major (90-106 credits)

The teaching major in Geography consists of the geography courses (38 credits minimum, shown in sections A, B, and C below), a teaching minor (17-33 credits), and the Secondary Teacher Education Program (STEP) (35 credits). **A 2.75 or higher overall cumulative GPA in 90 credits is required for admission to the STEP. The 2.75 minimum overall cumulative GPA must be maintained for graduation.**

### A. Geography Teaching Major Foundation Courses (24-25 credits)

<b>ENVS 1990</b> Professional Orientation for Environment and Society (F).....	2
<b>GEOG 1000 (BPS)</b> Physical Geography (F,Sp,Su).....	3
<b>GEOG 1300 (BSS)</b> World Regional Geography (F).....	3
<b>GEOG 1400 (BSS)</b> Human Geography (Sp).....	3
<b>GEOG 3850</b> Map, Air Photo, and GIS Interpretation (F).....	4
<b>GEOG 4200 (CI)</b> Regional Geography (Utah).....	3
<b>GEOG 4200 (CI)</b> Regional Geography (International Course) (F,Sp,Su).....	3
<b>GEOG 4850</b> Cartographic Design (Sp) (3 cr) or	
<b>WATS 4930</b> Geographic Information Systems (F) (4 cr).....	3 or 4

### B. Geography Education Pedagogical Methods Courses (4 credits)

<b>SCED 3300</b> Clinical Experience I (F,Sp).....	1
<b>SCED 3500</b> Teaching Social Studies (F,Sp).....	3

### C. Geography Education Elective Courses (9-10 credits)

Students may select the remaining 9-10 credits in Geography from courses numbered 2000 and above. It is recommended that students take additional coursework in the following areas: regional, physical, and human geography; human-environment interaction techniques; technology in geography education; and classroom technology. All electives must be coordinated with a geography education advisor.

### D. Teaching Minor (17-33 credits)

A teaching major in Geography also requires an approved teaching minor from another field of study acceptable to the Secondary Education Program of the School of Teacher Education and Leadership (TEAL).

### E. Secondary Teacher Education Program (STEP) (35 credits)

Students must complete three levels in the STEP. All three levels of the STEP will be offered during fall and spring semesters, *not* during summers. Levels of the STEP are taken as a package, not piecemeal. Each level must be satisfactorily completed before a student is

advanced to the next level. All courses must be completed with a minimum grade of C-. **Prior to admission to the STEP, students in the Geography Teaching Major must complete MATH 1050, unless their Math ACT score is 25 or higher.**

Students should consult with advisors in major and minor departments for scheduling of special methods classes at Levels 1 and 2. Although certain combinations of majors and minors require three special methods classes, only *two* clinical experiences (total) should be scheduled at Levels 1 and 2. These in-school experiences are coordinated by methods instructors.

#### 1. Level 1 (15-week courses) (11 credits minimum)

<b>INST 3500</b> Technology Tools for Secondary Teachers (F,Sp,Su).....	1
<b>SCED 3100</b> Motivation and Classroom Management (F,Sp).....	3
<b>SCED 3210 (CI/DSS)</b> Educational and Multicultural Foundations (F,Sp).....	3
Clinical Experience I (30 hrs. minimum) (3300 in various departments).....	1
One or more methods courses in major (3-6 credits in minor—Social Studies Education).....	3

#### 2. Level 2 (15-week courses) (12 credits minimum)

<b>SPED 4000</b> Education of Exceptional Individuals (may be taken anytime) (F,Sp,Su).....	2
<b>SCED 4200 (CI)</b> Reading, Writing, and Technology (F,Sp).....	3
<b>SCED 4210</b> Cognition and Evaluation of Student Learning (F,Sp).....	3
Clinical Experience II (30 hrs. minimum) (4300 in various departments).....	1
Special Methods II (major or minor) (taught in various departments).....	3

#### 3. Level 3 (includes 13 weeks of student teaching and 2 weeks of Student Teaching Seminar) (12 credits)

<b>SCED 5500</b> Student Teaching Seminar (2 weeks) (F,Sp).....	2
<b>SCED 5630</b> Student Teaching in Secondary Schools (13 weeks, full-time) (F,Sp).....	10

### F. Electives

After meeting the University Studies, USU upper-division, and geography teaching major requirements, students may take the remainder of their 120 required credits in any discipline and from any department. ENVS 4990 (2 cr.) and ENVS 5000 (3 cr.) are recommended.

## Teaching Minor in Geography (24 credits minimum)

**Note:** A teaching minor in Geography **requires** an approved teaching major in another subject. All courses required for the Geography Teaching minor *must* be taken on an A-B-C-D-F basis. A grade of C- or better is required for all GEOG courses taken to meet requirements for the minor. A minimum GPA of 2.5 is required for courses taken to complete the minor.

### A. Geography Teaching Minor Foundation Courses (18-19 credits)

<b>GEOG 1000 (BPS)</b> Physical Geography (F,Sp,Su).....	3
<b>GEOG 1300 (BSS)</b> World Regional Geography (F).....	3
<b>GEOG 1400 (BSS)</b> Human Geography (Sp).....	3
<b>GEOG 4200 (CI)</b> Regional Geography (Utah).....	3
<b>GEOG 4200 (CI)</b> Regional Geography (International Course) (F,Sp,Su).....	3
<b>GEOG 3850</b> Map, Air Photo, and GIS Interpretation (F) (4 cr) or	
<b>GEOG 4850</b> Cartographic Design (Sp) (3 cr) or	
<b>WATS 4930</b> Geographic Information Systems (F) (4 cr).....	3 or 4

# Department of Environment and Society

## B. Geography Education Courses (4 credits)

SCED 3300 Clinical Experience I (F,Sp)	1
SCED 3500 Teaching Social Studies (F,Sp)	3

## C. Geography Electives (1-2 credits)

### Recreation Resource Management Major

The Recreation Resource Management major consists of 76-78 credits.

#### A. Disciplinary Foundation (15 credits)

BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su)	3
BIOL 1020 Biological Discovery: A Lab Course (F,Sp)	1
CHEM 1110 (BPS) General Chemistry I (F,Sp)	4
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
STAT 2000 (QI) Statistical Methods (F,Sp)	3

#### B. Professional Coursework (52-53 credits)

ENVS 1990 Professional Orientation for Environment and Society (F)	2
ENVS 2340 (BSS) Natural Resources and Society (F,Sp)	3
ENVS 3000 Natural Resources Policy and Economics (F)	4
ENVS 3300 Fundamentals of Recreation Resources Management (F)	3
ENVS 3500 (QI) Quantitative Assessment of Environmental and Natural Resource Problems (F)	3
ENVS 4000 Human Dimensions of Natural Resource Management (F)	3
ENVS 4130 Recreation Policy and Planning (Sp)	3
ENVS 4400 Economic Applications in Natural Resource Management (Sp)	4
ENVS 4500 (CI) Wildland Recreation Behavior (F)	3
ENVS 4920 Special Projects in Recreation Management (F,Sp,Su)	3
ENVS 4990 Environmental and Natural Resource Professionalism Seminar (F)	2
ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources (Sp)	3
GEOG 1000 (BPS) Physical Geography (F,Sp,Su) (3 cr) or GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp) (4 cr)	3 or 4
GEOG 3850 Map, Air Photo, and GIS Interpretation (F)	4
WATS 3700 (CI) Fundamentals of Watershed Science (Sp)	3
WILD 2200 (BLS) Ecology of Our Changing World (F,Sp)	3
WILD 4900 Managing Dynamic Ecological Systems (Sp)	3

#### C. Animal Course (select 3 credits)

ENVS 3600 (DSC) Living With Wildlife (Sp)	3
WATS 3100 (CI/DSC) Fish Diversity and Conservation (F)	3

#### D. Education/Interpretation Course (select 3 credits)

ENVS 4600 Natural Resource Interpretation (F)	3
ENVS 5110 Environmental Education (Sp)	3

#### E. Plant Course (select 3-4 credits)

BIOL 3040 (DSC) Plants and Civilization (F)	3
PLSC 3500 The Structure and Function of Economic Crop Plants (Sp)	3
WILD 3600 Wildland Plant Ecology and Identification (F)	4

#### F. Electives

Students may take the remainder of the 120 credits from any department. The guidelines described under "Breadth Requirements" (see pages 67-69) and "Depth Education Requirements" (see pages 70-75) should be consulted to ensure meeting University Studies Requirements.

## Recreation Resources Minor (15 credits minimum)

Students wishing to minor in Recreation Resources should contact the Department of Environment and Society to meet with the department's designated minor advisor. All courses required for the minor must be taken on an A-B-C-D-F basis. A grade of C- or better is required for all ENVS courses taken to meet requirements for the minor. A minimum GPA of 2.5 is required for courses taken to complete the minor.

#### A. Required Courses (12 credits)

ENVS 3300 Fundamentals of Recreation Resources Management (F)	3
ENVS 4130 Recreation Policy and Planning (Sp)	3
ENVS 4500 (CI) Wildland Recreation Behavior (F)	3
ENVS 4600 Natural Resource Interpretation (F)	3

#### B. Elective Course (3-4 credits)

Select one of the following courses:

ENVS 3330 Environment and Society (Sp)	3
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management (F)	3
ENVS 4400 Economic Applications in Natural Resource Management (Sp)	4
ENVS 5110 Environmental Education (Sp)	3

## Recommended Four-year Plans

Recommended semester-by-semester four-year plans for students working toward a bachelor's degree within the Environment and Society Department can be found at:

<http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Financial Assistance

The main opportunities for undergraduates to find financial support through grants, work-study, and loans are listed on pages 46-47 in the *Financial Aid and Scholarship Information* section. Some students may be able to find paid internships with private or governmental organizations, or work for a faculty member on a research project. Interested persons should contact the College of Natural Resources Academic Service Center for more information on scholarships for undergraduate students.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. The minimum GPA requirement for admission into departmental honors in any department within the College of Natural Resources is 3.30. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level.

For information about the campus-wide Honors Program, see page 310.

# Department of Environment and Society

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## Additional Information

For additional information about the Bachelor of Science requirements, course sequencing, and departmental emphasis areas and their related coursework, as well as updated information describing current programs and courses offered by the Department of Environment and Society, visit the Environment and Society main office, Natural Resources 201, or visit: <http://www.cnr.usu.edu/envs>

Major requirement sheets, which outline career opportunities and required courses for departmental majors, can be obtained from the department, or online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admission Requirements

See general admission requirements on pages 36-37. Applicants for graduate study in the Department of Environment and Society should have a bachelor's degree from an accredited college or university, a cumulative GPA of at least 3.0 (out of 4.0), and GRE scores (quantitative and verbal) above the 40th percentile. Foreign students should submit a TOEFL score of at least 550. Exceptions to these standards will be considered on a case-by-case basis. Written statements of interest help match applicants with faculty advisors. A faculty member must agree to serve as the major professor in order for an applicant to be accepted. Prospective students are encouraged to contact faculty members early in the application process to investigate mutual interests, projects, and prospects for financial support.

The department's graduate programs focus on providing students with a broad foundation in the social and natural sciences as they relate to the study, planning, and management of ecosystems. The curriculum is designed to enhance interdisciplinary integration by emphasizing current and future environmental issues facing humanity. Coursework and research are focused on problem-solving through application of social research methods, case studies, computer mapping, and other analytical techniques.

The department values intellectual, academic, and social diversity in the applicants for graduate study. Mature professionals seeking education to augment life experiences, or practical training to pursue new career paths, are also encouraged to apply. Knowledge gaps will be identified early in a student's program and addressed on a case-by-case basis through agreements between students and their graduate advisory committees.

### Degree Programs

The department offers opportunities for graduate study through the MS, MA, PhD, and graduate certificate programs listed below.

The MS degree requires a minimum of 30 credits, of which 24 must be in residence. Candidates for the MA must complete the requirements for the MS, with the addition of at least two years (approximately 16 credits) of an approved foreign language or some other demonstration of foreign language proficiency. There are two options available in both the MS and MA programs. The **Plan A** requires students to complete coursework, as well as a research thesis. The **Plan B** is a nonthesis, terminal degree, based largely on coursework and a professional paper or project.

For the PhD degree, there is a more variable amount of required coursework, as well as a research dissertation. Compared to the MS degree, the PhD degree has a greater emphasis on theory, research

methods, writing research proposals, and publishing research in peer-reviewed outlets.

### Bioregional Planning

Bioregional Planning is aimed at students focused on how the biophysical attributes of a region influence the human dimensions of culture and settlement and the reciprocal of this. Offered jointly with the Department of Landscape Architecture and Environmental Planning, the program has an interdisciplinary core of courses that provides the background for addressing complex issues in the areas of environmental analysis, planning, and policy. Employment is available in both the private and public sectors, wherever there is emphasis on large-scale planning and management.

### Ecology

The Environment and Society Department offers MS and PhD degrees in Ecology through the ecology program at Utah State University. This program is administered by the interdepartmental Ecology Center. For further information, see the *Interdepartmental Program in Ecology* section of this catalog on pages 228-229.

### Geography

Geography is geared for students interested in exploring the availability and location of the earth's natural resources, the physical and cultural processes that occur at the earth's surface, and the spatial interactions among components of human society and the biophysical environment. Career opportunities are available in both the private and public sectors in such areas as business, planning, resource and economic development, environmental assessment, and education.

### Recreation Resource Management

Recreation Resource Management is for graduate students interested in planning and management of visitor use in wildland recreation settings, such as state and national parks, forests, monuments, and wilderness areas, requiring an understanding of the landscape, its natural resources, and the people who visit. Degree programs offer courses in both the bio-physical and social sciences, along with an emphasis on communication and collaboration skills. Upon completion of a degree program, opportunities are available to work as recreation planners and managers; park, forest, monument, or wilderness rangers; environmental interpreters; visitor center directors; and other similar occupations. Graduate study provides additional opportunities for research and teaching in higher education, as well as work in the government, nongovernment, and private sectors.

### Human Dimensions of Ecosystem Science and Management

These degrees are the first of their kind in the country. They are aimed at students who desire to be problem-solvers with an ability to integrate the human and biophysical aspects of ecosystems, and to analyze policies and decisions that encourage sustainability of human communities and ecosystems. The MS degree prepares students for professional practice in natural resources and environmental planning and management, policy and program analysis, public affairs, environmental education, community assessment and collaboration, conflict management, and extension/outreach. The PhD program places a greater emphasis on basic theory and research methods in one or more social science disciplines, and thus prepares students for university teaching, research, and extension; for conducting agency and private organizational research; and for positions in formal policy and program evaluation.

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## Natural Resources (MNR)

The MNR is a nonthesis master's degree program designed for students and practicing professionals seeking advanced training in natural resource management, with an emphasis on collaboration and interdisciplinary teamwork. Employment is available in both the private and public sectors, in positions where management skills are of paramount importance.

## Graduate Certificates

The **National Environmental Policy Act (NEPA)** program offers training at the graduate level related to the National Environmental Policy Act, including how to manage the NEPA process and write effective NEPA documents, reviewing NEPA documents, environmental risk communication, environmental compliance, interdisciplinary team-building, environmental contracting, cumulative impact analysis and documentation, conflict management, and socio-economic impact analysis. The certificate leads to careers in federal natural resource agencies, typically as a member of planning teams, where NEPA expertise is critical to decision-making regarding alternative uses of the land.

The **Natural Resource and Environmental Education (NREE)** program provides graduate students with a comprehensive education for understanding and communicating natural resources and environmental information, and for developing the analytical skills needed to effectively implement appropriate environmental education and communication techniques for varying audiences. Careers are available with land management agencies; in the education sector—both formal (K-12 school-based) and nonformal (youth, community, and outdoor); in nonprofit organizations; and in the for-profit commercial sector.

## Internships

Students are encouraged to undertake one or more internships with various agencies and organizations, as a means of exploring various career possibilities.

## Research

The generation of new knowledge through research is one of the key contributions that an academic department makes to professions and society at large. Research is also a major venue for the interaction of graduate students and faculty in the Department of Environment and Society. Although faculty and students work on many different issues, the research strives to be interdisciplinary and focuses on merging the relevant social and natural sciences. Work is undertaken in Utah and beyond, including several projects elsewhere in the United States and in developing nations. Funding comes from a variety of public and private sources. The department houses one institute and three programs that also collaborate on research. These include the Institute for Outdoor Recreation and Tourism, the Natural Resource and Environmental Policy Program, the Geographic Education Program, and the Environmental Education Program.

## Financial Assistance

General aspects of financial support for graduate students at Utah State University are listed on pages 111-112 in the *Graduate Financial Assistance* section. This includes important information on the University-wide policies and terms of reference for research and teaching assistantships, graduate tuition obligations and benefits, Western Regional Graduate Programs, and competitive University-wide fellowships and scholarships.

The Department of Environment and Society intends that all graduate students be financially supported. Graduate research assistantships are available through major professors having contracts, grants, or other awards. Internships may also be created on a case-by-case basis. A student may want to author or co-author a proposal with a faculty member to fund a new initiative. There are also open competitions for graduate scholarships and fellowships through the College of Natural Resources. The department also has a few graduate teaching assistantships where graduate students typically help instructors with teaching, grading, or recitation in large courses. Interested persons should contact the department early in the application process for more information on financial assistance for graduate students. Prospective students may also visit: <http://www.cnr.usu.edu/envs>

## Environment and Society Faculty

### Professors

*Mark W. Brunson*, environmental knowledge, attitudes and behavior, outdoor recreation

*Steven E. Daniels*, natural resource policy and sociology

*James J. Kennedy*, organizational behavior, forest economics

*Richard S. Krannich*, natural resource sociology and policy

*H. Charles Romesburg*, environmental decision making, natural resource research methods and survey sampling, bioethics

*Joseph A. Tainter*, sustainability, social conflict in environmental issues, human responses to climate change and environmental degradation, human use of energy and resources

*Richard E. Toth*, bioregional planning and water resources management

### Adjunct Professors

*Thomas C. Edwards, Jr.*, Utah Cooperative Fish and Wildlife Research Unit, spatial

*Terry L. Sharik*, academic administration and leadership, teaching and learning pedagogy, forest ecology

### Professors Emeritus

*Clifford B. Craig*, human geography, geographic education, rural/urban planning and development, geography of Utah, GIS education

*Leona K. Hawks*, green consumerism, resource conservation and efficiency, human impacts on the environment

*Derrick J. Thom*, cultural geography, international rural development, land use planning, Africa

### Research Professor Emeritus

*Leila McReynolds Shultz*, plant taxonomy and geography

### Associate Professors

*Ted J. Alsop*, physical geography, university pedagogy, photogrammetry

*Steven W. Burr*, outdoor recreation, nature-based tourism

*Christopher A. Conte*, African, environmental history

*D. Layne Coppock*, range ecology and management, international development, systems analysis

*Joanna L. Endter-Wada*, natural resource and environmental policy, interdisciplinary social sciences, water management and planning

*Robert H. Schmidt*, wildlife policy and human dimensions, wildlife damage management

# Department of Environment and Society

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## Adjunct Associate Professors

*Christopher Call*, vegetation manipulation/management  
*Arthur J. Caplan*, environmental economics, public policy, quantitative analysis  
*Nancy O. Mesner*, water quality extension specialist, water policy and modeling  
*Peggy Petrzalka*, environmental sociology, rural sociology, social change and development  
*R. Douglas Ramsey*, remote sensing, geographic information systems, landscapes

## Assistant Professors

*Michael Dietz*, sustainable living, water resource management  
*Ann Laudati*, human-environmental interactions, community conservation and development, political ecology, natural resources and violent conflict, Sub-Saharan Africa  
*Christopher Manz*, recreation ecology, outdoor recreation, wilderness management  
*Claudia A. Radel*, human-environment geography, cultural/political ecology, feminist geography

## Adjunct Assistant Professors

*David T. Anderson*, Project Director Utah Botanical Center  
*Benny Bobowski*, wildlife biology, rangeland ecology, ecosystem management  
*Paul W. Box*, geographic information systems, spatial analysis and modeling  
*Christopher Cokinos*, literary nature and science writing  
*Michael F. Harper*, Latin America, educational technology, geography education  
*John Haskin*, novice teacher development and qualitative research methodologies  
*Tamsin C. McCormick*, physical geology, land management, environmental education, habitat restoration  
*Nicole L. McCoy*, natural resource economics and policy

*Paul Rogers*, aspen ecology, lichenology, large-scale monitoring, Forest Service policy  
*Douglas G. Wachob*, development effects on wildlife, environmental education

## Senior Lecturer

*Michael F. Butkus*, recreation resources management and planning, interpretive planning

## Lecturers

*Benjamin D. Baldwin*, Tehabi Project Leader, internship development, leadership and teamwork  
*Judith A. Kurtzman*, natural resource policy  
*Barbara Middleton*, environmental education

## Adjunct Lecturer

*Catherine A. "Kate" Stephens*, Program Coordinator of Utah Conservation Corps, environmental education

## Adjunct Instructors

*Dana E. Dolsen*, Wildlife Planning Manager, State of Utah, Department of Natural Resources  
*Larry H. Freeman*, environmental writing, NEPA specialist  
*Richard C. Moore*, NEPA and CEQ compliance, training, and consulting  
*Michael Smith*, NEPA consulting and workshop training  
*Rhey M. Solomon*, environmental analyst, NEPA trainer/instructor/facilitator

## Course Descriptions

Environment and Society (ENVS), pages 554-557

Geography (GEOG), pages 571-572

National Environmental Policy Act (NEPA), pages 618-619

# Department of Family, Consumer, and Human Development

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**Senior Associate Department Head and Adele and Dale Young Child Development Laboratory Director:**

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**Associate Department Head and Graduate Coordinator:**

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**Gerontology Certificate Program Coordinator:**

Elizabeth B. Fauth, Family Life 215, (435) 797-1989,  
beth.fauth@usu.edu

**Marriage and Family Therapy Program Director:**

Scot M. Allgood, Family Life Center 207, (435) 797-7433,  
scot.allgood@usu.edu

**Undergraduate Academic Advisor:**

Marilyn B. Kruse, Family Life 205A, (435) 797-1530,  
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**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), and Doctor of Philosophy (PhD) in Family, Consumer, and Human Development; BS and BA in Early Childhood Education; BS and BA in Family and Consumer Sciences; BS in Family Life Studies (offered online *only*); Master of Family and Human Development (MFHD)

**Undergraduate emphases:** *BS, BA in Family, Consumer, and Human Development*—Deaf Education, Family and Community Services, Family Finance, Child Development; *BS, BA in Early Childhood Education*—licensure, K-3rd grades

**Graduate specializations:** *MS*—Adolescence and Youth, Adult Development and Aging, Consumer Sciences, Infancy and Childhood, Marriage and Family Relationships, Marriage and Family Therapy

**Gerontology Certificate Program:** The Gerontology Certificate Program at Utah State University is administered through the Department of Family, Consumer, and Human Development, and is open to all majors. Students preparing for careers in the field of aging complete selected aging-related coursework, including a supervised field practicum in a gerontological setting. A minimum GPA of 3.0 is required for the Gerontology Certificate.

## Undergraduate Programs

### Objectives

The Family, Consumer, and Human Development Department offers undergraduate programs in Family, Consumer, and Human Development; Family and Consumer Sciences; Early Childhood Education; and Family Life Studies (online *only*). All programs

are designed to prepare students for successful careers serving individuals and families across the lifespan. Through coursework and applied experiences, majors study how human development, family relationships, family economics, and consumer issues affect the individual and family.

Faculty members provide instruction and practicum supervision to prepare students to meet the needs of the people they will serve in their future careers. Students are then qualified to work in agencies and organizations serving individuals from infancy through later life, as well as families and consumers in many settings.

Student majors in Family, Consumer, and Human Development and in Family and Consumer Sciences are required to complete a practicum experience, which is arranged with the department practicum coordinator. Types of practicum sites include state agencies, hospitals, preschools and child care centers, nursing homes, senior citizen centers, parenting programs, detention centers, crisis intervention programs, public schools, Head Start programs, and after-school programs, as well as financial institutions, credit counseling services, and housing services. Practicum experience in the Deaf Education and Child Development emphases includes the Adele and Dale Young Child Development Laboratory setting. Students majoring in Early Childhood Education complete a formal internship in the Adele and Dale Young Child Development Laboratory and in primary school grades.

Majors in Family, Consumer, and Human Development (FCHD), Family and Consumer Sciences (FCS), Early Childhood Education (ECE), and Family Life Studies (FLS) receive the necessary preparation for graduate study in a family, consumer, and human development related field or employment. Early Childhood Education majors acquire a teaching license so they can teach in grades K-3 in the Utah public schools.

In addition to preparation for advanced study or job opportunities, FCHD majors receive increased knowledge and skills in topics which will enhance their personal and family lives.

### Certified Family Life Educator (CFLE)

The Family and Community Services emphasis fulfills the academic requirements for the Certified Family Life Educator (CFLE) credential offered through the National Council on Family Relations. Information about how to become a CFLE may be accessed at:  
<http://www.ncfr.org/>

### Gerontology Certificate

Students pursuing the Gerontology Certificate must take additional courses and complete a gerontology practicum as required to receive the certificate. A complete list of requirements may be obtained in Family Life 215, by calling (435) 797-1989, or accessed online at:  
<http://www.usu.edu/fchd/html/gerontology/>

## Departmental Requirements for Family, Consumer, and Human Development Major

### Admission Requirements

Students with less than 24 semester credits can declare a premajor in FCHD (PFHD). Completion of at least 24 semester credits (including FCHD 1010, 1500, and 2400) with a cumulative GPA of 3.0 is required for admission into the FCHD major. Family Finance premajor courses include FCHD 1010, 1500, 2400, and 2450. A cumulative GPA of 3.0 is required.



# Department of Family, Consumer, and Human Development

## Departmental Program Requirements

The department has established the following regulations, which govern students' academic progress:

1. The *P/D+*, *D*, and *F* option cannot be used for courses required in the FCHD major or minor.
2. An overall cumulative GPA of 3.0 is required to enter the major, and a cumulative 3.0 GPA is required for graduation. A GPA of 3.0 in FCHD major courses is also required for graduation.
3. **Ten-year Policy.** Courses which are required for the major will be accepted if they have been completed within the last 10 years.

## Background Check

All students will be required to pass a background check prior to participation in a practicum experience (FCHD 4950, 4970, 4980, or 5950).

## Emphasis Requirements

After admission to the FCHD major, students must complete the requirements for one of the following four emphases: Family and Community Services, Child Development, Deaf Education, or Family Finance. These requirements are shown below.

### Family and Community Services and Child Development Emphases

Majors choosing one of these two emphases prepare for employment in a variety of occupational settings. Previous graduates have found employment in such settings as child care, Head Start programs, social services agencies, drug treatment centers, youth and adult residential care centers, foster care, youth centers, crisis centers, parent education programs, senior citizen centers, long-term care facilities, adult day care centers, and a host of related federal, state, and local agencies serving families and children. Students are prepared to work in their communities to develop and guide policies for families and children. In addition, FCHD majors receive increased knowledge and skills in topics which will enhance their personal and family lives.

#### Core Courses (57 credits)

FCHD 1010 (BSS) Balancing Work and Family (F,Sp)	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)	3
FCHD 2400 (BSS) Marriage and Family Relationships (F,Sp)	3
FCHD 2610 Child Guidance (F,Sp)	3
FCHD 3100 Abuse and Neglect in Family Context (Prereq: Sophomore standing, FCHD 1500, 2400) (F,Sp)	3
FCHD 3110 Human Sexuality (Prereq: FCHD 1500, 2400) (F)	3
FCHD 3130 (QI) Research Methods (Prereq: STAT 1040) (majors only) (F,Sp)	3
FCHD 3210 (CI) Families and Cultural Diversity (Prereq: FCHD 1500, 2400, CL2 fulfillment) (F,Sp) (majors only)	3
FCHD 3510* Infancy and Early Childhood (Prereq: Junior standing, FCHD 1500, 2610) (F,Sp)	3
FCHD 3520* Children in the Middle Years (Prereq: Junior standing, FCHD 1500, 2610) (F)	3
FCHD 3530 Adolescence (Prereq: Junior standing, FCHD 1500) (F,Sp)	3
FCHD 3540 Adult Development and Aging (Prereq: Junior standing and FCHD 1500) (Sp)	3
FCHD 4220 Family Crises and Interventions (Prereq: Junior standing, FCHD 2400) (F,Su)	3
FCHD 4230 Families and Social Policy (Prereq: Junior standing, FCHD 2400) (Sp)	3
FCHD 4240 Social and Family Gerontology (Prereq: Junior standing, FCHD 2400, 3540) (F)	3

FCHD 4900 (CI) Pre-Practicum Skills (Prereq: Junior standing, FCHD 2610, 3100, CL2 fulfillment) (majors only) (F,Sp)	3
FCHD 4980 <sup>1</sup> Practicum (F,Sp,Su)	6
PSY 2800 (QI) Psychological Statistics (Prereq: STAT 1040) (F,Sp) (3 cr) or	
SOC 3120 (QI) Social Statistics I (Prereq: Completion of 6 credits in Sociology, Social Work and Anthropology departmental courses and grade of C- or better in STAT 1040 or equivalent) (F,Sp,Su) (3 cr)	3

\*FCHD majors with a Family and Community Services emphasis must take one lab concurrently with *either* FCHD 3510 or 3520. FCHD majors with a Child Development emphasis must take FCHD 3550 concurrently with FCHD 3510 and FCHD 3560 concurrently with FCHD 3520. The online sections of FCHD 3510 and 3520 *do not offer a lab experience*. Therefore, students must take these courses through campus-based sections. For students attending classes at the Uintah Basin, Brigham City, and Snow College regional campuses, the FCHD 3550 and 3560 labs *must* be taken concurrently with FCHD 3510 and 3520, *regardless of emphasis*.

In addition to completing these core courses, all students must complete all courses listed below for *either* the Family and Community Services Emphasis *or* the Child Development Emphasis.

#### Family and Community Services Emphasis (10 credits)

FCHD 2100 Family Resource Management (F,Sp)	3
FCHD 3350 Family Finance (F,Sp,Su)	3
FCHD 3550 Infant Lab (take concurrently with FCHD 3510) (F,Sp) (1 cr) or	
FCHD 3560 Middle Childhood Lab (take concurrently with FCHD 3520) (F,Sp) (1 cr)	1
FCHD 5540 Family Life Education Methods (Prereq: Junior Standing, FCHD 1500, 2400) (F,Sp) (majors only)	3

#### Child Development Emphasis (8 credits)

FCHD 3550 Infant Lab (take concurrently with FCHD 3510) (F,Sp)	1
FCHD 3560 Middle Childhood Lab (take concurrently with FCHD 3520) (F,Sp)	1
FCHD 4550 Preschool Methods and Curriculum (Prereq: Junior standing, FCHD 1500) (F,Sp)	3
FCHD 4960 <sup>2</sup> Practice Teaching in Child Development Laboratories (Prereq: Junior standing, FCHD 4550) (F,Sp,Su)	3

#### Suggested Electives

PSY 3210 Abnormal Psychology (F,Sp)	3
PSY 4210 Personality Theory (Sp)	3

#### Deaf Education Emphasis

Majors choosing this emphasis are prepared to work with infants and young children who are hearing impaired and their families. Once students have completed their undergraduate degree, they can apply to the graduate program in the Department of Communicative Disorders and Deaf Education and work toward a master's degree with a specialization in Early Childhood Communicative Disorders. This master's program can be completed in two semesters plus a summer session. Students completing the master's program will have the skills necessary to work in early intervention programs called Parent-Infant Programs (or PIP). These programs may be found in every state of the country. Upon completion of the undergraduate FCHD major with the Deaf Education emphasis and the graduate Early Childhood Communicative Disorders specialization, students will have the coursework necessary to cover the competencies for the 0-3 Hearing Endorsement and the EI-2 credential which are necessary to be a parent advisor in Utah.

# Department of Family, Consumer, and Human Development

## Required Courses<sup>3</sup>

<b>FCHD 1010 (BSS)</b> Balancing Work and Family (F,Sp) .....	3
<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp) ...	3
<b>FCHD 2400 (BSS)</b> Marriage and Family Relationships (F,Sp).....	3
<b>FCHD 2610</b> Child Guidance (F,Sp) .....	3
<b>FCHD 3100</b> Abuse and Neglect in Family Context (Prereq: Sophomore standing, FCHD 1500, 2400) (F,Sp) .....	3
<b>FCHD 3110</b> Human Sexuality (Prereq: FCHD 1500, 2400) (F).....	3
<b>FCHD 3130 (QI)</b> Research Methods (Prereq: STAT 1040) (majors only) (F,Sp) .....	3
<b>FCHD 3210 (CI)</b> Families and Cultural Diversity (Prereq: FCHD 1500, 2400, CL2 fulfillment) (F,Sp) (majors only) .....	3
<b>FCHD 3510</b> Infancy and Early Childhood (Prereq: Junior standing, FCHD 1500, 2610) (F,Sp).....	3
<b>FCHD 3550</b> Infant Lab (F,Sp).....	1
<b>FCHD 3520</b> Children in the Middle Years (Prereq: Junior standing, FCHD 1500, 2610) (F).....	3
<b>FCHD 4220</b> Family Crises and Interventions (Prereq: Junior standing, FCHD 2400) (F,Su) .....	3
<b>FCHD 4550</b> Preschool Methods and Curriculum (Prereq: Junior standing, FCHD 1500) (F,Sp) .....	3
<b>FCHD 4900 (CI)</b> Pre-Practicum Skills (Prereq: Junior standing, FCHD 2610, 3100, CL2 fulfillment) (F,Sp).....	3
<b>FCHD 4960<sup>2</sup></b> Practice Teaching in Child Development Laboratories (Prereq: Junior standing, FCHD 4550) (F,Sp,Su).....	3
<b>FCHD 4980<sup>1</sup></b> Practicum (with ages 0-3) (F,Sp,Su) .....	3
<b>COMD 2500</b> Language, Speech, and Hearing Development (F,Sp).....	3
<b>COMD 2910 (CI)</b> Sign Language I (F,Sp,Su) .....	4
<b>PSY 2800 (QI)</b> Psychological Statistics (Prereq: STAT 1040) (F,Sp) (3 cr) or	
<b>SOC 3120 (QI)</b> Social Statistics I (Prereq: Completion of 6 credits in Sociology, Social Work and Anthropology departmental courses and grade of C- or better in STAT 1040 or equivalent) (F,Sp,Su) (3 cr) .....	3
<b>SPED 4000</b> Education of Exceptional Individuals (F,Sp,Su).....	2

In addition to these courses, students must complete the following courses during their senior year:

<b>COMD 3910</b> Sign Language II (F,Sp,Su) .....	4
<b>COMD 4770</b> Audiology and Teachers of Children who are Deaf and Hard of Hearing (F) .....	3
<b>COMD 5610</b> Introduction to Education of the Deaf and Hard of Hearing (F) .....	3
<b>SPED 5710</b> Young Children with Disabilities: Characteristics and Services (Sp).....	3
<b>SPED 5810</b> Seminar and Field Experiences with Infants and Families (Sp) .....	4

Students in this emphasis must meet with their advisor each semester.

<sup>1</sup>Prerequisite: Junior standing, FCHD 4900, a total of at least 30 FCHD credits, and prior application approval by the Practicum Coordinator. Practicum application deadlines are February 15 for fall, June 15 for spring, and October 15 for summer.

<sup>2</sup>Students must sign up three full semesters in advance in Family Life 205.

<sup>3</sup>For COMD and SPED course offerings, contact the Department of Communicative Disorders and Deaf Education and the Department of Special Education and Rehabilitation.

## Family Finance Emphasis

Majors choosing this emphasis will be prepared for careers in financial counseling, advising, and education. Coursework focuses on the financial decisions that individuals and families face relating to insurance, investing, credit, budgeting, and home ownership. Students will complete an off-campus practicum and a Financial Counseling practicum at the Family Life Center on campus. At the Family Life Center, students will encounter various types of financial experiences, including new home buyer counseling sessions and workshops, as well as financial problems related to credit and budgeting. The Family Life Center's housing and financial counseling services are approved by

the U.S. Department of Housing and Urban Development (HUD) and provide counseling and education to the community.

Employment opportunities include consumer credit counseling services, credit unions, the armed forces, corporate employee assistance programs, employee benefits counseling firms, college financial aid offices, bank loan offices, hospitals, corporate credit offices, bankruptcy courts, community housing programs, Federal Home Administration, Housing and Urban Development, personal banker, mortgage loan officer, credit counselor, financial counselor or educator, consumer relations coordinator, military financial educator, debt collections coordinator, credit investigator, fraud detective, insurance broker, stockbroker, and financial planner.

## Major Courses (61 credits)

<b>FCHD 1010 (BSS)</b> Balancing Work and Family (F,Sp) .....	3
<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp) ...	3
<b>FCHD 2100</b> Family Resource Management (F,Sp) .....	3
<b>FCHD 2400 (BSS)</b> Marriage and Family Relationships (F,Sp).....	3
<b>FCHD 2450 (BSS)</b> The Consumer and the Market (F,Sp) .....	3
<b>FCHD 3130 (QI)</b> Research Methods (Prereq: STAT 1040) (majors only) (F,Sp) .....	3
<b>FCHD 3210 (CI)</b> Families and Cultural Diversity (Prereq: FCHD 1500, 2400, CL2 fulfillment) (F,Sp) (majors only) .....	3
<b>FCHD 3280</b> Economic Issues for Individuals and Families (Sp).....	3
<b>FCHD 3310</b> Consumer Policy (Sp).....	3
<b>FCHD 3340</b> Housing: Societal and Environmental Issues (F).....	3
<b>FCHD 3350</b> Family Finance (F,Sp,Su) .....	3
<b>FCHD 3450</b> Consumer Credit Problems (Prereq: FCHD 3350) (F) .....	3
<b>FCHD 4220</b> Family Crises and Interventions (Prereq: Junior standing, FCHD 2400) (F,Su) .....	3
<b>FCHD 4230</b> Families and Social Policy (Prereq: Junior standing, FCHD 2400) (Sp) .....	3
<b>FCHD 4330</b> Family Finance Career Seminar (Prereq: FCHD 3350) (F).....	1
<b>FCHD 4350</b> Advanced Family Finance (Prereq: FCHD 3350) (Sp) .....	3
<b>FCHD 4460</b> Financial Counseling (Prereq: FCHD 3350, 3450) (majors only) (Sp).....	3
<b>FCHD 4950</b> Practicum: Consumer Science (majors only) (F,Sp,Su) ....	6
<b>FCHD 5340</b> Housing Finance and Regulations (Prereq: FCHD 3340, 3350) (majors only) (Sp).....	3
<b>FCHD 5950</b> Financial Counseling Practicum (Prereq: FCHD 4220, 4460, 5340) (majors only) (F,Sp,Su) .....	3

## Required General Education Courses

<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>STAT 1040 (QL)</b> Introduction to Statistics (Prereq: C or better in MATH 1010, or Math ACT score of at least 23, or Math SAT score of at least 540) (F,Sp,Su) .....	3
<b>SPCH 1020 (CI)</b> Public Speaking (F,Sp) .....	3

## Suggested Support Courses

<b>ECN 2010 (BSS)</b> Introduction to Microeconomics (Prereq: ECN 1500) (F,Sp,Su).....	3
<b>FCHD 3540</b> Adult Development and Aging (Prereq: Junior Standing, FCHD 1500) (Sp) .....	3
<b>FCHD 4240</b> Social and Family Gerontology (Prereq: Junior standing, FCHD 2400, 3540) (F) .....	3
<b>OSS 2450</b> Spreadsheets and Databases (Prereq: OSS 1400 or CIL Exam).....	3
<b>PFP 3460</b> Fundamentals of Personal Investing (Sp) .....	3
<b>PFP 5060</b> Personal Financial Planning and Advising (F) .....	3
<b>PFP 5070</b> Retirement Planning (Sp) .....	3
<b>PFP 5080</b> Estate Planning (Sp).....	3

# Department of Family, Consumer, and Human Development

## Prerequisites for FCHD 4950 and 5950 Family Finance Practica

FCHD 4950 and 5950 may be taken *only* by FCHD majors who have completed the application process. Prior to enrolling in FCHD 4950 or 5950, students must have completed a minimum of 70 semester credits. The following courses are also prerequisites for FCHD 4950 and 5950:

FCHD 1010 (BSS) Balancing Work and Family (F,Sp)	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)	3
FCHD 2400 (BSS) Marriage and Family Relationships (F,Sp)	3
FCHD 2450 (BSS) The Consumer and the Market (F,Sp)	3
FCHD 3340 Housing: Societal and Environmental Issues (F)	3
FCHD 3350 Family Finance (F,Sp,Su)	3
FCHD 3450 Consumer Credit Problems (Prereq: FCHD 3350) (F)	3
SPCH 1020 (CI) Public Speaking (F,Sp)	3

## Additional Prerequisites for FCHD 5950, Financial Counseling Practicum

FCHD 4220 Family Crises and Interventions (Prereq: Junior standing, FCHD 2400) (F,Su)	3
FCHD 4460 Financial Counseling (Prereq: FCHD 3350, 3450) (majors only) (Sp)	3
FCHD 5340 Housing Finance and Regulations (Prereq: FCHD 3340, 3350) (majors only) (Sp)	3

## Family and Human Development Minor

The minor in Family and Human Development (FHD) is designed to provide a knowledge base for understanding families and human development in order to enhance the training of majors in other academic disciplines. A 3.0 GPA is required for this minor. No more than 6 transfer credits may be used toward the FHD minor. Students applying for an FHD minor at USU, but transferring courses from other universities, must complete a minimum of three USU FCHD courses in order to earn an FHD minor. Courses counted toward the minor *may not* be taken *pass-fail*.

### Required Courses (6 credits)

FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)	3
FCHD 2400 (BSS) Marriage and Family Relationships (F,Sp)	3

### Elective Courses (9 credits)

Students must complete *three* of the following courses:

FCHD 2610 Child Guidance (F,Sp)	3
FCHD 3100 <sup>4</sup> Abuse and Neglect in Family Context (F,Sp)	3
FCHD 3110 <sup>5</sup> Human Sexuality (F)	3
FCHD 3510 <sup>6</sup> Infancy and Early Childhood (F,Sp)	3
FCHD 3520 <sup>6</sup> Children in the Middle Years (F)	3
FCHD 3530 <sup>7</sup> Adolescence (F,Sp)	3
FCHD 3540 <sup>7</sup> Adult Development and Aging (Sp)	3
FCHD 4220 <sup>8</sup> Family Crises and Interventions (F,Su)	3
FCHD 4230 <sup>8</sup> Families and Social Policy (Sp)	3
FCHD 4240 <sup>9</sup> Social and Family Gerontology (F)	3

Students should be aware that the following courses *cannot* be used to fulfill requirements for the FHD minor: FCHD 2500, 2600, 2630, 3130, 3210, 3350, 4550, 4800, 4940, 5550; practica (FCHD 4900, 4950, 4960, 4970, 4980); and Readings and Conference (FCHD 4990).

<sup>4</sup>Prerequisites: Sophomore standing, FCHD 1500, 2400.

<sup>5</sup>Prerequisites: FCHD 1500, 2400.

<sup>6</sup>Prerequisites: Junior standing, FCHD 1500, 2610.

<sup>7</sup>Prerequisites: Junior standing, FCHD 1500.

<sup>8</sup>Prerequisites: Junior standing, FCHD 2400.

<sup>9</sup>Prerequisites: Junior standing, FCHD 2400, 3540.

## Family Finance Minor (3.0 GPA required)

### Required Courses (6 credits)

FCHD 2450 (BSS) The Consumer and the Market (F,Sp)	3
FCHD 3350 Family Finance (F,Sp,Su)	3

### Elective Courses (9 credits)

Students must complete *at least 9 credits* in courses selected from the following. Courses counted toward the minor may *not* be taken *pass/fail*.

FCHD 2100 Family Resource Management (F,Sp)	3
FCHD 3280 Economic Issues for Individuals and Families (Sp)	3
FCHD 3310 Consumer Policy (Sp)	3
FCHD 3340 Housing: Societal and Environmental Issues (F)	3
FCHD 3450 Consumer Credit Problems (Prereq: FCHD 3350) (F)	3
FCHD 4350 Advanced Family Finance (Prereq: FCHD 3350) (Sp)	3

## Early Childhood Education Major

Majors in early childhood education are licensed to teach in preschool, kindergarten, and grades 1-3. Several practica and field experiences with children are provided, and a subject matter emphasis is selected. This major is a cooperative effort between the Department of Family, Consumer, and Human Development and the Elementary Education Program in the School of Teacher Education and Leadership (TEAL). Students are required to complete a student teaching practicum in a preschool program, a kindergarten, and in the public schools grades 1, 2, or 3. Additional materials describing the ECE major in the Department of Family, Consumer, and Human Development are available from the advisors in FL 205.

### University Studies Requirements

Early Childhood Education Majors are required to take certain classes to fulfill the University Studies requirements. The following sections list the specific courses to choose from:

#### Quantitative Literacy (QL) (3 credits)

(A grade lower than a C- will not be accepted in these courses.)

STAT 1040 (QL) Introduction to Statistics (F,Sp,Su)	3
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(MATH 1050 or Math ACT score of 25 or higher is required to apply to the Teacher Education Program.)

#### Breadth Requirements (21 credits)

Choose *one* course from the following to meet BAI requirement:

ECN 1500, HIST 1700, POLS 1100, USU 1300	3
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Choose *one* course from the following to meet BCA requirement:

MUSC 1010, USU 1330, ID 1750	3
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Choose *one* course from the following to meet BHU requirement:

ANTH 2210, HIST 1110, HIST 1510, PHIL 1000, PHIL 1120, PHIL 1200, PHIL 2400, USU 1320	3
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Choose *one* course from the following to meet BSS requirement:

ANTH 1010, ANTH 2010, ASTE 2900, ENVS 2340, GEOG 1300, GEOG 1400, JCOM 1500, NR 1010, POLS 2200, SOC 1010, USU 1340	3
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Choose *one* course from the following to meet BLS requirement:

BIOL 1010, NFS 1020, PLSC 2100, USU 1350, WATS 1200, WILD 2200	3
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Complete PHYS 1200 and choose *one* course from the following to meet BPS requirement:

CLIM 2000, GEOG 1000, GEO 1010, GEO 1110, CHEM 1010, PHYS 1040, SOIL 2000, USU 1360	6
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# Department of Family, Consumer, and Human Development

## Depth Education Requirements

### Communications Intensive (CI) (2 courses)

<b>ELED 3000 (CI)</b> Foundation Studies and Practicum in Teaching and Classroom Management Level II.....	6
<b>ELED 4030 (CI)</b> Teaching Language Arts and Practicum Level III.....	3

(ELED 3000 and 4030 are included in major requirements.)

### Quantitative Intensive (QI) (1 course)

(A grade lower than a C- will not be accepted in this course.)

<b>MATH 2020 (QI)</b> Introduction to Logic and Geometry (F,Sp,Su).....	3
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(Prereq: C- or better in MATH 1050, Math ACT score of 25 or higher, or Math SAT score of 580 or higher; also required to apply to the Teacher Education Program)

### Depth Course Requirements (4 credits minimum)

Complete at least 4 credits in approved University Studies depth courses designated DSC, DHA, or DSS (outside of area of emphasis).

## Early Childhood Education Major (80 credits) (minimum 2.75 GPA)

Offered in Conjunction with School of TEAL.

**Note:** Grades lower than a C will not be accepted in the major.

Admission criteria for the **Teacher Education Program** include: completion of 30 credits with a cumulative GPA of at least 2.75, successful performance on the ACT exam, successfully passing the Teacher Education Writing Exam, a speech and hearing test, and high potential as a teacher as judged by performance in a small-group interview. Admission is limited to ensure a quality program and by the availability of space.

Students majoring in Early Childhood Education must complete all of the following courses as indicated.

### FCHD Required Course (3 credits)

<b>FCHD 1010 (BSS)</b> Balancing Work and Family (F,Sp).....	3
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### Level I (6 credits)<sup>10</sup>

<b>ELED 1010</b> Orientation to Elementary Education.....	3
<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan.....	3

### Level II (14 credits)<sup>11</sup>

Students must be officially admitted to the Teacher Education Program prior to Level II.

<b>ELED 3000 (CI)</b> Foundation Studies and Practicum in Teaching and Classroom Management Level II.....	4
<b>ELED 3005</b> Beginning Classroom Management.....	1
<b>FCHD 2600</b> Seminar in Early Childhood Education (F,Sp).....	2
<b>FCHD 2630</b> Practicum in Early Childhood Education (F,Sp).....	2
<b>PSY 3660</b> Educational Psychology for Teachers.....	2

(Level II courses must be taken concurrently.)

<b>ELED 3100<sup>13</sup></b> Classroom Reading Instruction.....	3
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(ELED 3100 may be taken during transition semester, if desired.)

### Transition (11 credits)

<b>SPED 4000<sup>11</sup></b> Education of Exceptional Individuals.....	2
<b>INST 4010<sup>11</sup></b> Principles and Practices of Technology for Elementary Teachers.....	3
<b>FCHD 4550<sup>12,13</sup></b> Preschool Methods and Curriculum.....	3
<b>ELED 4480<sup>12</sup></b> Early Childhood Education Kindergarten through Grade 3.....	3

### Level III (16 credits; must follow Level II)

<b>ELED 4000</b> Teaching Science and Practicum Level III.....	3
<b>ELED 4005</b> Intermediate Classroom Management.....	1
<b>ELED 4030 (CI)</b> Teaching Language Arts and Practicum Level III.....	3

<b>ELED 4040 (CI)</b> Assessment and Instruction for Struggling Readers.....	3
<b>ELED 4050</b> Teaching Social Studies and Practicum Level III.....	3
<b>ELED 4060</b> Teaching Mathematics and Practicum Level III.....	3

(Level III courses must be taken concurrently.)

### Level IV (21 credits)

<b>ELED 5050</b> Student Teaching—Kindergarten.....	6
<b>ELED 5100</b> Student Teaching—Primary Grades (1-3).....	6
<b>ELED 5250</b> Student Teaching—Seminar.....	3
<b>FCHD 4960<sup>13,14</sup></b> Practice Teaching in Child Development Laboratories 6.....	6

(Level IV courses must be taken during two semesters.)

### Emphasis (12 credits)

Descriptions of available emphasis areas are shown below.

### Electives (if needed to complete 120 credits)

Choose Breadth Electives from the following courses:

<b>ART 3700</b> Elementary Art Methods.....	3
<b>THEA 4030 (DHA)</b> Storytelling.....	3
<b>THEA 4330</b> Drama and Theatre for Youth: Grades K-6.....	3
<b>THEA 5360</b> Drama in the Secondary Education Classroom: Grades 7-12.....	3
<b>HEP 3500</b> Elementary School Health Education.....	2
<b>PEP 3050</b> Physical Education in the Elementary School.....	3
<b>PEP 3650</b> Movement Exploration for Elementary Teachers.....	2
<b>ETE 3070</b> K-8 Engineering and Technology Education.....	3
<b>ENVS 5110</b> Environmental Education.....	3
<b>ELED 4410</b> Gifted Education in the Regular Classroom.....	3
<b>ELED 4420</b> Multiple Talent Approach to Thinking.....	2
<b>FCHD 2610</b> Child Guidance.....	3
<b>ENGL 3530<sup>15</sup></b> Children's Literature.....	3
<b>MUSC 3260</b> Elementary School Music.....	2

<sup>10</sup>These courses are prerequisites to Level II.

<sup>11</sup>SPED 4000, ELED 3100, or INST 4010 may be taken concurrently with Level II courses, allowing students to earn 14-15 credits during their Level II semester. Log into Access for information about when these courses will be taught.

<sup>12</sup>ELED 4480 and FCHD 4550 must be taken *after* completion of Level II.

<sup>13</sup>FCHD 4550 is a prerequisite for FCHD 4960.

<sup>14</sup>Students must apply for FCHD 4960 three full semesters in advance of taking the class. Apply in Family Life Building, room 205.

<sup>15</sup>ENGL 3530 is highly recommended.

### Early Childhood Areas of Emphasis

Students majoring in Early Childhood Education are required to complete 12 credits in an area of emphasis. The area of emphasis must be chosen from the following fields: Language Arts, Social Studies, Mathematics/General Science, General Science, Fine Arts, Art, Music, Physical Education, Health/Wellness/ Nutrition, Foreign Language, School Library Media, or English as a Second Language. **Students must choose two upper-division courses numbered 3000 or above.**

Requirements for the areas of emphasis are listed below and on the following pages. Grades lower than C- will not be accepted in the areas of emphasis.

### Language Arts Emphasis (12 credits)

Select two courses from each group. Remaining courses (if any) may be selected from any of the courses listed.

#### Listening and Speaking

<b>SPCH 1020 (CI)</b> Public Speaking.....	3
<b>SPCH 2110 (CI)</b> Interpersonal Communication.....	3
<b>SPCH 3330 (DSS)</b> Intercultural Communication.....	3
<b>THEA 1030 (BHU)</b> Exploring Performance Through Aesthetic Texts.....	3
<b>THEA 4030 (DHA)</b> Storytelling.....	3
<b>THEA 4330</b> Drama and Theatre for Youth: Grades K-6.....	3
<b>THEA 5360</b> Drama in the Secondary Education Classroom: Grades 7-12.....	3

# Department of Family, Consumer, and Human Development

## Reading and Writing

ENGL 1120 Elements of Grammar.....	3
ENGL 2200 (BHU) Understanding Literature.....	3
ENGL 2210 (BHU) Introduction to Folklore.....	3
ENGL 2720 Survey of American Folklore.....	3
ENGL 3030 (DHA) Perspectives in Literature.....	3
ENGL 3040 (DHA) Perspectives in Writing and Rhetoric.....	3
ENGL 3420 Fiction Writing.....	3
ENGL 3530 Children's Literature.....	3
ENGL/HIST 3700 (CI) Regional Folklore.....	3

## Electives

ENGL 2140 British Literary History: Anglo-Saxon to 18th Century.....	3
ENGL 2600 Literary Analysis.....	3
ENGL 3050 (DHA) Masterpieces of World Literature.....	3
ENGL/HIST 3070 (DHA) Perspectives in Folklore.....	3
ENGL 3430 Poetry Writing.....	3
ENGL 3510 Young Adult Literature.....	3
ENGL 3520 Multicultural American Literature.....	3
ENGL 4300 Shakespeare.....	3
COMD 2500 Language, Speech, and Hearing Development.....	3

## Social Studies Emphasis (12 credits)

The purpose of this area is to offer students the opportunity to broaden their understanding of social studies. Students should select courses from at least three areas to constitute the 12 credits required.

### Anthropology

ANTH 1010 (BSS) Cultural Anthropology.....	3
ANTH 1030 (BSS) World Archaeology.....	3
ANTH 2010 (BSS) Peoples of the Contemporary World.....	3
ANTH 3130 (CI) Peoples of Latin America.....	3
ANTH 3160 (DSS) Anthropology of Religion.....	3
ANTH 3200 (CI/DSS) Perspectives on Race.....	3
ANTH 4110 (DSS) Southwest Indian Cultures, Past and Present.....	3

### Economics

ECN 1500 (BAI) Introduction to Economic Institutions, History, and Principles.....	3
ECN 2010 (BSS) Introduction to Microeconomics.....	3

### Political Science

POLS 1100 (BAI) United States Government and Politics.....	3
POLS 2100 Introduction to International Politics.....	3
POLS 2200 (BSS) Comparative Politics.....	3
POLS 3120 (DSS) Law and Politics.....	3
POLS 3140 (DSS) The Presidency.....	3
POLS 3190 (DSS) Gender, Power, and Politics.....	3
POLS 3310 (DSS) American Political Thought.....	3

### Sociology

SOC 1010 (BSS) Introductory Sociology.....	3
SOC 1020 Social Problems.....	3
SOC 3010 Social Inequality.....	3
SOC 3110 (CI) Methods of Social Research.....	3
SOC 3120 (QI) Social Statistics I.....	3
SOC 3200 (DSS) Population and Society.....	3
SOC 3410 Juvenile Delinquency.....	3
SOC 3500 Social Psychology.....	3
SOC 3610 (DSS) Rural Sociology.....	3
SOC 3750 Sociology of Aging.....	3
SOC 4010 Contemporary Sociological Theory.....	3

## Geography

GEOG 1300 (BSS) World Regional Geography.....	3
GEOG 1400 (BSS) Human Geography.....	3
GEOG 3850 Map, Air Photo, and GIS Interpretation.....	4
GEOG 4200 (CI) Regional Geography.....	3

## History

HIST 1060 (BHU) Introduction to Islamic Civilization.....	3
HIST 1100 (BHU) Foundations of Western Civilization: Ancient and Medieval.....	3
HIST 1110 (BHU) Foundations of Western Civilization: Modern.....	3
HIST 1500 (BHU) Cultural and Economic Exchange in the Pre-Nineteenth Century World.....	3
HIST 1510 (BHU) The Modern World.....	3
HIST 1600 American Cultures in Film.....	3
HIST 2210 (BHU) Introduction to Folklore.....	3
HIST 2700 (BAI) United States to 1877.....	3
HIST 2710 (BAI) United States 1877-Present.....	3
HIST 2720 Survey of American Folklore.....	3
HIST 3240 Modern Europe from 1789 to the Present.....	3
HIST 3330 The Soviet Union and its Heirs.....	3
HIST 3510 Africa and the World.....	3
HIST 3620 History of Colonial Latin America.....	3
HIST 3700 (CI) Regional Folklore.....	3
HIST 3720 Colonial America.....	3
HIST 3750 Civil War and Reconstruction.....	3
HIST 3770 Contemporary America, 1945-Present.....	3
HIST 3840 Twentieth Century American West.....	3
HIST 3850 (CI/DHA) History of Utah.....	3
HIST 4230 (CI/DHA) The History of Christianity in the West.....	3
HIST 4330 Modern Germany with Special Emphasis on the Twentieth Century.....	3
HIST 4390 British Imperialism from 1688 to the Present.....	3
HIST 4550 (CI/DHA) Women and Gender in America.....	3
HIST 4600 (CI/DHA) The History of the American West.....	3
HIST/ENGL 4640 (CI) Studies in the American West.....	3
HIST 4710 American Indian History.....	3
HIST 4730 (CI) History of Black America.....	3

## Additional Courses

NR 1010 (BSS) Humans and the Changing Global Environment.....	3
ENVS 5110 Environmental Education.....	3
PHIL 1000 (BHU) Introduction to Philosophy.....	3
PHIL 2400 (BHU) Ethics.....	3
SW 1010 Introduction to Social Welfare.....	3
SW 3350 Child Welfare.....	3

## Mathematics/General Science Emphasis (12 credits)

Choose one course from each category: Mathematics, Physical Science, and Biological (Life) Science. Remaining credits may be chosen from any category.

### Mathematics

MATH 1060 Trigonometry.....	2
MATH 1100 (QL) Calculus Techniques.....	3
MATH 3110 Modern Geometry.....	3

### Physical Science

CHEM 1110 (BPS) General Chemistry I.....	4
CHEM 1120 (BPS) General Chemistry II.....	4
PHYS 1020 (BPS) Energy.....	3
PHYS 1040 (BPS) Introductory Astronomy.....	3
PHYS 1080 (BPS) Intelligent Life in the Universe.....	3
PHYS 3010 (DSC/QI) Space Exploration from Earth to the Solar System.....	3
PHYS 3020 (DSC) Great Scientists.....	3

# Department of Family, Consumer, and Human Development

PHYS 3030 (DSC/QI) The Universe.....	3
CLIM 2000 (BPS) The Atmosphere and Weather.....	3
CLIM 3820 (DSC/QI) Climate Change.....	3
SOIL 3000 Fundamentals of Soil Science.....	4
GEO 1110 (BPS) The Dynamic Earth: Physical Geology.....	4
GEO 3200 (DSC) The Earth Through Time.....	4
GEOG 1000 (BPS) Physical Geography.....	3

## Biological (Life) Science

BIOL 1610 Biology I.....	4
BIOL 1620 (BLS) Biology II.....	4
BIOL 2060 Elementary Microbiology.....	4
BIOL 2320 Human Anatomy.....	4
BIOL 2420 Human Physiology.....	4
BIOL 3010 (CI/DSC) Evolution.....	3
BIOL 3030 (DSC) Genetics and Society.....	3
BIOL 3060 (QI) Principles of Genetics.....	4
BIOL 3300 General Microbiology.....	4
ENVS 5110 Environmental Education.....	3
NR 1010 (BSS) Humans and the Changing Global Environment.....	3
NR/BIOL 2220 General Ecology.....	3
PUBH 3120 Family and Community Health.....	3
PUBH/CEE 3610 Environmental Management.....	3
NFS 1020 (BLS) Science and Application of Human Nutrition.....	3
HEP 3000 Drugs and Human Behavior.....	3
WATS 3000 (DSC) Oceanography.....	3
WILD 2200 (BLS) Ecology of Our Changing World.....	3

## General Science Emphasis (12 credits)

Choose science courses from the preceding lists. One course must be from the Physical Science category and one must be from the Biological (Life) Science category. Remaining credits may be chosen from either category.

## Fine Arts Emphasis (12 credits)

Early Childhood Education Majors should choose MUSC 3260 as a general elective.

### Required:

ART 1020 Drawing I (3 cr) or	
ART 3700 Elementary Art Methods (3 cr).....	3
MUSC 1010 (BCA) Introduction to Music (3 cr) or	
MUSC 3010 (DHA) Masterpieces of Music (3 cr).....	3
THEA 4330 Drama and Theatre for Youth: Grades K-6.....	3

### Choose remaining credits from the following:

ART 2110 Drawing II.....	3
ART 2810 Photography I.....	3
PEP 2500 Rhythms and Movement.....	1
THEA 1030 (BHU) Exploring Performance Through Aesthetic Texts.....	3

## Art Emphasis (12 credits)

Early Childhood Education majors should consult with their advisor before choosing this emphasis.

ART 1010 (BCA) Exploring Art (3 cr) or	
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval (3 cr) or	
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern (3 cr).....	3
ART 1020 Drawing I (3 cr) or	
ART 1120 Two-dimensional Design (3 cr).....	3
ART 2650 Introduction to Ceramics.....	3
ART 3700 Elementary Art Methods.....	3

## Music Emphasis (12 credits)

### Required:

MUSC 1010 (BCA) Introduction to Music.....	3
MUSC 1110 Music Theory I.....	3
MUSC 1600 Voice Techniques.....	1
MUSC 3260 Elementary School Music.....	2

### Choose remaining 3 credits from the following:

Appropriate piano course(s) (3 cr) or	
Guitar course(s) (3 cr) or	
Acceptable substitute courses, approved by advisor (3 cr).....	3

## Physical Education Emphasis (12 credits)

### Required:

PE 3000 Dynamic Fitness.....	3
PEP 3200 (CI) Motor Learning and Technology in Skill Analysis.....	3
HEP 2000 First Aid and Emergency Care.....	2

### Choose remaining credits from the following:

PEP 2200 Skills 2 (Lifetime Activities).....	1
PEP 2300 Skills 3 (Softball, Basketball, Soccer).....	1
PEP 2400 Skills 4 (Tennis, Badminton, Track and Field).....	1
PEP 2500 Rhythms and Movement.....	1
PRP 1500 Social Recreation Leadership.....	3

## Health/Wellness/Nutrition Emphasis (12 credits)

### Choose one of the following two courses:

NFS 1020 (BLS) Science and Application of Human Nutrition.....	3
NFS 2020 Nutrition Throughout the Life Cycle.....	3

### Choose remaining credits from the following:

NFS 1000 Food Science from Farm to Fork.....	3
NFS 3110 (DSC) Food, Technology, and Health.....	3
BIOL 2420 Human Physiology.....	4
HEP 2000 First Aid and Emergency Care.....	2
HEP 2500 Health and Wellness.....	2
HEP 3000 Drugs and Human Behavior.....	3
HEP 3500 Elementary School Health Education.....	2
PUBH 3120 Family and Community Health.....	3
PE 3000 Dynamic Fitness.....	3

## Foreign Language Emphasis (12 credits)

A foreign language area of emphasis may be designed by a student, provided it is limited to one language.

## School Library Media Certification

This certification will fulfill the emphasis requirement for Early Childhood Education majors. For a list of required courses, contact the Instructional Technology and Learning Sciences Department.

## English as a Second Language (ESL) Endorsement

This endorsement will fulfill the emphasis requirement for Early Childhood Education majors. For a list of required courses, students should contact their advisor. (Completing 12 credits toward the ESL Endorsement will fulfill an ESL Emphasis.)

## Optional Supporting Area in Parenting for Early Childhood Education Majors (17 credits)

The Early Childhood Education requirements can be met and then additional credits taken to complete a supporting area in parenting. This may enhance employment opportunities in school districts, child care, and preschools where there is a strong commitment to a parent involvement program, or as an instructor for community adult education programs.

# Department of Family, Consumer, and Human Development

<b>FCHD 3510</b> <sup>16</sup> Infancy and Early Childhood (Coreq: FCHD 3550) .....	3
<b>FCHD 3550</b> <sup>16</sup> Infant Lab (Coreq: FCHD 3510) .....	1
<b>FCHD 3520</b> <sup>16</sup> Children in the Middle Years (Coreq: FCHD 3560) .....	3
<b>FCHD 3560</b> <sup>16</sup> Middle Childhood Lab (Coreq: FCHD 3520) .....	1
<b>FCHD 3110</b> <sup>17</sup> Human Sexuality .....	3
<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition .....	3

<sup>16</sup>Prerequisites: Junior standing and FCHD 1500, 2610.

<sup>17</sup>Prerequisites: FCHD 1500, 2400.

## Family and Consumer Sciences Major

The Family and Consumer Sciences (FCS) major is an integrative major that links the various fields within the family and consumer sciences profession and prepares the student for positions requiring interdisciplinary problem-solving skills. The Family and Consumer Sciences major prepares graduates for positions in business, local/state/federal agencies, child care centers, youth programs, job training centers, and other related agencies.

**Note:** The requirements shown below for the FCS major are effective for students beginning the degree Summer 2008 or thereafter.

### Admission Requirements

Students with less than 24 semester credits may declare a premajor in FCS (PFCS). Completion of at least 24 semester credits (including FCHD 1010, 1500, 2400, and 2450) with a cumulative GPA of at least 3.0 is required for admission into the FCS major.

### Departmental Program Requirements

The department has several regulations governing students' academic progress:

1. The *P/D+*, *D*, *F* option cannot be used for courses required in the FCS major
2. An overall cumulative GPA of 3.0 is required for entrance to the major. An overall GPA of 3.0 is required for graduation. A GPA of 3.0 in FCS major courses is also required for graduation.
3. **Ten-year Policy.** Courses which are required for the major will be accepted *only* if they have been completed within the last 10 years.

<b>FCHD 1010 (BSS)</b> Balancing Work and Family (F,Sp) .....	3
<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp) ...	3
<b>FCHD 2400 (BSS)</b> Marriage and Family Relationships (F,Sp) .....	3
<b>FCHD 2450 (BSS)</b> The Consumer and the Market (F,Sp) .....	3

### Major Courses (30 credits)

Select at least 6 credits from each of the following five areas:

#### Clothing and Textiles (6 credits)

<b>FCSE 1140</b> Introductory Sewing (F,Sp) .....	2
<b>FCSE 2040</b> Clothing Production Principles (F,Sp) .....	3
<b>FCSE 3030 (DSC/QI)</b> Textile Science (Sp) .....	4
<b>FCSE 3040</b> Advanced Clothing Production Principles (F) .....	3
<b>FCSE 3060 (DSS/CI)</b> Human Behavior Related to Dress (Su) .....	3
<b>FCSE 3080 (DHA)</b> Dress and Humanity (F,Sp) .....	3

#### Consumer and Family Finance (6 credits)

<b>FCHD 2100</b> Family Resource Management (F,Sp) .....	3
<b>FCHD 3280</b> Economic Issues for Individuals and Families (Sp) .....	3
<b>FCHD 3310</b> Consumer Policy (Sp) .....	3
<b>FCHD 3340</b> Housing: Societal and Environmental Issues (F) .....	3
<b>FCHD 3350</b> Family Finance (F,Sp,Su) .....	3

<b>FCHD 3450</b> Consumer Credit Problems (Prereq: FCHD 3350) (F) .....	3
<b>FCHD 4330</b> Family Finance Career Seminar (Prereq: FCHD 3350) (F) .....	1
<b>FCHD 4350</b> Advanced Family Finance (Prereq: FCHD 3350) (Sp) .....	3
<b>FCHD 5340</b> Housing Finance and Regulations (Prereq: FCHD 3340, 3350) (majors only) (Sp) .....	3

#### Foods and Nutrition (6 credits)

<b>NFS 1000</b> Food Science from Farm to Fork .....	3
<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition (F,Sp,Su) .....	3
<b>NFS 1240</b> Culinary Basics (F) .....	3
<b>NFS 1250</b> Sanitation and Safety (Sp) .....	3
<b>NFS 2020</b> Nutrition Throughout the Life Cycle (Prereq: NFS 1020) (Sp) .....	3
<b>NFS 3020</b> Nutrition and Physical Performance (Prereq: NFS 1020) (F) .....	2
<b>NFS 3070</b> Science of Food Preparation (Prereq: CHEM 1120 or 2300 or 2310) (Sp) .....	4
<b>NFS 3110 (DSC)</b> Food, Technology, and Health (Prereq: University Studies Breadth Life Sciences Course) (F) .....	3
<b>NFS 4480</b> Community Nutrition (Prereq: NFS 1020) (F) .....	3

#### Human Development and Family Studies (6 credits)

<b>FCHD 2610</b> Child Guidance (F,Sp) .....	3
<b>FCHD 3100</b> Abuse and Neglect in Family Context (Prereq: Sophomore standing, FCHD 1500, 2400) (F,Sp) .....	3
<b>FCHD 3110</b> Human Sexuality (Prereq: FCHD 1500, 2400) (F) .....	3
<b>FCHD 3510</b> Infancy and Early Childhood (Prereq: Junior standing, FCHD 1500, 2610) (F,Sp) .....	3
<b>FCHD 3550</b> <sup>18</sup> Infant Lab (F,Sp) .....	1
<b>FCHD 3520</b> Children in the Middle Years (Prereq: Junior standing, FCHD 1500, 2610) (F) .....	3
<b>FCHD 3560</b> <sup>18</sup> Middle Childhood Lab (F,Sp) .....	1
<b>FCHD 3530</b> Adolescence (Prereq: Junior standing, FCHD 1500) (F,Sp) .....	3
<b>FCHD 3540</b> Adult Development and Aging (Prereq: Junior standing and FCHD 1500) (Sp) .....	3
<b>FCHD 4220</b> Family Crises and Interventions (Prereq: Junior standing, FCHD 2400) (F,Su) .....	3
<b>FCHD 4230</b> Families and Social Policy (Prereq: Junior standing, FCHD 2400) (Sp) .....	3
<b>FCHD 4240</b> Social and Family Gerontology (Prereq: Junior standing, FCHD 2400, 3540) (F) .....	3
<b>FCHD 4550</b> Preschool Methods and Curriculum (Prereq: Junior standing, FCHD 1500) (F,Sp) .....	3

#### Interior Design (6 credits)

<b>ID 1750 (BCA)</b> Design in Everyday Living (F,Sp) .....	3
<b>ID 1770</b> History of Interior Furnishings and Architecture I (F) .....	3
<b>ID 1780</b> History of Interior Furnishings and Architecture II (Sp) .....	3

#### Research Methods and Professional Development Courses (12 credits)

The following courses are required:

<b>FCHD 3130 (QI)</b> Research Methods (Prereq: STAT 1040) (F,Sp) (majors only) .....	3
<b>FCHD 3210 (CI)</b> Families and Cultural Diversity (Prereq: FCHD 1500, 2400, CL2 fulfillment) (F,Sp) (majors only) .....	3

Choose one of the following:

<b>OSS 1550 (CI)</b> Business Correspondence .....	3
<b>FCHD 4900 (CI)</b> Pre-Practicum Skills (Prereq: Junior Standing, FCHD 2610, 3100, CL2 fulfillment) (F,Sp) .....	3
<b>SPCH 1020 (CI)</b> Public Speaking (F,Sp) .....	3
<b>SPCH 2110 (CI)</b> Interpersonal Communication (F,Sp) .....	3

# Department of Family, Consumer, and Human Development

Choose one of the following:

<b>FCHD 4900 (CI) Pre-Practicum Skills (Prereq: Junior Standing, FCHD 2610, 3100, CL2 fulfillment) (F,Sp)</b> .....	3
<b>PHIL 1120 (BHU) Social Ethics (F)</b> .....	3
<b>PHIL 2400 (BHU) Ethics (Sp)</b> .....	3

## Practicum (6 credits)

Complete a total of 6 credits from one or both of the following:

<b>FCHD 4950<sup>19</sup> Practicum: Consumer Science (F,Sp,Su)</b> .....	3-6
<b>FCHD 4960<sup>20</sup> Practice Teaching in Child Development Laboratories (Prereq: Junior Standing, FCHD 4550) (F,Sp,Su)</b> .....	3

<sup>18</sup>FCHD 3550 must be taken concurrently with FCHD 3510. FCHD 3560 must be taken concurrently with FCHD 3520.

<sup>19</sup>Enrollment in FCHD 4950 is limited to *only* FCS majors who have received prior approval from the Practicum Coordinator. Prior to enrollment, students must have achieved junior standing, and must have completed a total of at least 30 FCHD credits, a Communications Intensive (CI) course, and an ethics course. Practicum application deadlines are as follows: February 15 for fall semester, June 15 for spring semester, and October 15 for summer semester.

<sup>20</sup>Students must sign up at *least* three full semesters in advance in Family Life 205.

## Suggested Four-year Plans

Suggested semester-by-semester four-year plans for students working toward a bachelor's degree within the Family, Consumer, and Human Development Department can be found at:

<http://www.usu.edu/degreplans/>

These plans are intended to guide students in the selection of their courses. However, students should meet with their advisor each semester to plan an individualized schedule tailored to their specific interests and needs.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in selected upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. The minimum GPA for participation in departmental honors in FCHD is 3.30, with 3.5 in the FCHD major. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715. Additional information can be found online at: <http://www.usu.edu/honors/>, or by contacting Kaelin Olsen (FCHD honors advisor) at [kaelin.olsen@usu.edu](mailto:kaelin.olsen@usu.edu) or at (435) 797-8242.

## Additional Information

For more detailed information about the Family, Consumer, and Human Development; Early Childhood Education; Family and Consumer Sciences; and Family Life Studies majors, see the current major requirement sheets or an advisor in the FCHD Advising Center (Family Life 205). Major requirement sheets are also available online at: <http://www.usu.edu/majorsheets/>

## Financial Support

In addition to the scholarships, assistantships, grants-in-aid, and work-study programs available through the University, the Emma Eccles Jones College of Education and Human Services and the Department of Family, Consumer, and Human Development also give scholarships and other types of support each year. Students should inquire at the Dean's Office in Education 109, the departmental advising office in Family Life 205, or the Financial Aid Office in Student Center 106.

## Graduate Programs

### Admission Requirements

See general admission requirements on pages 36-37. Students may use either the GRE or MAT for application for all specializations in the MS degree, but the GRE is required for the PhD program. Additional assessment is required for admission to the MS marriage and family therapy specialization. An applicant's MAT score, or the GRE verbal and quantitative scores, must be at or above the 40th percentile. Applications are expected to be completed by January 15, but may be considered throughout the year, with the *exception* of applications for the Marriage and Family Therapy (MFT) Specialization. MFT applications *must* be received by January 15.

### Degree Programs

Graduate students receive a strong research and theoretical base in family relationships, consumer sciences, and human development. In addition to the core courses required for each of the specializations, students have the opportunity to achieve their program goals with a wide range of other graduate courses in the department, as well as designated courses in related programs at USU. Graduate students also engage in independent study, practica, and other specialized professional experiences that help them to acquire specific skills.

The department provides advanced graduate education and training for students to (1) establish the professional competency necessary for employment in research, teaching, marriage and family therapy, extension, and administration; (2) develop skills necessary for agency administration in the field of family and child care services; (3) receive clinical training in marriage and family therapy; (4) develop the skills for supervisory responsibilities in child development laboratories, child-care facilities, and adolescent programs; and (5) develop the skills and expertise to work in financial and consumer services agencies and organizations.

### MS in Family, Consumer, and Human Development

Students in the MS program complete a research thesis that makes a contribution to knowledge in family studies, human development, or consumer sciences.

All students in the MS Marriage and Family Therapy specialization also complete required clinical experiences. The MS Marriage and Family Therapy specialization satisfies basic educational requirements for Utah State licensure in marriage and family therapy and clinical membership in AAMFT. The Marriage and Family Therapy specialization is accredited by the Commission on Accreditation for Marriage and Family Therapy Education.



# Department of Family, Consumer, and Human Development

## Master of Family and Human Development (MFHD)

The MFHD is a practice-oriented, but nonclinical, master's degree especially suitable for individuals already working or planning to work in the family or social service sectors, education, corrections, or related fields. The MFHD does not require a thesis. A new group of students is enrolled every two years in the distance-delivered program, and the group takes a prescribed set of courses.

## PhD in Family, Consumer, and Human Development

Students in the PhD program complete a major research dissertation that makes a significant contribution to the theoretical and empirical knowledge in family studies or human development.

## Background Check

Students are required to pass a background check prior to participation in a practicum experience (FCHD 6980 or 7980).

## Specializations

The MS degree has specializations in Adolescence and Youth, Adult Development and Aging, Consumer Sciences, Infancy and Childhood, Marriage and Family Relationships, and Marriage and Family Therapy. Further information may be obtained from the department and by accessing the department's home page at: <http://www.usu.edu/fchd/>

## Course Requirements

The core substantive courses for the master's degree are FCHD 6030, 6050, 6060, and 6070. Master's students also complete course requirements under their chosen specialization in Marriage and Family Relationships, Marriage and Family Therapy, Consumer Sciences, Infancy and Childhood, Adolescence and Youth, or Adult Development and Aging. Elective courses and thesis topics are individualized with each student by faculty supervisory committees.

Doctoral core courses are FCHD 7060 and 7070. Doctoral students also complete topical seminars, methods and statistics courses, research and teaching internships, comprehensive exams, and dissertation research. For more specific information, see the department's *Graduate Student Handbook* online at: <http://www.usu.edu/fchd>

## Research

The department has three major child development laboratories, other research labs, marriage and family therapy facilities, and housing and financial counseling facilities that are available for research and training in the graduate program. The department enjoys a long history of research activities with preschools, public schools, extension programs, financial institutions, and other agencies throughout the state, and has a program of gerontology research.

Recent faculty and graduate student research projects have been funded by the state Office of Child Care and the Office of Juvenile Justice, and by the national Office of Head Start, the Office of Adolescent Pregnancy Programs, Child Trends Inc., the National Institute of Child Health and Human Development, the National Institute of Health, the U.S. Department of Agriculture, the U.S. Department of Justice, the National Institutes on Aging, and the Kellogg Foundation, among others.

## Financial Assistance

Extensive teaching, research, and extension graduate assistantships are available for applicants for both the MS and PhD degrees. Attractive fellowships are available for strong PhD students with high GPA and high GRE scores. When an applicant's folder is complete, it is reviewed by the Graduate Admissions and Finance Committee, which makes specific recommendations regarding admission and financial support. Assistantships and fellowships include waivers for out-of-state tuition. Doctoral students can also receive waivers for in-state tuition with a half-time teaching or research assistantship.

## Career Opportunities

Recent recipients of advanced degrees have found employment in public schools, academic departments at colleges and universities, research centers, hospitals, Head Start, child care programs, social services agencies, mental health agencies, private and clinical practice settings, extension services, financial institutions and agencies, and related agencies that teach about, study, or serve individuals, families, and consumers.

## Additional Information and Updates

The department publishes a *Graduate Student Handbook* providing more details about graduate program admission and requirements. This handbook is available online at: <http://www.usu.edu/fchd/>

## Family, Consumer, and Human Development Faculty

### Professors

*Ann M. Berghout Austin*, alternative child care and family life, development from birth to 12 years of age  
(Vice Provost for Faculty Development and Diversity)

*Raymond T. Coward*, aging, elder care, rural health care  
(USU Provost)

*Randall M. Jones*, adolescent development, identity, problem behavior, prevention, research methods

*Thomas R. Lee*, parenting, family life education, family resiliency, at-risk youth, marriage education

*Shelley L. Knudsen Lindauer*, alternative child care, early childhood education and curriculum, child care administration, socialization, development in infancy and early childhood (Associate Dean, School of Graduate Studies)

*Jean M. Lown*, consumer and family economics, bankruptcy

*Brent C. Miller*, marriage and family relationships, adolescent pregnancy, adoption, research methods (Vice President for Research)

*Thorana S. Nelson*, marriage and family therapy, gender, family therapy training and supervision

*Lori A. Roggman*, infant social development, attachment, parenting stress, play across the life span, physical attractiveness, early intervention

### Professor Emeritus

*Jay D. Schvaneveldt*, marriage and family studies, family life education, international families, theory and methods

# Department of Family, Consumer, and Human Development

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## Associate Professors

*Scot M. Allgood*, family therapy process, assessment, and marital studies

*Kay P. Bradford*, interparental conflict, couple dynamics, parenting, adolescent well-being

*Lucy Delgadillo*, family and consumer sciences, housing

*David D. Law*, parent education, marriage and family therapy, health care utilization

*Yoon G. Lee*, family and consumer sciences, family finance

*Maria C. Norton*, geriatric mental health, psychosocial and biological factors, research methodology and epidemiology

*D. Kim Openshaw*, marriage and family therapy, research and application, typological and intervention strategy advancement of youthful sexual offending, theoretical conceptualization of self-esteem, martial arts and mental health related syndromes

*Kathleen W. Piercy*, midlife, older adults and family caregiving, family policy, qualitative research methodology

*Linda M. Skogrand*, families from diverse populations, transcending traumatic childhoods, marriage and family education

*Susan D. Talley*, prosocial behavior, attachment, early adolescence, school-age children, self efficacy, cross-cultural research

## Assistant Professors

*Troy E. Beckert*, life span human development, adolescence, research methods, parenting

*Brian J. Higginbotham*, remarriage and step families, marriage education, program evaluation

## Research Assistant Professors

*Lisa K. Boyce*, infancy and early childhood, language development, parent-child interaction

*Elizabeth B. Fauth*, gerontology, ability and disability in the oldest-old, factors affecting caregiver burden

## Adjunct Clinical Assistant Professor

*Carol M. Baumann*, child welfare, foster care, adoption

## Principal Lecturer

*Deborah B. Ascione*, marriage, human development, child abuse and neglect

## Lecturers

*Susan L. Ericksen*, undergraduate practicum coordinator, marriage and family therapy, professional development

*Kelly J. Esparza*, early childhood education, human development, infancy and early childhood

*Victor W. Harris*, close relationships (i.e., relationship quality, process, education)

*Alena Johnson*, family financial management, financial counseling, students and debt

*Kaelin Olsen*, infant and toddler development, developmentally appropriate practice in early childhood education, preschool curriculum, child guidance

## Adjunct Lecturer

*Kevin Barlow*, marriage and family therapy supervision

## Course Descriptions

Family, Consumer, and Human Development (FCHD), pages 560-564

# Department of Geology

**Department Head:** John W. Shervais

**Location:** Geology 205

**Phone:** (435) 797-1273

**FAX:** (435) 797-1588

**E-mail:** geology@usu.edu

**WWW:** <http://www.usu.edu/geo/>

**Undergraduate Advisor:**

Joel L. Pederson, Geology 112, (435) 797-7097,  
joel.pederson@usu.edu

**Graduate Program Director:**

W. David Liddell, Geology 212, (435) 797-1261,  
dave.liddell@usu.edu

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), and Doctor of Philosophy (PhD) in Geology; BS and MS in Applied Environmental Geoscience; BS in Earth Science Composite Teaching

**Undergraduate emphases:** *BS in Geology*—Hydrogeology-Engineering Geology and Geoarchaeology

**Graduate Specializations:** *MS in Geology*—Geochemistry, Hydrogeology, Igneous Petrology, Paleogeology, Sedimentary Petrology, Structural Geology, and Surficial Geology

## Undergraduate Programs

### Objectives

Geology is the study of the planet Earth, the materials of which it is made, the processes that act on these materials, the products formed, and the history of the planet and its life forms since its origin. Geology considers the physical forces that act within and on the Earth, the chemistry of its constituent materials, and the biology of its past inhabitants as revealed by fossil evidence. Geologists integrate biology, chemistry, engineering, mathematics, and physics in the study of our natural surroundings. The knowledge thus obtained is used by geologists to explore for energy, mineral, and water resources; to identify geologically stable sites for major structures; and to provide foreknowledge of some of the dangers associated with the mobile forces of a dynamic Earth. Geologists provide fundamental information required by modern society to plan for cultural and industrial development, reduce geological hazards, identify potential resources, and assist in the design of waste-disposal facilities.

The Department of Geology prepares students for professional careers in the geosciences and provides the background required for advanced studies. The department offers three options of study to meet the growing demand for geoscientists with training in general geology (BS in geology without an emphasis), hydrogeology-engineering geology emphasis, or geoarchaeology emphasis. All options provide exposure to the sciences and an appreciation of our physical surroundings. The BS program in Geology meets the curriculum standards established by the American Institute of Professional Geologists.

The BS in Applied Environmental Geoscience is an interdisciplinary program that combines parts of the traditional geology curriculum with a variety of courses in related subject areas, such as watershed sciences, soils, biology, statistics, and GIS/remote sensing. This degree prepares graduates for careers with the environmental industry, government regulatory agencies, and policy organizations. Environmental geoscience is applied in a range of diverse situations, such as urban development, waste disposal, resource management, engineering, soils and agriculture, and assessment of natural and artificial hazards.

The department also offers the Earth Science Composite Teaching Major to prepare teachers of earth science at the secondary school level. Requirements for this major meet or exceed the standards of the National Science Teachers Association. Those students who major in earth science should be aware that state licensure is required of secondary education teachers. The Earth Science Composite Teaching Major fulfills the requirements that provide eligibility for licensure. Licensure requirements vary from state to state, and students should investigate the requirements for the states in which they intend to seek employment. Advising for the Secondary Teacher Education Program (STEP) and State of Utah secondary education licensure is provided by the USU School of Teacher Education and Leadership (TEAL).

The Department of Geology is housed within the Geology Building, which is located at the northeast corner of the Old Main Quad. The Geology Building provides spacious, well-equipped teaching labs, classrooms, and facilities, including a display and study area for students, computer access, document room, map room, preparation facilities, and research labs.

## General College of Science Requirements

All general College of Science requirements are embedded within the various major requirements listed below. No extra coursework is required to fulfill the general college requirements.

### Requirements

#### Departmental Admission Requirements

New freshmen admitted to USU in good standing qualify for admission to this major. Transfer students from other institutions need a 2.2 GPA, and students transferring from other USU majors need a 2.0 GPA for admission to this major in good standing. Students seeking admission to the Earth Science Composite Teaching Major should be aware that a 2.75 minimum GPA is required for admission to the Secondary Teacher Education Program (STEP) in the School of TEAL. Students in the Hydrogeology-Engineering Geology emphasis must meet all College of Engineering GPA standards appropriate for the courses to be taken having either the ENGR or CEE prefix.

#### Field Trips and Labs

Most Geology courses have required laboratories and/or field trips. Those enrolled are expected to dress properly for the conditions and observe safety precautions issued by the instructors. Most courses require modest lab fees.

#### Bachelor of Arts Degree

For a BA in Geology, the foreign-language requirement must be satisfied in addition to the Bachelor of Science in Geology requirements.

#### Geology Major—General Geology Option

<b>GEO 1110 (BPS)</b> The Dynamic Earth: Physical Geology (F,Sp).....	4
<b>GEO 3200 (DSC)</b> The Earth Through Time (Sp).....	4
<b>GEO 3500</b> Mineralogy and Crystallography (F).....	4
<b>GEO 3520</b> Optical Mineralogy and Petrography (Sp).....	2
<b>GEO 3550 (CI)</b> Sedimentation and Stratigraphy (F).....	4
<b>GEO 3600</b> Geomorphology (F).....	4
<b>GEO 3700</b> Structural Geology (Sp).....	4
<b>GEO 4500</b> Igneous and Metamorphic Petrology (Sp).....	4
<b>GEO 4700 (CI)</b> Geologic Field Methods (F).....	3
<b>GEO 5200</b> Geology Field Camp (Su).....	5

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<b>CHEM 1210</b> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su).....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp).....	1
<b>MATH 1210 (QL)<sup>1</sup></b> Calculus I (F,Sp,Su).....	4
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) (3 cr) <b>or</b>	
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su) (4 cr).....	3 or 4
<b>CS 1050</b> Problem Solving with Computers (Sp) (3 cr) <b>or</b>	
<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su) (3 cr) <b>or</b>	
<b>CEE 5190</b> Geographic Information Systems for Civil Engineers (Sp) (3 cr) <b>or</b>	
<b>WATS 4930</b> Geographic Information Systems (F) (4 cr).....	3 or 4
<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I.....	4
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II ..	4

Students must also select 12 credits from any Geology courses numbered 4900 or above, except GEO 5200 (Geology Field Camp).

## Geology Major—Hydrogeology-Engineering Geology Emphasis

<b>GEO 1110 (BPS)</b> The Dynamic Earth: Physical Geology (F,Sp).....	4
<b>GEO 3200 (DSC)</b> The Earth Through Time (Sp).....	4
<b>GEO 3500</b> Mineralogy and Crystallography (F).....	4
<b>GEO 3550 (CI)</b> Sedimentation and Stratigraphy (F).....	4
<b>GEO 3600</b> Geomorphology (F).....	4
<b>GEO 3700</b> Structural Geology (Sp).....	4
<b>GEO 4700 (CI)</b> Geologic Field Methods (F).....	3
<b>GEO 5200</b> Geology Field Camp (Su).....	5
<b>GEO 5510 (QI)</b> Groundwater Geology (F).....	3
<b>GEO 5600</b> Geochemistry (F).....	3
<b>CHEM 1210</b> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su).....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp).....	1
<b>MATH 1210 (QL)<sup>1</sup></b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 2250 (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su) ..	4
<b>CS 1050</b> Problem Solving with Computers (Sp) (3 cr) <b>or</b>	
<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su) (3 cr) <b>or</b>	
<b>CEE 5190</b> Geographic Information Systems for Civil Engineers (Sp) (3 cr) <b>or</b>	
<b>WATS 4930</b> Geographic Information Systems (F) (4 cr).....	3 or 4
<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I.....	4
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II ..	4
<b>ENGR 2010</b> Engineering Mechanics Statics (F,Sp).....	2
<b>ENGR 2030</b> Engineering Mechanics Dynamics (F,Sp,Su).....	3
<b>ENGR 2140</b> Strength of Materials (F,Sp,Su).....	2
<b>CEE 3430</b> Engineering Hydrology (Sp) (3 cr) <b>or</b>	
<b>CEE 4300</b> Engineering Soil Mechanics (Sp) (4 cr).....	3 or 4
<b>CEE 3500</b> Civil and Environmental Engineering Fluid Mechanics (F,Sp).....	3
<b>SOIL 3000</b> Fundamentals of Soil Science (F) (4 cr) <b>or</b>	
<b>SOIL 5130</b> Soil Genesis, Morphology, and Classification (F) (4 cr) .....	4

## Geology Major—Geoarchaeology Emphasis

<b>GEO 1110 (BPS)</b> The Dynamic Earth: Physical Geology (F,Sp).....	4
<b>GEO 3200 (DSC)</b> The Earth Through Time (Sp).....	4
<b>GEO 3500</b> Mineralogy and Crystallography (F).....	4
<b>GEO 3550 (CI)</b> Sedimentation and Stratigraphy (F).....	4
<b>GEO 3600</b> Geomorphology (F).....	4
<b>GEO 3700</b> Structural Geology (Sp).....	4
<b>GEO 4700 (CI)</b> Geologic Field Methods (F).....	3
<b>GEO 5430</b> Paleontology (F).....	2
<b>ANTH 1030 (BSS)</b> World Archaeology (F [Sp online]).....	3

<b>ANTH 5300</b> Archaeology Field School (Su).....	4-5
<b>ANTH 5310</b> Archaeology Lab.....	1-3

<b>CHEM 1210</b> Principles of Chemistry I (F,Sp) (4 cr) <b>and</b>	
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp) (1 cr) <b>and</b>	
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su) (4 cr) <b>and</b>	
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp) (1 cr).....	10

<b>BIOL 3010 (CI/DSC)</b> Evolution (Sp).....	3
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### Two courses selected from:

<b>BIOL 2220</b> General Ecology (F,Sp) (3 cr) <b>and/or</b>	
<b>BIOL 3030 (DSC)</b> Genetics and Society (Sp) (3 cr) <b>and/or</b>	
<b>BIOL 3040 (DSC)</b> Plants and Civilization (F) (3 cr) <b>and/or</b>	
<b>BIOL 3220 (QI)</b> Field Ecology (F) (2 cr).....	5 or 6

<b>MATH 1210 (QL)<sup>1</sup></b> Calculus I (F,Sp,Su).....	4
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su).....	3
<b>WATS 4930</b> Geographic Information Systems (F).....	4
<b>SOIL 3000</b> Fundamentals of Soil Science (F) (4 cr) <b>or</b>	
<b>SOIL 5130</b> Soil Genesis, Morphology, and Classification (F) (4 cr) .....	4

## Applied Environmental Geoscience Major

<b>GEO 1060 (BPS)</b> Introduction to Environmental Geoscience (Sp) (3 cr) <b>or</b>	
<b>GEO 1110 (BPS)</b> The Dynamic Earth: Physical Geology (F,Sp) (4 cr).....	3 or 4
<b>GEO 3500</b> Mineralogy and Crystallography (F).....	4
<b>GEO 3550 (CI)</b> Sedimentation and Stratigraphy (F).....	4
<b>GEO 3600</b> Geomorphology (F).....	4
<b>GEO 3700</b> Structural Geology (Sp).....	4
<b>GEO 4700 (CI)</b> Geologic Field Methods (F).....	3
<b>GEO 5200</b> Geology Field Camp (Su).....	5
<b>GEO 5600</b> Geochemistry (F).....	3

### Geology Electives (12 credits required)

Students must complete at least 12 credits, selected from the following:

<b>GEO 5150</b> Fluvial Geomorphology (F).....	3
<b>GEO 5410</b> Introduction to Clay Mineralogy (Sp).....	2
<b>GEO 5510 (QI)</b> Groundwater Geology (F).....	3
<b>GEO 5520 (CI)</b> Techniques of Groundwater Investigations (Sp).....	3
<b>GEO 5530 (QI)</b> Petroleum Systems: Principles of Exploration and Development (Sp).....	3
<b>GEO 5540 (QI)</b> Quantitative Methods in Geology (F).....	3
<b>GEO 5550</b> Geochemical Application of Electron Microprobe and X-Ray Fluorescence Analysis (Sp).....	4
<b>GEO 5630</b> Photogeology (Sp).....	3
<b>GEO 5650</b> Senior Thesis (F,Sp).....	3-4
<b>GEO 5680</b> Paleoclimatology (Sp).....	3

### Required Support Courses (39-40 credits)

#### Chemistry Group (10 credits)

<b>CHEM 1210</b> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su).....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp).....	1

#### Mathematics and Statistics Group (7 credits)

<b>MATH 1210 (QL)<sup>1</sup></b> Calculus I (F,Sp,Su).....	4
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su).....	3

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## Physics Group (4 credits)

**PHYS 2110** The Physics of Living Systems I (4 cr) **or**  
**PHYS 2210 (QI)** General Physics—Science and Engineering I (4 cr) ... 4

## Environmental Group (18-19 credits)

**BIOL 1610** Biology I (F)..... 4  
**BIOL 1620 (BLS)** Biology II (Sp)..... 4  
**WATS 3700 (CI)** Fundamentals of Watershed Science (Sp)..... 3  
**SOIL 3000** Fundamentals of Soil Science (F)..... 4  
**CEE 5190** Geographic Information Systems for  
 Civil Engineers (Sp) (3 cr) **or**  
**WATS 4930** Geographic Information Systems (F) (4 cr)..... 3 or 4

## Support Electives (12 credits required)

No more than 8 credits may be chosen from any one group.

### Group A: Hydrologic Science

**ENVS 5320** Water Law and Policy in the United States (Sp)..... 3  
**WATS 4490 (d5490)** Small Watershed Hydrology (F)..... 4  
**WATS 5660** Watershed and Stream Restoration (Su) ..... 2  
**WATS 5670** Watersheds and Stream Restoration Practicum (Su)..... 2

### Group B: Ecology, Soils, and Environmental Chemistry

**BIOL 2220** General Ecology (F,Sp)..... 3  
**BIOL 3220 (QI)** Field Ecology (F)..... 2  
**CHEM 3650 (DSC)** Environmental Chemistry (Sp)..... 3  
**SOIL 5050 (d6050)** Principles of Environmental Soil  
 Chemistry (Sp odd) ..... 3  
**SOIL 5130 (d6130)** Soil Genesis, Morphology,  
 and Classification (F)..... 4  
**SOIL 5560 (d6560)** Analytical Techniques for the  
 Soil Environment (Sp) ..... 2  
**SOIL 5620** Aquatic Chemistry (F)..... 3

### Group C: GIS/Remote Sensing

**WATS 4750** Fundamentals of Remote Sensing Science (F)..... 3  
**WATS 4930 (d6920)** Geographic Information Systems (F)..... 4  
**WATS 5250 (d6250)** Remote Sensing of Land Surfaces (Sp) ..... 4  
**WATS 5760 (d6760)** Remote Sensing: Modeling and Analysis (Sp)..... 3  
**WILD 5750** Applied Remote Sensing (F) ..... 3

## Earth Science Composite Teaching Major

**GEO 1110 (BPS)** The Dynamic Earth: Physical Geology (F,Sp) ..... 4  
**GEO 2500<sup>2</sup>** Geology Field Excursions (F,Sp)..... 2  
**GEO 3200 (DSC)** The Earth Through Time (Sp)..... 4  
**GEO 3500** Mineralogy and Crystallography (F) ..... 4  
**GEO 3550 (CI)** Sedimentation and Stratigraphy (F)..... 4  
**GEO 3600** Geomorphology (F) ..... 4  
**GEO 3700** Structural Geology (Sp)..... 4  
**GEO 4700 (CI)** Geologic Field Methods (F) ..... 3  
**PHYS 1040 (BPS)** Introductory Astronomy ..... 3  
**PHYS 2210 (QI)** General Physics—Science and Engineering I..... 4  
**PHYS 2220 (BPS/QI)** General Physics—Science and Engineering II .. 4  
**CHEM 1210** Principles of Chemistry I (F,Sp)..... 4  
**CHEM 1215** Chemical Principles Laboratory I (F,Sp)..... 1  
**CHEM 1220 (BPS)** Principles of Chemistry II (F,Sp,Su) ..... 4  
**CHEM 1225** Chemical Principles Laboratory II (F,Sp)..... 1  
**ENVS 5110** Environmental Education (Sp) (3 cr) **or**  
**WILD 2200 (BLS)** Ecology of Our Changing World (F,Sp) (3 cr) ..... 3  
**CLIM 2000 (BPS)** The Atmosphere and Weather (F,Sp) ..... 3  
**WATS 3000 (DSC)** Oceanography (Sp) (3 cr) **or**  
**GEO 3300 (DSC)** Geology of the World's Oceans (Sp) (3 cr)..... 3  
**SCI 4300** Science in Society (F,Sp)..... 2  
**MATH 1210 (QL)<sup>1</sup>** Calculus I (F,Sp,Su)..... 4  
**STAT 3000 (QI)** Statistics for Scientists (F,Sp,Su) ..... 3  
**CS 1050** Problem Solving with Computers (Sp) (3 cr) **or**  
**CS 1400** Introduction to Computer Science—CS 1 (F,Sp,Su) (3 cr)..... 3

Students must also complete the Secondary Teacher Education Program (STEP) as follows:

### Level 1

**SCED 3100** Motivation and Classroom Management (F,Sp) ..... 3  
**SCED 3210 (CI/DSS)** Educational and Multicultural Foundations  
 (F,Sp)..... 3  
**SCED 3300** Clinical Experience I (F,Sp) ..... 1  
**SCED 3400** Teaching Science I (Sp)..... 3  
**INST 3500** Technology Tools for Secondary Teachers (F,Sp,Su)..... 1

### Level 2

**SPED 4000** Education of Exceptional Individuals  
 (may be taken anytime) (F,Sp,Su)..... 2  
**SCED 4200 (CI)** Reading, Writing, and Technology (F,Sp) ..... 3  
**SCED 4210** Cognition and Evaluation of Student Learning (F,Sp) ..... 3  
**SCED 4300** Clinical Experience II (F,Sp) ..... 1  
**SCED 4400** Teaching Science II (F)..... 3

### Level 3 (12 credits)

**SCED 5500** Student Teaching Seminar (F,Sp)..... 2  
**SCED 5630** Student Teaching in Secondary Schools (F,Sp) ..... 10

### Notes

The Teaching Science I and II courses (SCED 3400 and 4400) are *only* taught once per year. Therefore, it is important for students to consult with their advisor to fit these courses in the correct sequence into their plan of study.

This curriculum meets the standards of the Utah Core Curriculum—Science 7-12.

All USU teacher education candidates will be required to take and pass the content exam approved by the Utah State Office of Education in their major content area prior to student teaching.

A 2.75 minimum GPA is required for *both* admission to *and* graduation from the Secondary Teacher Education Program (STEP).

## Geology Minor

**GEO 1010 (BPS)** Introduction to Geology:  
 Geology of National Parks (F,Su) (3 cr) **or**  
**GEO 1110 (BPS)<sup>4</sup>** The Dynamic Earth: Physical Geology  
 (F,Sp) (4 cr) ..... 3 or 4  
**GEO 3200 (DSC)** The Earth Through Time (Sp)..... 4

Students must also select 10 elective credits from Geology courses at the 3500 level or above.

<sup>1</sup>Students may need to complete prerequisite courses prior to enrolling in MATH 1210.

<sup>2</sup>GEO 2500 (a 1-credit course) is repeatable for credit, and must be taken *twice* for the student to earn the required 2 credits.

<sup>3</sup>PHYS 1020 may also be listed as USU 1360, IPS: Energy.

<sup>4</sup>GEO 1110 is preferred.

## Senior Thesis

Geology majors in good academic standing may elect to complete a senior thesis. This is an endeavor which normally spans a year in its preparation and presentation. Senior thesis credits may be applied toward the elective requirements in the General Geology option. For further information, students should contact their geology advisor or the geology department head.

## Suggested Four-year Plans

Suggested semester-by-semester four-year plans for students working toward a bachelor's degree within the Geology Department can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. This is a departmental recognition which is separate from the University Honors program. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school.

Geology majors with a minimum GPA of 3.30 may elect to complete the requirements for the Geology Honors degree option. For further information, students should contact their geology advisor or the geology department head.

## Undergraduate Research Opportunities

The Department of Geology offers a range of opportunities for undergraduate students to participate in research activities under the guidance of a faculty mentor. All departmental undergraduate research activities are coordinated by the departmental undergraduate advisor, Joel Pederson, (435) 797-7097, joel.pederson@usu.edu.

## Learning Objectives

Upon graduation, geology majors are expected to be able to: (1) identify common minerals; (2) identify common fossils, as well as their ages and the conditions under which they lived; (3) describe sedimentary rocks and measure a stratigraphic section in the field; (4) create a surficial geologic map; (5) define and distinguish between, and determine the type of stress responsible for forming various structural features; (6) use a Brunton compass; (7) read topographic maps, as well as construct profiles from them; (8) read and make geologic maps, as well as construct cross sections from them; (9) know the ages of important geologic features and events in the Earth's history, as well as explain how and why the Earth has changed over time; (10) know the Earth's internal processes and the features produced by them; (11) collect and evaluate geologic data; (12) interpret and create graphs of quantitative data; and (13) communicate observations and interpretations, both orally and in writing.

## Assessment

The Department of Geology relies on a variety of tools to periodically assess its undergraduate program, including: (1) student input in assessment; (2) value-added assessment; (3) college-level assessment; (4) alumni participation in assessment; and (5) faculty program assessment. For more information, please refer to the Geology Department assessment website at:

<http://www.usu.edu/geo/assessment/assessment.htm>

## Additional Information

For more information about bachelor's degree requirements for Geology programs, see the Geology Major Requirement Sheet, available from the department, or online at:

<http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admission Requirements

See general admission requirements on pages 36-37. In addition, applicants must have acceptable GRE scores and an acceptable GPA. For the Master of Science program, minimum scores of 40th percentile on the Verbal and Quantitative sections, a combined minimum of 1,000, and a GPA of 3.0 are required. For the PhD program, minimum scores of 50th percentile on the Verbal and Quantitative sections, a combined minimum of 1,200, and a GPA of 3.4 are required. For both programs, a member of the Geology faculty must agree to serve as the major professor for the applicant prior to acceptance.

Applications will be considered throughout the year, but program entry in fall semester is preferred. Students who wish to be considered for assistantships or other financial aid must have complete applications on file no later than February 15 for entry into the program the following fall semester.

### Prerequisites for Matriculation

Completion of a BS or BA in geology, biology, physics, chemistry, or engineering is required for matriculation status. Suggested prerequisite courses include: CHEM 1210, 1215, 1220, 1225; PHYS 2210, 2220; MATH 1210; STAT 3000; and CS 1050 or CS 1400 or CEE 5190 or WATS 4930. Deficiencies in geology are determined based on current USU undergraduate degree requirements for either the Geology or Hydrogeology-Engineering Geology option, as appropriate. The following geology courses or their equivalents are expected: GEO 1110, 3200, 3500, 3550, 3600, 3700, 4700, and 5200. It is expected that any deficiencies will be made up before the end of the first year of graduate study.

## Degree Programs

### Master of Science Degree—Geology

The department offers advanced study and research opportunities leading to the MS degree in Geology. Although many research specialties require advanced courses selected primarily from Geology offerings, additional courses may be selected from other departments on campus, such as Biology; Civil and Environmental Engineering; Environment and Society; Mathematics and Statistics; Plants, Soils, and Climate; Watershed Sciences; and Wildland Resources.

### Master of Science Degree—Applied Environmental Geoscience

The department offers advanced study leading to the MS degree in Applied Environmental Geoscience. This terminal degree program requires a combination of advanced courses selected from Geology offerings, as well as additional courses from other units on campus, such as Civil and Environmental Engineering; Plants, Soils, and Climate; Biology; Chemistry and Biochemistry; Mathematics and Statistics; and the College of Natural Resources.

### Doctor of Philosophy Degree

The Doctor of Philosophy degree in Geology requires original research in a specific area of geology, demonstration of broad knowledge in the field of geology, and demonstration of depth of knowledge in at least two areas of geology. The successful candidate must demonstrate a breadth of understanding in geology, as well as a depth of understanding in his or her chosen area(s) of emphasis. Potential students must show an ability to do creative research. This

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research should be carried out during a significant period of time (i.e., during at least one year or three semesters in residence). Thus, each successful PhD candidate will produce a significant piece of original research, presented in a written dissertation and defended in an oral examination. This work should be of such scope and quality that more than one journal or conference article can be derived from it.

## Research Areas

Fields of graduate research include the following: geophysics, hydrogeology, igneous petrology, paleobiology (including invertebrate paleontology and paleoecology), sedimentology (including petrology, basin analysis, sedimentation, stratigraphy, and petroleum geology), process geomorphology, Quaternary geology, structural geology, and regional tectonics.

## Degree Requirements

### Master of Science Degree—Geology

Only the Plan A thesis option is allowed for the MS degree in Geology. The recommended distribution is 20 credits of coursework and 10 credits of thesis to obtain the required 30 credits for the MS degree. A minimum of five 6000-level geology courses (other than GEO 6800) is recommended for the degree program. Only two grades of less than *B* (*C* to *B*-) will be accepted as part of the required degree program as listed on the "Program of Study for Master's Degree." A 3.0 grade point average must be obtained in required coursework as listed on the Program of Study. Thesis credits will be graded *P-F* only (i.e., no letter grade will be given). Geology graduate students using department or University facilities and/or under geology faculty supervision must register for a minimum of 3 credits every semester, up to and including the semester in which the thesis is cleared by the School of Graduate Studies. Registration may not be required during the summer.

### Master of Science Degree—Applied Environmental Geoscience

Only the Plan B nonthesis option is allowed for the MS degree in Applied Environmental Geoscience, which requires 32 credits. The Plan B option requires the production of a paper. At least 2 credits of thesis research are required, but no more than 3 credits of thesis credit can be included on the Program of Study. The Plan B paper is usually a review of literature, with conclusions drawn after conceptualizing an area of inquiry, planning a systematic search, and analyzing and critiquing the acquired information. The summary and conclusions developed should enhance knowledge in the discipline. Plan B papers and reports should follow the same format specifications as theses and dissertations and are expected to reflect equivalent scholarship standards, even though they may be less intensive and not demand the originality of a Plan A thesis. Plan B papers are defended, but are not reviewed by the School of Graduate Studies assistant dean or signed by the graduate dean. Plan B papers must be submitted to the Merrill-Cazier Library to be microfiched, and the binding receipt must be returned to the School of Graduate Studies.

### Doctor of Philosophy Degree

There are two program tracks for this degree: academic and professional. The **academic track** is designed to prepare graduates for a career in academia or other teaching-related settings. It includes both coursework in education and classroom teaching experience under the supervision of a faculty teaching mentor. The **professional track** is designed to prepare graduates for work in professional careers with the petroleum industry, with other extractive industries, or in environmental and hydrologic consulting. It includes coursework in statistics, information systems, remote sensing, and GIS. Completion of a professional internship is encouraged.

Students completing a PhD in Geology must fulfill the following requirements:

1. Complete at least 90 credits of graduate coursework (including at least 21 credits of GEO 7970, Dissertation Research) beyond a BS degree *or* at least 60 credits (including at least 15 credits of GEO 7970, Dissertation Research) beyond an MS degree, with a minimum class grade of *B* and a minimum cumulative GPA of 3.3.
2. If an MS degree is completed first, then *no more than* 12 credits of the 60 credits required for the PhD degree may be taken in coursework numbered below the 6000 level. If an MS degree is *not* completed first, then *no more than* 21 credits of the 90 credits required for the PhD degree may be taken in coursework numbered below the 6000 level.
3. Complete at least 30 credits of advanced coursework (6000 level and above) beyond the BS degree *or* 21 credits of advanced coursework beyond the MS degree, including at least 15 credits of 7000-level geology coursework, and excluding GEO 6900, 7970, and 7990.
4. Complete 3 credits of GEO 7800 (Graduate Seminar Series).
5. **Academic Track:** Complete 9-12 credits of department-approved education or instructional technology courses, and successfully teach one geology course under the supervision of a faculty mentor. ELED/SCED 6190 and GEO 6900 (teaching internship) are required.  
  
**Professional Track:** Complete 9-12 credits of department-approved courses in statistics, remote sensing, and/or geographic information systems. Completion of a professional internship program is encouraged. Approved courses include BIE/CLIM/WATS 6250, ENV5 6550, WATS 4930, 6760, WILD 6740, 6750.
6. Pass a written comprehensive examination showing depth and breadth of knowledge in geology and in the student's area(s) of emphasis. The student may be required to take additional classes to satisfy any deficiencies.
7. Successfully complete a written dissertation research proposal, present that proposal orally to the department, and defend it during an oral examination. The oral examination will include questions of a deep and probing nature, and may range beyond the dissertation proposal into areas unrelated to the student's specialization.
8. Complete at least 15 credits in GEO 7970 (Dissertation Research) if admitted with a prior master's degree, *or* 21 credits in GEO 7970 (Dissertation Research) without an earned master's degree.
9. Successfully complete and defend a dissertation. The dissertation will be a written document and may consist of several papers submitted or accepted for publication. The defense will be oral, including a presentation of the work and successful defense of the work to the faculty.

## Research

There are six broad areas of research emphasis for graduate students and faculty within the department: (1) geomorphology, (2) geophysics, (3) hydrology, (4) petrology, (5) sedimentology, and (6) structural geology and regional tectonics. Summaries of these activities follow.

**Geomorphology** research has included the study of climate, tectonic, and anthropogenic controls on landscape change, erosion, and sedimentation. This includes studies on hillslope processes, landscape evolution of the Colorado Plateau and Grand Canyon, the downstream effect of dams, and river restoration.

**Geophysics** examines the earth through quantitative methods, such as seismology, magnetics, GPS, geodesy, and gravity. Current geophysics research in the Department of Geology examines rates and magnitudes of crustal deformation through GPS techniques.

Recent research in **hydrogeology** includes determining the feasibility of constructing an artificial salmon spawning channel; characterizing, modeling, and monitoring groundwater flow systems; and investigating the hydraulic properties of faults in sandstones as they relate to carbon dioxide sequestration.

Research in **petrology** focuses on the origin and evolution of magmatic systems, hotspots, oceanic lithosphere, collisional orogens, and convergent margin systems. These efforts use field relations, phase chemistry, and whole rock geochemistry to decipher these systems, as well as determine their relationship to the tectonic and geochemical evolution of the Earth.

Research in **sedimentology** currently includes sequence stratigraphy of Paleozoic mixed carbonate-siliciclastic systems in the Great Basin; ecology, paleoecology, and sedimentology of coral reefs; tectonics of sedimentary basins at plate margins; and basin analysis, isotope geochemistry, and paleobiology of Proterozoic rocks in the western United States.

Research in **structural geology** and **regional tectonics** has included the examination of the mechanical and chemical evolution of fault zones; the structural and tectonic development of extensional structures in the Great Basin; the development of fold-and-thrust structures in Idaho, Montana, Wyoming, and Utah; and the characterization of fluid-flow properties in fractured crystalline rocks.

Geology faculty members commonly interact with the faculty and staff of the Utah Water Research Laboratory, the Department of Watershed Sciences, the Department of Plants, Soils, and Climate, and the Department of Civil and Environmental Engineering.

## Financial Assistance

Departmental financial support for incoming graduate students consists primarily of graduate teaching assistantships, which are awarded on a competitive basis. There is often other financial support available, such as research assistantships, resulting from grants or other external funding. Students requesting financial support should apply directly to the department no later than February 15. Admission to the MS or PhD program does not guarantee financial assistance.

## Additional Information

Additional information on the research activities of faculty and graduate students may be obtained directly from the Department of Geology's website at <http://www.usu.edu/geo/>

## Geology Faculty

### Professors

*James P. Evans*, structural geology, structural petrology

*Mary S. Hubbard*, tectonics, structural geology,

Dean of College of Science

*Susanne U. Janecke*, tectonics, structural geology

*W. David Liddell*, marine ecology, paleoecology, sedimentology

*John W. Shervais*, igneous petrology, geochemistry, tectonics

### Professor Emeritus

*Robert Q. Oaks, Jr.*, sedimentary petrology, stratigraphy

### Associate Professors

*Donald W. Fiesinger*, igneous petrology

*Thomas E. Lachmar*, hydrogeology

*Joel L. Pederson*, process geomorphology, Quaternary geology

### Associate Professor Emeritus

*Peter T. Kolesar*, carbonate petrology, geochemistry

### Assistant Professors

*Carol M. Dehler*, sedimentation, geochemical cycles

*Anthony R. Lowry*, geophysics

*Tammy M. Rittenour*, geomorphology, geochronology

### Lecturer

*Susan K. Morgan*, science education, carbonate petrology

### Adjunct Faculty

*Reese Barrick*, vertebrate paleontology

*Janis L. Boettinger*, soil mineralogy

*Craig B. Forster*, hydrogeology

*James P. McCalpin*, neotectonics

*John C. Schmidt*, fluvial geomorphology

*David G. Tarboton*, water resources and hydrology

## Course Descriptions

Geology (GEO), pages 567-571



# Department of Health, Physical Education and Recreation

**Department Head:** Dennis G. Dolny  
**Location:** Health, Physical Education and Recreation 122A  
**Phone:** (435) 797-1498  
**FAX:** (435) 797-3759  
**E-mail:** hper@cc.usu.edu  
**WWW:** http://cehs.usu.edu/hper/

**Graduate Program Coordinator:**  
Julie A. Gast, HPER 138, (435) 797-1490,  
julie.gast@usu.edu

**Undergraduate Academic Advisors:**  
Mary Lou Reynolds, HPER 157, (435) 797-1278,  
marylou.reynolds@usu.edu

Dayna Barrett, HPER 156, (435) 797-8519, dayna.barrett@usu.edu

For student appointments, call (435) 797-1495.

**Degrees offered:** Bachelor of Science (BS) in Health Education Specialist; BS in Parks and Recreation; BS in Physical Education; Master of Science (MS) and Master of Education (MEd) in Health, Physical Education and Recreation

**Undergraduate emphases:** *BS in Health Education Specialist*—School Health and Community Health; *BS in Physical Education*—Exercise Science, Pre-Physical Therapy, and Teaching

**Graduate specializations:** MS—Corporate Wellness, Exercise Science, Sports Medicine, and Health Education

## Undergraduate Programs

### Objectives

#### Undergraduate Programs of Study

The Health, Physical Education and Recreation (HPER) Department offers undergraduate programs of study designed to prepare USU students for successful careers in one of three areas: Health Education Specialist, Physical Education, or Parks and Recreation. Preparation is accomplished through well-rounded, rigorous course requirements.

#### Activity Courses

USU students are served by an extensive elective lifetime-skill activity course program. The number and diversity of courses encourages students to increase their lifetime participation skills and enjoy opportunities, creativity, and expression. Students may also achieve and maintain a high level of personal fitness and adopt a proactive lifestyle conducive to health and well-being.

#### Undergraduate Research Opportunities

Undergraduate students interested in health, physical education and recreation research are encouraged to assist faculty members with grant writing, data collection, data analysis, and report writing. Additionally, students can assist faculty members with submissions of scholarly presentations and articles, as needed.

## Departmental Admission Requirements

### Health Education Specialist Major and Minor

New freshmen, transfer students, and students from other USU majors who have at least a 2.75 total GPA qualify to enter the Health Education Specialist major. Students must formally apply to the School Health minor. Pre-minor coursework must be completed before application to the school health minor.

Pre-minor coursework for the School Health minor includes:

<b>BIOL 2320</b> Human Anatomy (Sp,Su) (4 cr) <b>or</b>	
<b>BIOL 2420</b> Human Physiology (F,Sp,Su) (4 cr).....	4
<b>ENGL 1010 (CL1)</b> Introduction to Writing: Academic Prose (F,Sp,Su) .	3
<b>HEP 2500</b> Health and Wellness (F,Sp,Su) .....	2
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su) (4 cr) <b>or</b>	
<b>STAT 1040 (QL)</b> Introduction to Statistics (F,Sp,Su)	
(or higher) (3 cr) .....	3 or 4
<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition	
(F,Sp,Su) .....	3

For application materials and deadlines, contact the HPER Department Main Office (PE 122).

### Physical Education Major and Minor

New freshmen, transfer students, and other USU majors who have at least a 2.75 total GPA qualify to enter the Physical Education major with a teaching or exercise science emphasis. The pre-physical therapy emphasis requires a 3.0 GPA. A 2.75 total GPA is required for the Physical Education Coaching minor.

### Parks and Recreation Major and Minor

New freshmen, transfer students, and students from other USU majors who have at least a 2.5 total GPA qualify to enter the Parks and Recreation major or minor.

## Course Requirements

### Health Education Specialist Major

The HPER Department offers a program of study leading to a Bachelor of Science degree in Health Education. The program offers two emphasis areas. The **community health** emphasis prepares students to work in state and local health departments, clinical settings, nonprofit health organizations, wellness centers, and private industry. Students in the **school health** emphasis earn a teaching license upon graduation and will primarily teach health courses in middle and high schools. All Health Education Specialist majors will be well-prepared to sit for the nationally recognized Certified Health Education Specialist exam.

#### A. Core Requirements (30 credits)

The following courses are required for all students in **both** the School Health Emphasis *and* the Community Health Emphasis. A grade of C- or higher is required in all HEP courses.

<b>HEP 2000</b> First Aid and Emergency Care (F,Sp,Su) .....	2
<b>HEP 2500</b> Health and Wellness (F,Sp,Su) .....	2
<b>HEP 3000</b> Drugs and Human Behavior (F,Su) .....	3
<b>HEP 3200</b> Consumer Health (F,Su).....	3
<b>HEP 3600 (CI)</b> Introduction to Community Health (F) .....	3
<b>HEP 4200 (QI)<sup>2</sup></b> Planning and Evaluation for Health Education (F).....	3
<b>HEP 5000 (CI)<sup>8,11</sup></b> Race, Culture, Class, and Gender	
Issues in Health (Sp) .....	3

# Department of Health, Physical Education and Recreation

<b>BIOL 2320</b> Human Anatomy (Sp,Su) .....	4
<b>BIOL 2420</b> Human Physiology (F,Sp,Su) .....	4
<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition (F,Sp,Su) .....	3

In addition, students must complete requirements for either the Community Health Emphasis or the School Health Emphasis, and must achieve a C- or better grade in all HEP courses. A 2.75 total GPA is required for graduation.

## Community Health Emphasis (72 credits)

The Community Health emphasis offers a program of study leading to a Bachelor of Science degree as a Health Education Specialist. The emphasis requires a total of 72 credits. Students must complete the Health Education Specialist 30-credit core and the Community Health Education 36-credit core, as well as 6 credits selected from the list of elective courses.

### A. Required Professional Core (36 credits)

<b>HEP 3900</b> <sup>27</sup> Social Marketing in Health Education (Sp) .....	3
<b>HEP 4100</b> <sup>9</sup> Foundations of Community Health (Sp) .....	3
<b>HEP 4400</b> <sup>22</sup> Creative Methods in Teaching Health Education (F,Sp) .....	3
<b>HEP 4600</b> <sup>10</sup> Field Work in Health Education (F,Sp,Su) .....	9
<b>HEP 5300</b> <sup>26</sup> Grant Proposal Writing (Sp) .....	3
<b>INST 5205</b> Computer Applications for Instruction and Training (F,Sp,Su) .....	3
<b>NFS 4480</b> Community Nutrition (F) .....	3
<b>PSY 2800 (QI)</b> <sup>12</sup> Psychological Statistics (F,Sp) .....	3
<b>PUBH 4030</b> <sup>13</sup> Communicable Disease Control (F) .....	3
<b>PUBH 4040</b> <sup>14</sup> Fundamentals of Epidemiology (Sp) .....	3

### B. Elective Courses (select 6 credits)

Students must complete 6 credits of elective courses, taking at least one course from two of the following three areas:

#### Human Nature

<b>ANTH 3110</b> North American Indian Cultures (F) .....	3
<b>ANTH 4230 (DSS)</b> <sup>8</sup> Medical Anthropology: Matter, Culture, Spirit, and Health (Sp) .....	3
<b>FCHD 1500 (BSS)</b> <sup>8</sup> Human Development Across the Lifespan (F,Sp) ..	3
<b>FCHD 3110</b> <sup>16</sup> Human Sexuality (F,Su) .....	3
<b>FCHD 3530</b> <sup>1</sup> Adolescence (F,Sp) .....	3
<b>PSY 1010 (BSS)</b> <sup>8</sup> General Psychology (F,Sp,Su) .....	3
<b>PSY 1100</b> <sup>15</sup> Developmental Psychology: Infancy and Childhood (F,Sp) .....	3
<b>PSY 1210</b> <sup>15</sup> Psychology of Human Adjustment (F,Sp) .....	3
<b>PSY 4240 (DSS)</b> <sup>8,15</sup> Multicultural Psychology (F) .....	3
<b>SOC 3010</b> Social Inequality (F,Sp) .....	3
<b>SOC 3330</b> Medical Sociology (F) .....	3
<b>SOC 4370</b> Sociology of Gender (F) .....	3
<b>SW 2100</b> <sup>17</sup> Human Behavior in the Social Environment (Sp) .....	3

#### Content and Methods in Education

<b>OSS 1400</b> <sup>19</sup> Microcomputer Applications .....	3
<b>OSS 1550 (CI)</b> <sup>8</sup> Business Correspondence .....	3
<b>HEP 3100</b> <sup>22</sup> School Health Programs (F) .....	3
<b>HEP 3400</b> Stress Management (F,Sp) .....	3
<b>HEP 3500</b> Elementary School Health Education (F,Sp) .....	2
<b>HEP 4500</b> <sup>22</sup> Sexuality Education Within the Schools (Sp) .....	3
<b>HEP 5700</b> Special Topics in Health (Arr) .....	1-3
<b>JCOM 1130</b> <sup>20</sup> Beginning Newswriting for the Mass Media (F,Sp,Su) ..	3
<b>JCOM 2220</b> <sup>21</sup> Introduction to Video Media (F,Sp) .....	3
<b>NFS 2020</b> <sup>23</sup> Nutrition Throughout the Life Cycle (Sp) .....	3

<b>PEP 4100 (CI)</b> <sup>24</sup> Exercise Physiology (F,Sp,Su) .....	4
<b>SOC 3750</b> Sociology of Aging (F) .....	3
<b>SPCH 1020 (CI)</b> <sup>8</sup> Public Speaking (F,Sp) .....	3

### Organizational Dynamics in the Family and Community

<b>FCHD 3100</b> <sup>16</sup> Abuse and Neglect in Family Context (F,Sp) .....	3
<b>JCOM 2300</b> Introduction to Public Relations (F,Sp) .....	3
<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su) .....	3
<b>MGT 3820 (DSS)</b> <sup>8</sup> International Management (F,Sp) .....	3
<b>POLS 3810 (DSS)</b> <sup>8</sup> Introduction to Public Policy (F) .....	3
<b>PUBH 3120</b> Family and Community Health (Sp) .....	3
<b>PUBH 3310</b> <sup>25</sup> Occupational Health and Safety (F) .....	3
<b>SPCH 2110 (CI)</b> <sup>8</sup> Interpersonal Communication (F,Sp) .....	3
<b>SPCH 3250 (CI)</b> <sup>8</sup> Organizational Communication (F) .....	3
<b>SW 2400</b> <sup>17</sup> Social Work with Diverse Populations (Sp) .....	3
<b>SW 3750</b> <sup>18</sup> Medical Social Services .....	3

## School Health Emphasis (74 credits)

(only for students desiring teacher licensure)

The School Health emphasis offers a program of study leading to a Bachelor of Science degree as a Health Education Specialist, and is an approved teaching major through the Secondary Education Program of the School of Teacher Education and Leadership (TEAL). It is also necessary for students to complete an approved teaching minor (credits will vary). Students must complete the Health Education Specialist 30-credit core, the School Health Education 9-credit core, and the Secondary Education 35-credit core.

**Note:** Students must be formally accepted into the School Health Emphasis before enrolling for School Health Core Courses.

### A. Required School Health Core (9 credits)

<b>FCHD 1500 (BSS)</b> <sup>8</sup> Human Development Across the Lifespan (F,Sp) ..	3
<b>HEP 3100</b> <sup>5</sup> School Health Programs (F) .....	3
<b>HEP 4500</b> <sup>5</sup> Sexuality Education Within the Schools (Sp) .....	3

### B. Secondary Teacher Education Program (STEP) (35 credits)

#### Level 1 (15-week courses)<sup>3</sup>

<b>INST 3500</b> Technology Tools for Secondary Teachers (F,Sp,Su) .....	1
<b>SCED 3100</b> Motivation and Classroom Management (F,Sp) .....	3
<b>SCED 3210 (CI/DSS)</b> Educational and Multicultural Foundations (F,Sp) .....	3
<b>HEP 3300</b> <sup>5</sup> Clinical Experience I (or minor Clinical Experience I) (F,Sp) .....	1
<b>HEP 4400</b> <sup>7</sup> Creative Methods in Teaching Health Education (F,Sp) (3 cr) <b>or</b> Minor Special Methods Course (3 cr) .....	3

#### Level 2 (15-week courses)<sup>4</sup>

<b>SPED 4000</b> Education of Exceptional Individuals (may be taken anytime) (F,Sp,Su) .....	2
<b>SCED 4200 (CI)</b> Reading, Writing, and Technology (F,Sp) .....	3
<b>SCED 4210</b> Cognition and Evaluation of Student Learning (F,Sp) ..	3
<b>HEP 4300</b> <sup>5</sup> Clinical Experience II (or minor Clinical Experience II) (F,Sp) .....	1
<b>HEP 4400</b> <sup>7</sup> Creative Methods in Teaching Health Education (F,Sp) (3 cr) <b>or</b> Minor Special Methods Course (3 cr) .....	3

#### Level 3 (includes 13 weeks of student teaching and 2 weeks of Student Teaching Seminar)<sup>6</sup>

<b>HEP 5500</b> <sup>5</sup> Student Teaching Seminar (2 weeks) (F,Sp) .....	2
<b>HEP 5630</b> <sup>5</sup> Student Teaching (13 weeks) (F,Sp) .....	10

# Department of Health, Physical Education and Recreation

## School Health Minor (33 credits)

**Note:** This is an approved teaching minor through the Secondary Education Program of the School of TEAL. Students must be formally accepted into the School Health minor before enrolling for the School Health Education Core Courses. Students completing this minor *must* have a teaching major. Applications for the minor are available from the HPER Department. Prior to admission to the minor, the following courses must be completed: ENGL 1010, BIOL 2320 or 2420, HEP 2500, MATH 1050 or STAT 1040 (or higher), and NFS 1020. A grade of C- or higher is required in all HEP courses.

<b>FCHD 1500 (BSS)</b> <sup>8</sup> Human Development Across the Lifespan (F,Sp).....	3
<b>HEP 2000</b> First Aid and Emergency Care (F,Sp,Su) .....	2
<b>HEP 2500</b> Health and Wellness (F,Sp,Su) .....	2
<b>HEP 3000</b> Drugs and Human Behavior (F,Su) .....	3
<b>HEP 3100</b> <sup>5</sup> School Health Programs (F) .....	3
<b>HEP 3200</b> Consumer Health (F,Su).....	3
<b>HEP 3300</b> <sup>5</sup> Clinical Experience I (F,Sp) (1 cr) <b>or</b>	
<b>HEP 4300</b> <sup>5</sup> Clinical Experience II (F,Sp) (1 cr) .....	1
<b>HEP 4400</b> <sup>5</sup> Creative Methods in Teaching Health Education (F,Sp).....	3
<b>HEP 4500</b> <sup>5</sup> Sexuality Education within the Schools (Sp).....	3
<b>HEP 5000 (CI)</b> <sup>8,11</sup> Race, Culture, Class, and Gender Issues in Health (Sp) .....	3
<b>BIOL 2320</b> Human Anatomy (Sp,Su) (4 cr) <b>or</b>	
<b>BIOL 2420</b> Human Physiology (F,Sp,Su) (4 cr).....	4
<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition (F,Sp,Su) .....	3

<sup>1</sup>Prerequisites: Junior standing and FCHD 1500.

<sup>2</sup>Prerequisites: HEP 3600; and STAT 1040 or MATH 1030 (or higher). HEP 3100 or 4100 is recommended prior to taking this course. Senior standing is also recommended.

<sup>3</sup>Prerequisite: Admittance to teacher education program.

<sup>4</sup>Prerequisite: Admission to teacher education program and completion of level 1.

<sup>5</sup>Prerequisite: Formal acceptance into the School Health emphasis or School Health minor.

<sup>6</sup>Prerequisite: Completion of Levels 1 and 2: Student Teaching Placement.

<sup>7</sup>Students in the School Health emphasis must receive formal acceptance into the emphasis prior to taking HEP 4400. During the level in which HEP 4400 is not taken (either Level 1 or Level 2), students should complete a minor special methods course.

<sup>8</sup>Course approved for University Studies credit.

<sup>9</sup>Prerequisite: HEP 2500.

<sup>10</sup>Prerequisites: HEP 3600, 4100, and consent of instructor.

<sup>11</sup>Prerequisite: Junior standing (or higher).

<sup>12</sup>Prerequisite: STAT 1040 (or higher).

<sup>13</sup>It is recommended that BIOL 2060 or 3300; or BIOL 2320 and 2420 be completed prior to taking PUBH 4030.

<sup>14</sup>It is recommended that a course in statistics, such as STAT 3000 or PSY 2800, and PUBH 4030 be completed prior to taking PUBH 4040.

<sup>15</sup>Prerequisite: PSY 1010.

<sup>16</sup>Prerequisites: FCHD 1500, 2400.

<sup>17</sup>Prerequisite: SW 1010.

<sup>18</sup>Prerequisites: SW 1010, 2100, 2400.

<sup>19</sup>Prerequisite: Ability to keyboard at 25 wpm minimum.

<sup>20</sup>Prerequisites: CL1 fulfillment, English Proficiency Test, typing test, passing scores on CIL exams, and permission of Department of Journalism and Communication.

<sup>21</sup>Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010.

<sup>22</sup>Prerequisite: Consent of instructor for students not in the School Health emphasis or the School Health minor.

<sup>23</sup>Prerequisite: NFS 1020.

<sup>24</sup>Prerequisites: BIOL 2320, 2420; and MATH 1050 or ACT score of 25 or higher.

<sup>25</sup>Prerequisite: CHEM 1220.

<sup>26</sup>Prerequisites: HEP 2500, CL2 fulfillment, and passing score on Computer and Information Literacy (CIL) exam.

<sup>27</sup>Prerequisites: HEP 2500 and passing score on Computer and Information Literacy (CIL) exam.

## Parks and Recreation Major (51 credits)

The HPER Department offers a program of study leading to a Bachelor of Science Degree in Parks and Recreation. This program prepares students to become professionals in the areas of public, private, commercial, voluntary, and special service settings of parks and recreation. Graduates of the program will be capable of directing, planning, designing, managing, and administering parks and recreation programs. A 2.5 total GPA is required for graduation.

## A. Parks and Recreation Core Courses (42 credits)

<b>PRP 1000</b> Introduction to Recreation Services (F,Sp).....	3
<b>PRP 3000</b> Designing Recreation Experiences (F,Sp) .....	3
<b>PRP 3025</b> <sup>28</sup> Techniques of Experiential Recreation (F).....	3
<b>PRP 3050</b> <sup>29</sup> Evaluation of Recreation Services (F) .....	3
<b>PRP 3075</b> <sup>30</sup> Applications of Experiential Recreation (Sp).....	3
<b>PRP 3900</b> <sup>31</sup> Diverse Populations (F) .....	3
<b>PRP 4100 (CI)</b> <sup>32</sup> History of Leisure (Sp).....	3
<b>PRP 4500</b> <sup>33</sup> Management of Recreation Services I (F).....	3
<b>PRP 4550</b> <sup>34</sup> Management of Recreation Services II (Sp).....	3
<b>PRP 4700</b> <sup>35</sup> Pre-Internship Seminar (F) .....	3
<b>PRP 4725 (CI)</b> <sup>36</sup> Senior Seminar (Sp) .....	3
<b>PRP 4750</b> <sup>37</sup> Internship in Recreation Services (F,Sp,Su).....	6
<b>INST 5205</b> Computer Applications for Instruction and Training (F,Sp,Su) .....	3

## B. Electives (9 credits)

Select at least 9 credits from the following courses:

<b>PRP 4250</b> Cooperative Work Experience (F,Sp,Su) .....	1-12
<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp) .....	3
<b>HEP 2000</b> First Aid and Emergency Care (F,Sp,Su) .....	2
<b>HEP 3400</b> Stress Management (F,Sp) .....	3
<b>LAEP 1030 (BCA)</b> Introduction to Landscape Architecture (F,Sp,Su) .....	3
<b>SOC 3010</b> Social Inequality (F,Sp).....	3
<b>ENVS 3300</b> Fundamentals of Recreation Resources Management (F).....	3
<b>ENVS 4130</b> Recreation Policy and Planning (Sp).....	3
<b>ENVS 4500 (CI)</b> Wildland Recreation Behavior (F).....	3
<b>ENVS 4600</b> Natural Resource Interpretation (F).....	3
<b>Activity Courses</b> in Physical Education (numbered PE 1000-2000).....	1-3

## C. Additional Requirements

In addition to the above requirements for the major, students must complete a designated minor and 200 hours of documented work experience prior to enrolling in PRP 4750.

## Parks and Recreation Minor

(for students not majoring in Parks and Recreation)

### A. Required Courses (12 credits)

<b>PRP 1000</b> Introduction to Recreation Services (F,Sp).....	3
<b>PRP 3000</b> Designing Recreation Experiences (F,Sp) .....	3
<b>PRP 3025</b> <sup>28</sup> Techniques of Experiential Recreation (F).....	3
<b>PRP 3050</b> <sup>29</sup> Evaluation of Recreation Services (F) .....	3

### B. Elective Courses (9 credits)

Select at least 9 credits from the following courses.

<b>PRP 3075</b> <sup>30</sup> Applications of Experiential Recreation (Sp).....	3
<b>PRP 3900</b> <sup>31</sup> Diverse Populations (F) .....	3
<b>PRP 4100 (CI)</b> <sup>32</sup> History of Leisure (Sp).....	3
<b>PRP 4250</b> Cooperative Work Experience (F,Sp,Su) .....	1-12
<b>PRP 4500</b> <sup>33</sup> Management of Recreation Services I (F).....	3
<b>PRP 4550</b> <sup>34</sup> Management of Recreation Services II (Sp).....	3
<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp) .....	3
<b>HEP 2000</b> First Aid and Emergency Care (F,Sp,Su) .....	2
<b>HEP 3400</b> Stress Management (F,Sp) .....	3
<b>LAEP 1030 (BCA)</b> Introduction to Landscape Architecture (F,Sp,Su) .....	3
<b>SOC 3010</b> Social Inequality (F,Sp).....	3
<b>ENVS 3300</b> Fundamentals of Recreation Resources Management (F).....	3

# Department of Health, Physical Education and Recreation

<b>ENVS 4130</b> Recreation Policy and Planning (Sp).....	3
<b>ENVS 4500 (CI)</b> Wildland Recreation Behavior (F).....	3
<b>ENVS 4600</b> Natural Resource Interpretation (F).....	3
Activity Courses in Physical Education (numbered PE 1000-2000).....	1-3

<sup>28</sup>Prerequisites: PRP 1000 and 3000.

<sup>29</sup>Prerequisites: PRP 1000, 3000; and MATH 1030 or STAT 1040 or a higher MATH or STAT course. Can be taken concurrently with PRP 3025. (PRP 3050 is pending approval for a Quantitative Intensive [QI] University Studies designation.)

<sup>30</sup>Prerequisites: PRP 1000, 3000, 3025, 3050, 4500, 4550. Can be taken concurrently with PRP 4550.

<sup>31</sup>Prerequisite: PRP 1000 (can be taken concurrently).

<sup>32</sup>Prerequisite: PRP 1000 and fulfillment of Communications Literacy CL2 requirement.

<sup>33</sup>Prerequisites: PRP 1000 and 3000.

<sup>34</sup>Prerequisites: PRP 1000, 3000, and 4500.

<sup>35</sup>Prerequisites: PRP1000, 3000, 3025, 3050, 3075, 3900, 4500. Can be taken concurrently with PRP 4500.

<sup>36</sup>Prerequisites: PRP 1000, 3000, 3025, 3050, 3075, 3900, 4500, 4550. Can be taken concurrently with PRP 3075 and 4550. PRP 4725 is approved for a Communications Intensive (CI) University Studies designation.

<sup>37</sup>Prerequisites: PRP 1000, 3000, 3025, 3050, 3075, 3900; 4100, 4500, 4550, 4700, 4725; INST 5205.

## Physical Education Major: Exercise Science Emphasis (58 credits)

A 2.75 total GPA is required for graduation.

### A. Prerequisites (12 credits)

<b>BIOL 2320</b> Human Anatomy (Sp,Su).....	4
<b>BIOL 2420</b> Human Physiology (F,Sp,Su).....	4
<b>MATH 1050 (QL)</b> <sup>38</sup> College Algebra (F,Sp,Su).....	4

### B. Professional Foundation (26 credits)

<b>PEP 2000</b> Introduction and History of Physical Education (F,Sp).....	2
<b>PEP 3000</b> Dynamic Fitness (F,Sp,Su).....	3
<b>PEP 3100</b> Athletic Injuries (F,Sp).....	3
<b>PEP 3250</b> Anatomical Kinesiology (Sp).....	3
<b>PEP 4100 (CI)</b> <sup>39, 55</sup> Exercise Physiology (F,Sp,Su).....	4
<b>PEP 4200 (QI)</b> <sup>39, 54, 55</sup> Biomechanics (F,Sp,Su).....	4
<b>PEP 4400 (QI)</b> <sup>54, 55</sup> Evaluation in Physical Education (F,Sp).....	3
<b>PEP 5100</b> <sup>58</sup> Fitness Assessment and Exercise Programs.....	4

### C. Professional Development (17 credits)

#### HPER (7 credits minimum)

<b>HEP 2000</b> First Aid and Emergency Care (F,Sp,Su).....	2
<b>HEP 2500</b> Health and Wellness (F,Sp,Su).....	2
<b>HEP 3200</b> Consumer Health (F,Su).....	3
<b>HEP 3400</b> Stress Management (F,Sp).....	3
<b>PEP 4000</b> Mental Aspects of Sports Performance (F,Sp,Su).....	3
<b>PEP 5070</b> Sport Sociology (Sp).....	3
<b>PEP 5430 (CI)</b> <sup>53</sup> The History and Philosophy of Physical Education (F).....	3

#### Biology (4 credits minimum, including lab)

<b>BIOL 1010 (BLS)</b> Biology and the Citizen (F,Sp,Su).....	3
<b>BIOL 1020</b> Biological Discovery: A Lab Course (F,Sp).....	1
<b>BIOL 1610</b> Biology I (F).....	4
<b>BIOL 1620 (BLS)</b> <sup>40</sup> Biology II (Sp).....	4
<b>BIOL 2060</b> Elementary Microbiology (F).....	4
<b>BIOL 3060 (QI)</b> <sup>41, 54</sup> Principles of Genetics (F,Sp,Su).....	4
<b>BIOL 3300</b> <sup>42</sup> General Microbiology (F,Sp).....	4

#### Chemistry (3 credits minimum)

<b>CHEM 1010 (BPS)</b> Introduction to Chemistry (F,Sp).....	3
<b>CHEM 1110 (BPS)</b> <sup>57</sup> General Chemistry I (F,Sp).....	4
<b>CHEM 1115</b> <sup>44</sup> General Chemistry Laboratory (F,Sp).....	1
<b>CHEM 1120 (BPS)</b> <sup>44</sup> General Chemistry II (Sp).....	4

<b>CHEM 1210</b> <sup>45</sup> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> <sup>46</sup> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 1220 (BPS)</b> <sup>47</sup> Principles of Chemistry II (F,Sp,Su).....	4
<b>CHEM 1225</b> <sup>48</sup> Chemical Principles Laboratory II (F,Sp).....	1

### Integrated (3 credits minimum)

<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition (F,Sp,Su).....	3
<b>NFS 3020</b> <sup>43</sup> Nutrition and Physical Performance (F).....	2
<b>PHYS 1100 (BPS)</b> Great Ideas in Physics.....	3
<b>PHYS 1200 (BPS)</b> Introduction to Physics by Hands-on Exploration.....	4
<b>PHYS 2110</b> <sup>49</sup> The Physics of Living Systems I.....	4
<b>PHYS 2120 (BPS)</b> <sup>50</sup> The Physics of Living Systems II.....	4
<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su).....	3
<b>PSY 2100</b> <sup>51</sup> Developmental Psychology: Adolescence (Sp).....	3
<b>PSY 2800 (QI)</b> <sup>52</sup> Psychological Statistics (F,Sp).....	3
<b>PSY 3210 (DSS)</b> Abnormal Psychology (F,Sp).....	3
<b>STAT 1040 (QL)</b> <sup>56</sup> Introduction to Statistics (F,Sp,Su).....	3

### D. Skill Development (3 credits)

Three different physical education activity courses, numbered from PE 1000 to PE 2120 (F,Sp,Su).....	3
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<sup>38</sup>Math ACT score of at least 23, C or better in MATH 1010, or satisfactory AP calculus or Math Placement Test score is a prerequisite for this course.

<sup>39</sup>BIOL 2320, 2420; and MATH 1050 or ACT score of 25 or higher are prerequisites for this course.

<sup>40</sup>BIOL 1610 is a prerequisite for this course.

<sup>41</sup>BIOL 1610; and CHEM 1110 or 1210 are prerequisites for this course.

<sup>42</sup>BIOL 1610 (with a grade of C- or better); and CHEM 1120 or 2300 or 2310 (may be taken concurrently) are prerequisites for this course.

<sup>43</sup>NFS 1020 is a prerequisite for this course.

<sup>44</sup>CHEM 1110 is a prerequisite for this course.

<sup>45</sup>MATH 1050 or higher (may be taken concurrently), or Math ACT score of at least 25, is a prerequisite for this course.

<sup>46</sup>CHEM 1210 must be taken previously or concurrently.

<sup>47</sup>CHEM 1210 is a prerequisite for this course.

<sup>48</sup>CHEM 1215 is a prerequisite for this course.

<sup>49</sup>MATH 1100 or 1210 is a prerequisite for this course.

<sup>50</sup>MATH 1100 or 1210, and PHYS 2110 are prerequisites for this course.

<sup>51</sup>PSY 1010 is a prerequisite for this course.

<sup>52</sup>STAT 1040 is a prerequisite for this course.

<sup>53</sup>This course is approved for Communications Intensive (CI) University Studies credit.

<sup>54</sup>This course is approved for Quantitative Intensive (QI) University Studies credit.

<sup>55</sup>Admission to the Physical Education Major is required prior to enrolling in this course.

<sup>56</sup>Math ACT score of 23 or greater, or C or better in MATH 1010, or satisfactory score on Math Placement Test is a prerequisite for this course.

<sup>57</sup>Math ACT score of at least 23, or MATH 1050 or higher (may be taken concurrently), is a prerequisite for this course.

<sup>58</sup>PEP 4100 is a prerequisite for this course.

## Physical Education Major: Pre-Physical Therapy Emphasis (76 credits)

Please note that it is the student's responsibility to check with the individual physical therapy schools concerning courses required for admission. Completion of Utah State University's Department of HPER Pre-Physical Therapy emphasis will *not guarantee* admission into physical therapy school. A 3.0 total GPA is required to graduate.

### A. Prerequisites (15 credits)

<b>BIOL 2320</b> Human Anatomy (Sp,Su).....	4
<b>BIOL 2420</b> Human Physiology (F,Sp,Su).....	4
<b>MATH 1050 (QL)</b> <sup>59</sup> College Algebra (F,Sp,Su).....	4
<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su).....	3

### B. Professional Foundations (30 credits)

<b>PEP 2020</b> Introduction to Physical Therapy (F).....	2
<b>PEP 3000</b> Dynamic Fitness (F,Sp,Su).....	3
<b>PEP 3100</b> Athletic Injuries (F,Sp).....	3
<b>PEP 3250</b> Anatomical Kinesiology (Sp).....	3
<b>PEP 4100 (CI)</b> <sup>60, 75</sup> Exercise Physiology (F,Sp,Su).....	4
<b>PEP 4200 (QI)</b> <sup>60, 74, 75</sup> Biomechanics (F,Sp,Su).....	4
<b>PEP 4250</b> Advanced Cooperative Work Experience (F,Sp,Su).....	4

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PEP 4400 (QI) <sup>74, 79</sup> Evaluation in Physical Education (F,Sp) .....	3
PEP 5100 Fitness Assessment and Exercise Programs (prerequisite: PEP 4100) (F).....	4

## C. Professional Development (30-31 credits)

### Biology (4 credits minimum, including lab)

BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su).....	3
BIOL 1020 Biological Discovery: A Lab Course (F,Sp).....	1
BIOL 1610 Biology I (F).....	4
BIOL 1620 (BLS) <sup>61</sup> Biology II (Sp) .....	4
BIOL 3060 (QI) <sup>62, 74</sup> Principles of Genetics (F,Sp,Su).....	4
BIOL 3300 <sup>63</sup> General Microbiology (F,Sp).....	4

### Chemistry (9 credits minimum)

CHEM 1110 (BPS) <sup>76</sup> General Chemistry I (F,Sp) .....	4
CHEM 1115 <sup>77</sup> General Chemistry Laboratory (F,Sp).....	1
CHEM 1120 (BPS) <sup>78</sup> General Chemistry II (Sp).....	4
Or	
CHEM 1210 <sup>64</sup> Principles of Chemistry I (F,Sp) .....	4
CHEM 1215 <sup>65</sup> Chemical Principles Laboratory I (F,Sp).....	1
CHEM 1220 (BPS) <sup>66</sup> Principles of Chemistry II (F,Sp,Su).....	4
CHEM 1225 <sup>67</sup> Chemical Principles Laboratory II (F,Sp).....	1

### Mathematics and Statistics (6 credits minimum)

Choose one course from the following:

MATH 1100 (QL) <sup>68</sup> Calculus Techniques (higher-numbered course may be substituted) (F,Sp,Su).....	3
MATH 1210 (QL) <sup>68</sup> Calculus I (F,Sp,Su).....	4

Choose one course from the following:

STAT 2000 (QI) <sup>69</sup> Statistical Methods (F,Sp) .....	3
STAT 2300 (QL) <sup>69</sup> Business Statistics (F,Sp,Su).....	4
STAT 3000 (QI) <sup>70</sup> Statistics for Scientists (F,Sp,Su).....	3

### Physics (8 credits minimum)

PHYS 2110 <sup>71</sup> The Physics of Living Systems I.....	4
PHYS 2120 (BPS) <sup>72</sup> The Physics of Living Systems II.....	4

### Psychology (3 credits minimum)

PSY 1210 <sup>73</sup> Psychology of Human Adjustment (F,Sp) .....	3
PSY 2100 <sup>73</sup> Developmental Psychology: Adolescence (Sp) .....	3
PSY 3210 <sup>73</sup> (DSS) Abnormal Psychology (F,Sp).....	3

<sup>59</sup>Math ACT score of at least 23, C or better in MATH 1010, or satisfactory AP calculus or Math Placement Test score is a prerequisite for this course.

<sup>60</sup>BIOL 2320, 2420; and MATH 1050 or ACT score of 25 or higher are prerequisites for this course.

<sup>61</sup>BIOL 1610 is a prerequisite for this course.

<sup>62</sup>BIOL 1610; and CHEM 1110 or 1210 are prerequisites for this course.

<sup>63</sup>BIOL 1610 (with a grade of C- or better); and CHEM 1120 or 2300 or 2310 (may be taken concurrently) are prerequisites for this course.

<sup>64</sup>MATH 1050 (may be taken concurrently), or Math ACT score of at least 25, is a prerequisite for this course.

<sup>65</sup>CHEM 1210 must be taken previously or concurrently.

<sup>66</sup>CHEM 1210 is a prerequisite for this course.

<sup>67</sup>CHEM 1215 is a prerequisite for this course.

<sup>68</sup>C- or better in MATH 1050, or a Math ACT score of at least 25, is a prerequisite for MATH 1100; C- or better in MATH 1050 and 1060, or an AP Calculus score of at least 3 on the AB test or a Math ACT score of at least 27, are prerequisites for MATH 1210.

<sup>69</sup>C- or better in MATH 1050 is a prerequisite for this course.

<sup>70</sup>MATH 1100 or 1210 is a prerequisite for this course.

<sup>71</sup>MATH 1100 or 1210 is a prerequisite for this course.

<sup>72</sup>MATH 1100 or 1210, and PHYS 2110 are prerequisites for this course.

<sup>73</sup>PSY 1010 is a prerequisite for this course.

<sup>74</sup>This course is approved for Quantitative Intensive (QI) University Studies credit.

<sup>75</sup>Admission to the Physical Education Major is required prior to enrolling in this course.

<sup>76</sup>Math ACT score of at least 23, or MATH 1050 or higher (may be taken concurrently), is a prerequisite for this course.

<sup>77</sup>CHEM 1110 must be taken previously.

<sup>78</sup>CHEM 1110 is a prerequisite for this course.

<sup>79</sup>Enrollment in PEP 4400 is available *only* to students who have been accepted into the Physical Education major

## Physical Education Major: Teaching Emphasis (K-12) (90 credits)

Students also need to complete a teaching minor. A 2.75 total GPA is required for graduation.

**Note:** This is an approved teaching major through the Secondary Education Program of the School of TEAL.

### A. Prerequisites (17 credits)

BIOL 2320 Human Anatomy (Sp,Su) .....	4
BIOL 2420 Human Physiology (F,Sp,Su) .....	4
MATH 1050 (QL) <sup>60</sup> College Algebra (F,Sp,Su) .....	4
HEP 2000 First Aid and Emergency Care (F,Sp,Su) .....	2
PEP 3000 Dynamic Fitness (F,Sp,Su).....	3

### B. Skill Development (5 credits)

PEP 2100 Skills 1 (Swimming, Volleyball, Football) (F,Sp) .....	1
PEP 2200 Skills 2 (Noncompetitive Lifetime Activities) (F,Sp,Su) .....	1
PEP 2300 Skills 3 (Softball, Basketball, Soccer) (F,Sp) .....	1
PEP 2400 Skills 4 (Tennis, Badminton, Track and Field) (F,Sp).....	1
PEP 2500 Rhythms and Movement (F,Sp).....	1

### C. Professional Development (11 credits)

PEP 2000 Introduction and History of Physical Education (F,Sp) .....	2
PEP 3050 Physical Education in the Elementary School (F,Sp,Su).....	3
PEP 3100 Athletic Injuries (F,Sp).....	3
PEP 3200 (CI) <sup>87, 91</sup> Motor Learning and Technology in Skill Analysis (F,Sp,Su).....	3

### D. Methods of Teaching (3 credits)

PEP 3550 Strategies for Teaching Physical Education (F,Sp).....	3
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### E. Professional Foundations (16 credits)

PEP 4000 Mental Aspects of Sports Performance (F,Sp,Su).....	3
PEP 4100 (CI) <sup>81, 91</sup> Exercise Physiology (F,Sp,Su).....	4
PEP 4200 (QI) <sup>84, 90, 91</sup> Biomechanics (F,Sp,Su).....	4
PEP 4350 Administration and Classroom Management of Physical Education (F,Sp) .....	2
PEP 4400 (QI) <sup>90</sup> Evaluation in Physical Education (F,Sp).....	3

### F. Methods of Coaching (3 credits)

PEP 4500 <sup>82</sup> Motivational Strategies for Physical Education and Coaching (Sp) .....	3
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## G. Secondary Teacher Education Program (STEP) (35 credits)

**Note:** Acceptance into the STEP is required prior to enrolling in the courses listed below. Students must take a minor Special Methods Course and Clinical Experience, which may be completed during Level 1 or Level 2.

### Level 1 (15-week courses)

INST 3500 Technology Tools for Secondary Teachers (F,Sp,Su).....	1
SCED 3100 Motivation and Classroom Management (F,Sp) .....	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp).....	3
Clinical Experience I (in minor) <sup>83</sup> .....	1
Methods of Teaching (in minor) <sup>84</sup> .....	3

### Level 2 (15-week courses)

SPED 4000 Education of Exceptional Individuals (may be taken anytime) (F,Sp,Su).....	2
SCED 4200 (CI) Reading, Writing, and Technology (F,Sp) .....	3
SCED 4210 Cognition and Evaluation of Student Learning (F,Sp) .....	3
PEP 4300 <sup>85</sup> Clinical Experience II (F,Sp).....	1
PEP 4900 (CI) <sup>86, 87</sup> Methods of Physical Education (F,Sp,Su).....	3

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## Level 3 (includes 13 weeks of student teaching and 2 weeks of Student Teaching Seminar)

PEP 5500 <sup>88</sup> Student Teaching Seminar (2 weeks) (F,Sp).....	2
PEP 5630 <sup>89</sup> Student Teaching in Secondary Schools (13 weeks) (F,Sp) .....	10

<sup>80</sup>Math ACT score of at least 23, C or better in MATH 1010, or satisfactory AP calculus or Math Placement Test score is a prerequisite for this course.

<sup>81</sup>BIOL 2320, 2420; and MATH 1050 or ACT score of 25 or higher are prerequisites for this course.

<sup>82</sup>HEP 2000 (which may be taken concurrently) should be completed prior to taking this course.

<sup>83</sup>Clinical Experience I is taught under course number 3300 in various departments. Must be taken concurrently with Methods of Teaching in minor.

<sup>84</sup>Methods of Teaching courses are taught under various course numbers in various departments. Must be taken concurrently with Clinical Experience I in minor.

<sup>85</sup>Must be taken concurrently with PEP 4900.

<sup>86</sup>PEP 3550 is a prerequisite for this course.

<sup>87</sup>This course is approved for Communications Intensive (CI) University Studies credit.

<sup>88</sup>Must be taken concurrently with PEP 5630.

<sup>89</sup>Must be taken concurrently with PEP 5500. Application for student teaching must be completed. Applications are available in EDUC 330.

<sup>90</sup>This course is approved for Quantitative Intensive (QI) University Studies credit.

<sup>91</sup>Admission to the Physical Education Major is required prior to enrolling in this course.

## Physical Education Coaching Minor

This minor requires 28 credits, plus 17 credits of prerequisites and the 35-credit Secondary Teacher Education Program (STEP).

### A. Required Prerequisites (17 credits)

BIOL 2320 Human Anatomy (Sp,Su) .....	4
BIOL 2420 Human Physiology (F,Sp,Su) .....	4
MATH 1050 (QL) <sup>92</sup> College Algebra (F,Sp,Su) .....	4
HEP 2000 First Aid and Emergency Care (F,Sp,Su) .....	2
PEP 3000 Dynamic Fitness (F,Sp,Su) .....	3

### B. Skill Development (select 3 credits)

PEP 2100 Skills 1 (Swimming, Volleyball, Football) (F,Sp) .....	1
PEP 2200 Skills 2 (Noncompetitive Lifetime Activities) (F,Sp,Su) .....	1
PEP 2300 Skills 3 (Softball, Basketball, Soccer) (F,Sp) .....	1
PEP 2400 Skills 4 (Tennis, Badminton, Track and Field) (F,Sp) .....	1
PEP 2500 Rhythms and Movement (F,Sp) .....	1

### C. Professional Foundation (18 credits)

PEP 3100 Athletic Injuries (F,Sp) .....	3
PEP 3200 (CI) <sup>95, 97</sup> Motor Learning and Technology in Skill Analysis (F,Sp,Su) .....	3
PEP 4000 Mental Aspects of Sports Performance (F,Sp,Su) .....	3
PEP 4100 (CI) <sup>93, 97</sup> Exercise Physiology (F,Sp,Su) .....	4
PEP 4350 Administration and Classroom Management of Physical Education (F,Sp) .....	2
PEP 4400 (QI) <sup>96, 97</sup> Evaluation in Physical Education (F,Sp) .....	3

### D. Methods of Teaching (3 credits)

PEP 3550 Strategies for Teaching Physical Education (F,Sp) .....	3
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### E. Methods of Coaching (4 credits)

PEP 2050 Sport Rules and Regulations of the Utah High School Athletic Association (Sp) .....	1
PEP 4500 <sup>94</sup> Motivational Strategies for Physical Education and Coaching (Sp) .....	3

### F. Secondary Teacher Education Program (STEP) (35 credits)

PEP 4900, Methods of Physical Education, and PEP 3300, Clinical Experience I, should be taken as part of the STEP.

<sup>92</sup>Math ACT score of at least 23, C or better in MATH 1010, or satisfactory AP calculus or Math Placement Test score is a prerequisite for this course.

<sup>93</sup>BIOL 2320, 2420; and MATH 1050 or ACT score of 25 or higher are prerequisites for this course.

<sup>94</sup>HEP 2000 (which may be taken concurrently) should be completed prior to taking this course.

<sup>95</sup>This course is approved for Communications Intensive (CI) University Studies credit.

<sup>96</sup>This course is approved for Quantitative Intensive (QI) University Studies credit.

<sup>97</sup>Admission to the Physical Education Coaching Minor is required prior to enrolling in this course.

## Suggested Four-year Plans

Suggested semester-by-semester four-year plans for students working toward a bachelor's degree within the Health, Physical Education and Recreation Department can be found at:

<http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

Updated information concerning undergraduate courses and major or minor requirements can be obtained from the HPER Department, or check the departmental home page at: <http://cehs.usu.edu/hper/>

Major requirement sheets, which provide detailed information about requirements for departmental majors, can be obtained from the department, or accessed online at:

<http://www.usu.edu/majorsheets/>

## Financial Support

The Emma Eccles Jones College of Education and Human Services distributes scholarship applications beginning in January of each academic year. For information on those scholarships awarded by the HPER Department, visit the departmental office in HPER 122, or check the departmental home page at: <http://cehs.usu.edu/hper/>

## Assessment

### Health Education Specialist Major Assessment

The Health Education Specialist major curriculum is based on the National Commission of Health Education Credentialing (NCHEC) seven responsibility areas for entry-level health educators. As such, each course is evaluated on a yearly basis to determine if it is meeting student needs, based on NCHEC guidelines. Coursework prepares graduating students to successfully sit for the Certified Health Education Specialist exam. Additionally, exit surveys and interviews are given to students to better assess the curriculum and the learning needs of the students. To further assess curriculum needs, follow-up surveys are sent to students one year after they graduate.

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## Physical Education Major Assessment

The Physical Education major curriculum is based on the standards and benchmarks of the National Association for Sport and Physical Education (NASPE). Each course is matrixed against the standards to assure quality in curriculum content. A number of assessments are available for exiting students, including Praxis 2 and a number of certifications of the American College of Sports Medicine (ACSM). Exit surveys and interviews are conducted annually, as well as post-graduation surveys.

## Parks and Recreation Major Assessment

The Parks and Recreation major curriculum is accredited by the National Council on Accreditation of the National Recreation and Park Association (NRPA). To assure compliance with the national standards, the curriculum is evaluated annually. Students are eligible to sit for the National Certification Examination. Exit surveys and interviews are conducted yearly, as well as post-graduation surveys.

Additional assessment information can be found at:  
<http://cehs.usu.edu/hper/>

## Graduate Programs

Please refer to the general admission requirements on pages 36-37 of this catalog. In addition, the letters of recommendation must be written by professionals in health or physical education who know the applicant and his/her work well. Students with fewer than 12 credits of undergraduate health or physical education coursework must make up any deficiencies before being granted matriculated status. Basic competencies that have not been acquired through courses or experience may be obtained by completing prerequisite undergraduate courses without credit. Other nongraduate credit courses may be required by the admissions committee. Students with weak oral or written English skills will be required to take remedial work or complete undergraduate or intensive English classes.

## Degree Programs

### Master of Science

The MS is available for students who plan to teach, provide community leadership, or do further graduate or research study.

### Master of Education in Health, Physical Education and Recreation

The MEd is designed for students desiring to improve teaching competencies.

## Specializations

MS students may select an area of emphasis for research and study from the following specializations: Corporate Wellness, Exercise Science, Sports Medicine, and Health Education.

## Course Requirements

### Corporate Wellness Specialization (40 credits)

MS candidates specializing in **Corporate Wellness** must complete the following courses. (This specialization is a Plan C nonthesis option.)

#### Required Core Courses (13 credits)

PEP 6400 Exercise in Health, Fitness, and Sport (F)	4
PEP 6800 Biomechanics and Ergonomics of Health, Industry, and Sport (Sp)	3
PEP 6810 Research Methods in Health Sciences (F)	3
EDUC/PSY 6600 Research Design and Analysis I (F,Sp,Su)	3

### Corporate Wellness Specialization Requirements (15 credits)

PEP 6450 Fitness Assessment and Exercise Testing (Sp)	3
PEP 6500 Practicum in Corporate Wellness (on campus, complete 1 credit per semester) (F,Sp,Su)	2
PEP 6500 Practicum in Corporate Wellness (remote site) (F,Sp,Su)	4
PEP 6540 Wellness Programming (Sp)	3
PSY 6470 Health Psychology (F)	3

### Corporate Wellness Specialization Electives (select 12 credits)

HEP 6000 Evaluating Health-Promotion Programs (Sp)	3
HEP 6100 Current Trends in Health Promotion (F)	3
PEP 5100 Fitness Assessment and Exercise Programs (F)	4
NFS 3020 Nutrition and Physical Performance (F)	2
NFS 6200 Nutritional Epidemiology (F)	2
NFS 6210 Advanced Public Health Nutrition (Sp)	2
SOC 6400 Sociology of Health (F)	3

### Exercise Science Specialization (30 credits)

MS candidates specializing in **Exercise Science** must complete the following courses. (This specialization is a Plan A thesis option.)

#### Required Core Courses (13 credits)

PEP 6400 Exercise in Health, Fitness, and Sport (F)	4
PEP 6800 Biomechanics and Ergonomics of Health, Industry, and Sport (Sp)	3
PEP 6810 Research Methods in Health Sciences (F)	3
EDUC/PSY 6600 Research Design and Analysis I (F,Sp,Su)	3

### Exercise Science Specialization Requirements (9 credits)

PEP 6540 Wellness Programming (Sp)	3
PEP 6970 Thesis (F,Sp,Su)	6

### Exercise Science Specialization Electives (select 8 credits)

BIOL 4000 Human Dissection (F)	1
EDUC/PSY 7610 Research Design and Analysis II (F,Sp,Su)	3
HEP 6100 Current Trends in Health Promotion (F)	3
NFS 3020 Nutrition and Physical Performance (F)	2
NFS 6200 Nutritional Epidemiology (F)	2
NFS 6210 Advanced Public Health Nutrition (Sp)	2
PEP 5100 Fitness Assessment and Exercise Programs (F)	4
PEP 6450 Fitness Assessment and Exercise Testing (Sp)	3
PSY 6470 Health Psychology (F)	3

### Sports Medicine Specialization

#### (thesis track: 31 credits; nonthesis track: 33 credits)

MS candidates specializing in **Sports Medicine** must complete the following courses.

EDUC/PSY 6600 Research Design and Analysis I (F,Sp,Su)	3
PEP 6400 Exercise in Health, Fitness, and Sport (F)	4
PEP 6550 Athletic Training Clinical Orthopedics I (F)	3
PEP 6560 Athletic Training Clinical Orthopedics II (Sp)	3
PEP 6570 Athletic Training Clinical Orthopedics III (F)	3
PEP 6580 Athletic Training Clinical Orthopedics IV (Sp)	3
PEP 6800 Biomechanics and Ergonomics of Health, Industry, and Sport (Sp)	3
PEP 6810 Research Methods in Health Sciences (F)	3
PEP 6970 Thesis (for thesis track <i>only</i> ) (F,Sp,Su)	(6)

For nonthesis track, select at least 8 credits from the following electives (*instead of* taking PEP 6970).

NFS 3020 Nutrition and Physical Performance (F)	2
PEP 5100 Fitness Assessment and Exercise Programs (F)	4
PEP 6450 Fitness Assessment and Exercise Testing (Sp)	3
PEP 6540 Wellness Programming (Sp)	3

# Department of Health, Physical Education and Recreation

## Health Education Specialization (24-32 credits)

MS candidates specializing in *Health Education* must complete the following courses.

### Required Core Courses (23 credits)

<b>EDUC 6570</b> Introduction to Educational and Psychological Research (F,Sp,Su) .....	3
<b>EDUC 6600</b> Measurement, Design, and Analysis I (F,Sp,Su) .....	3
<b>HEP 6000</b> Evaluating Health-Promotion Programs (Sp) .....	3
<b>HEP 6100</b> Current Trends in Health Promotion (F) .....	3
<b>HEP 6600</b> Field Work in Health Education (F,Sp,Su) .....	2
<b>HEP 6800</b> Seminar in Health Behavior (F) .....	3
<b>HEP 6970</b> Thesis (F,Sp,Su) .....	6

### Health Education Specialization Electives (select 7 credits)

<b>FCHD 6020</b> Survey of Human Development Research (Sp) .....	3
<b>FCHD 6060</b> Human Development Theories (F) .....	3
<b>HEP 6300</b> Stress Management (Arr) .....	3
<b>HEP 6700</b> Special Topics in Health (Arr) .....	1-6
<b>HEP 6900</b> Independent Study (F,Sp,Su) .....	1-3
<b>HEP 6950</b> Independent Research (F,Sp,Su) .....	1-3
<b>INST 5230</b> Instructional Graphic Production (F,Su) .....	3
<b>INST 6350</b> Instructional Design Process (F) .....	3
<b>MGT 6370</b> Project Management .....	3
<b>NFS 6200</b> Nutritional Epidemiology (F) .....	2
<b>NFS 6210</b> Advanced Public Health Nutrition (Sp) .....	2
<b>PEP 6290</b> Corporate Wellness Marketing (Sp) .....	3
<b>PEP 6400</b> Exercise in Health, Fitness, and Sport (Arr) .....	4
<b>PEP 6540</b> Wellness Programming (Sp) .....	3
<b>PSY 6470</b> Health Psychology (F) .....	3
<b>PSY 7700</b> Grant Writing (Sp) .....	3
<b>PUBH 4030</b> Communicable Disease Control (F) .....	3
<b>PUBH 4040</b> Fundamentals of Epidemiology (Sp) .....	3
<b>PUBH 4310</b> Industrial Hygiene Recognition of Hazards (F) .....	4
<b>PUBH 4330</b> Industrial Hygiene Physical Hazards (Sp) .....	3
<b>SOC 6460</b> Sociology of Health (F) .....	3

Other courses may be selected on the basis of a student's need and interests, subject to the approval of the student's committee.

MEd candidates must complete the following courses:

<b>TEAL 6710</b> Diversity in Education (Sp,Su) .....	3
<b>PEP 6000</b> Administration of Athletics (Arr) .....	3
<b>PEP 6010</b> Leadership in Health, Physical Education, and Recreation (Sp) .....	3
<b>PEP 6050</b> Psychological Aspects of Sports Performance (Arr) .....	3
<b>PEP 6070</b> Sport in Society (Sp) .....	3
<b>PEP 6420</b> Curriculum in Physical Education (F) .....	3
<b>PEP 6430</b> History and Philosophy of Physical Education and Sport (F) .....	3
<b>PEP 6700</b> Special Topics in Physical Education (F,Sp,Su) .....	3
<b>PEP 6810</b> Research Methods in Health Sciences (F) .....	3
<b>PEP 6830</b> Motor Learning (Sp) .....	3
<b>PEP 6960</b> Master's Project (F,Sp,Su) .....	3
<b>PEP 7550</b> Practicum in the Evaluation of Instruction (F,Sp,Su) .....	3

## Research

Research areas include health promotion, health education, exercise science, corporate wellness, sport psychology, sport in society, biomechanics, and pedagogy. Research laboratories include the Motion Analysis Lab, the Biomechanics Lab, the Exercise Physiology Lab, the Body Composition Lab, and the Sport Medicine Lab.

## Financial Assistance

Teaching and research assistantships are available through the HPER Department and are awarded on a competitive basis. Application for the assistantships must be made by March 15 to the department head. A formal application for admission must be submitted to the School of Graduate Studies at the same time as the application for an assistantship. A recipient of a graduate assistantship is usually eligible for a waiver for the out-of-state portion of his or her tuition for the first fiscal year. For additional financial assistance information, check the departmental home page at: <http://cehs.usu.edu/hper/>

## Additional Information

Additional and/or updated information about graduate courses and programs may be obtained from the HPER Department, or check the departmental home page at: <http://cehs.usu.edu/hper/>

## Health, Physical Education and Recreation Faculty

### Professors

*Dennis G. Dolny*, Head, Health, Physical Education and Recreation Department

*Richard D. Gordin, Jr.*, sport psychology

*Edward M. Heath*, exercise physiology

*Gerald A. Smith*, biomechanics

### Associate Professors

*Eadric Bressel*, biomechanics

*Hilda Fronske*, motor learning

*Julie A. Gast*, community health

*Donna L. Gordon*, community health

*John M. Kras*, administration of physical education

*Dennis A. Nelson*, parks and recreation

*Phillip Waite*, community health

*Rolayne Wilson*, elementary physical education

### Nontenure Assistant Professors

*Ginni Dilworth*, parks and recreation

*Mark Roark*, parks and recreation

*Dale Wagner*, exercise physiology

### Principal Lecturer

*Peter J. Mathesius*, physical education

### Senior Lecturer

*Matthew Flint*, health education

## Course Descriptions

Health Education Professional (HEP), pages 574-576

Physical Education Professional (PEP), pages 628-630

Parks and Recreation Professional (PRP), page 641

Physical Education Activity (PE), pages 624-628

Dance West Summer, Dance Education Classes (DE), pages 540-541



# Department of History

**Department Head:** Norman L. Jones

**Location:** Main 323

**Phone:** (435) 797-1290

**FAX:** (435) 797-3899

**E-mail:** monica.ingold@usu.edu

**WWW:** <http://www.usu.edu/history>

**Graduate Program Coordinator:** Christopher A. Conte,  
Main 323G, (435) 797-1303, [chris.conte@usu.edu](mailto:chris.conte@usu.edu)

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), Master of Arts (MA) in History; participates in Master of Social Sciences (MSS)

## Undergraduate Programs

### Objectives

The Department of History offers a flexible program to accomplish the following objectives:

1. To train undergraduates to research, analyze, synthesize, and communicate reasonable conclusions about the past by using the historical method.
2. To teach cultural literacy and provide the knowledge necessary for informed decision-making by citizens of Utah, the United States, and the world.
3. To provide students with crucial work skills in research, analysis, communication, and collaboration, while enriching their lives.
4. To contribute to the liberal arts curriculum of the University through general education, general interest courses, the history major, the history teaching emphasis, minors in history and classics, and the interdisciplinary programs of folklore, religious studies, American studies, and British and commonwealth studies.

History is a reading- and writing-intensive program.

### Requirements

#### Transfer Students

The History Department accepts all history courses taught by institutions within the Utah System of Higher Education. Students who are transferring may wish to consult the online *Advisor Handbook* for articulation information for the institution from which they are transferring. This information can be found at:

[http://www.usu.edu/advising/for\\_advisors/handbook/2007-2008](http://www.usu.edu/advising/for_advisors/handbook/2007-2008)

#### AP Credit

The History Department *does not* accept AP credit for use toward its degrees. However, if a student has passed an AP exam with a score of 3 or better, the equivalent lower-division course will be waived, and the student can complete the equivalent number of credits in an upper-division course. This waiver *does not* apply to students enrolled in the History Teaching Emphasis.

### Departmental Requirements

New freshmen accepted in good standing by the University may apply for admission to the History Department. Students transferring from another institution or another major will be admitted if they have a minimum 2.5 GPA in history courses and an overall minimum GPA of 2.5. A minimum 2.75 GPA is required for entry into the teacher education program.

Since history can be classified in *both* the humanities *and* the social sciences, majors may receive either a Bachelor of Arts (BA) or a Bachelor of Science (BS) degree. However, because history primarily involves the study of written documents, the department encourages students to choose the BA, which requires proficiency in a foreign language.

Candidates for a degree must earn a grade of C or better in all history courses used to meet the requirements for a history major or minor, a history teaching emphasis or teaching minor, or a classics minor.

#### Bachelor of Arts Language Track

The BA degree requires a minimum proficiency in a foreign language. This proficiency may be established in one of the following ways:

1. 16 credits in a single language.
2. Documentation of a proficiency level of "intermediate low" or better through an examination administered by the USU Department of Languages, Philosophy, and Speech Communication.
3. Completion of any upper-division foreign language course constituting a third-year course of study with a grade of C or better.

**Note:** Demonstration of proficiency in American Sign Language will *not* meet the foreign language requirement for the BA degree in history.

#### Bachelor of Science Mathematics and Science Track

For those interested in a BS degree, a significant amount of coursework in the College of Science is required. These courses must contribute significantly to an understanding of science and the scientific method. Therefore, students must complete 8 credits in one of the following course pairs: BIOL 1610/1620, CHEM 1210/1220, PHYS 2110/2120, or PHYS 2210/2220. Students *cannot* receive a BS in history unless they successfully complete one of these course pairs with grades of C- or better. Students must also complete at least 6 additional credits in math or science, 3 of which are required to be in *either* statistics (e.g. STAT 2000, 2300, or 3000) or social science statistics (e.g., PSY 2800, POLS 3000, or SOC 3120). The other 3 science credits may be chosen from any 2000-, 3000-, or 4000-level math or science course having one of the following prefixes: BIOL, CHEM, CS, GEO, MATH, STAT, or PHYS. For these 3 science credits only, students may petition the department head of the History Department to substitute a course from outside the College of Science, if it has a demonstrable scientific or technical focus (e.g., ADVS 3020, ETE 3200, PEP 4200, WATS 3000). In all instances, a grade of C- or better is required for any math or science course to be applied toward a BS degree.

Students who minor in a science field will fulfill the BS requirement through their minor.

## History Major

**Minimum GPA for Admission:** 2.5, major; 2.5, Career  
**Minimum GPA for Graduation:** 2.5, major courses; 2.0, USU  
**Minimum Grade Accepted:** C in major courses

Thirty-six credits of history coursework are required. A grade of C or better must be earned in all history courses used for the major. Each major must complete *one* of the following three courses in the area of premodern civilization:

<b>HIST 1060 (BHU)</b> Introduction to Islamic Civilization .....	3
<b>HIST 1100 (BHU)</b> Foundations of Western Civilization: Ancient and Medieval (F,Sp,Su) .....	3
<b>HIST 1500 (BHU)</b> Cultural and Economic Exchange in the Pre-Nineteenth Century World (F,Sp).....	3

Each major must complete *one* of the following two courses in the area of modern civilization:

<b>HIST 1110 (BHU)</b> Foundations of Western Civilization: Modern (F,Sp,Su) .....	3
<b>HIST 1510 (BHU)</b> The Modern World (F,Sp,Su) .....	3

Each major must complete *one* of the following two courses in the area of American history:

<b>HIST 2700 (BAI)</b> United States to 1877 (F,Sp,Su) .....	3
<b>HIST 2710 (BAI)</b> United States 1877-Present (F,Sp,Su).....	3

(Note: HIST 1700 does *not* count toward this requirement.)

No student, including transfer students, may count more than 12 credits of lower-division coursework toward the history major.

Every senior must take HIST 4990 (Special Topics in History), the capstone course for the major. Students should complete their remaining 21-24 credits by taking 3000- and 4000-level history courses. Since new courses may be approved from time to time, any upper-division course listed in the current *Schedule of Classes* under *History* is acceptable.

No more than 3 credits of HIST 4930 (Directed Readings) may be applied toward the major.

Since the study of history requires an understanding of many fields of human endeavor, **students majoring in history must select a minor.** Historians are encouraged to take electives in fields that will broaden their knowledge of the world and are closely allied to history, such as religious studies, literature, economics, geography, anthropology, political science, sociology, classics, philosophy, or foreign language.

Students wishing to undertake graduate work should pursue the BA degree. During their senior year, they should take the graduate record exam (GRE).

## History Teaching Emphasis

**Minimum GPA for Admission:** 2.5, major; 2.75, Career  
**Minimum GPA for Graduation:** 2.75, major courses; 2.75, Career  
**Minimum Grade Accepted:** C in major courses

Thirty-nine credits, earned in history courses, are required. A grade of C or better must be earned for all history courses used for the emphasis. Each student in the History Teaching Emphasis must complete *one* of the following three courses in the area of premodern civilization:

<b>HIST 1060 (BHU)</b> Introduction to Islamic Civilization .....	3
<b>HIST 1100 (BHU)</b> Foundations of Western Civilization: Ancient and Medieval (F,Sp,Su) .....	3
<b>HIST 1500 (BHU)</b> Cultural and Economic Exchange in the Pre-Nineteenth Century World (F,Sp).....	3

Each student must complete *one* of the following two courses in the area of modern civilization:

<b>HIST 1110 (BHU)</b> Foundations of Western Civilization: Modern (F,Sp,Su) .....	3
<b>HIST 1510 (BHU)</b> The Modern World (F,Sp,Su) .....	3

Each student must complete *both* of the following two courses in the area of American history:

<b>HIST 2700 (BAI)</b> United States to 1877 (F,Sp,Su) .....	3
<b>HIST 2710 (BAI)</b> United States 1877-Present (F,Sp,Su).....	3

(Note: HIST 1700 does *not* count toward this requirement.)

Each student must complete the following government and politics course:

<b>POLS 1100 (BAI)</b> United States Government and Politics (F,Sp).....	3
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No student, including transfer students, may count more than 12 credits of lower-division coursework toward the history teaching emphasis.

Every student in the History Teaching Emphasis must take *one* of the following three courses as a senior capstone course:

<b>HIST 4850</b> Interpreting the Past for Teachers (F,Sp).....	3
<b>HIST 4860</b> Teaching History (F) .....	3
<b>HIST 4870</b> Teaching World History: Themes, Approaches, and Materials (Sp) .....	3

Students should complete their remaining 21 credits by taking 3000- and 4000-level history courses. A minimum of two courses must be taken from each of the following areas: U.S. history, European history, and world history. Since new courses may be approved from time to time, any upper-division course listed in the current *Schedule of Classes* under *History* is acceptable. To become licensed to teach history, students must be admitted to the Secondary Teacher Education Program (STEP). A 2.75 GPA is required for admission, as well as a writing test, a speech and hearing test, and a background check. Application should be made as soon as practical after the history teaching emphasis has begun. Applications for admission are available in the History Department Office. The STEP requires 35 credits of coursework, in addition to the 39 credits of history courses. For additional information about the STEP, contact Shelly Wiegand, secondary education undergraduate advisor, (435) 797-0383.

**All teaching majors must also have a teaching minor in an area for which teaching licensure can be granted.**

No more than 3 credits of HIST 4930 (Directed Readings) may be applied toward the emphasis.

# Department of History

## Minor in History

Twenty-one credits are required. A grade of C must be earned in all history courses used for the minor. Every student must complete *one* of the following three courses in the area of premodern civilizations:

<b>HIST 1060 (BHU)</b> Introduction to Islamic Civilization .....	3
<b>HIST 1100 (BHU)</b> Foundations of Western Civilization: Ancient and Medieval (F,Sp,Su) .....	3
<b>HIST 1500 (BHU)</b> Cultural and Economic Exchange in the Pre-Nineteenth Century World (F,Sp).....	3

Every student must complete *one* of the following two courses in modern civilization:

<b>HIST 1110 (BHU)</b> Foundations of Western Civilization: Modern (F,Sp,Su) .....	3
<b>HIST 1510 (BHU)</b> The Modern World (F,Sp,Su) .....	3

Every student must complete *one* of the following courses in the area of American history:

<b>HIST 2700 (BAI)</b> United States to 1877 (F,Sp,Su) .....	3
<b>HIST 2710 (BAI)</b> United States 1877-Present (F,Sp,Su).....	3

(Note: HIST 1700 does *not* count toward this requirement.)

No student, including transfer students, may count more than 12 credits of lower-division coursework toward the history minor. Students should complete their remaining 9-12 credits by taking 3000- and 4000-level history courses.

No more than 3 credits of HIST 4930 (Directed Readings) may be applied toward the minor.

## History Teaching Minor

Thirty credits are required. A grade of C or better must be earned in all history courses used for the minor. Every student must complete *two* of the following three courses in premodern civilization:

<b>HIST 1060 (BHU)</b> Introduction to Islamic Civilization .....	3
<b>HIST 1100 (BHU)</b> Foundations of Western Civilization: Ancient and Medieval (F,Sp,Su) .....	3
<b>HIST 1500 (BHU)</b> Cultural and Economic Exchange in the Pre-Nineteenth Century World (F,Sp).....	3

Every student must complete *both* of the following two courses in modern civilization:

<b>HIST 1110 (BHU)</b> Foundations of Western Civilization: Modern (F,Sp,Su) .....	3
<b>HIST 1510 (BHU)</b> The Modern World (F,Sp,Su) .....	3

Every student must complete *both* of the following courses in the area of American history:

<b>HIST 2700 (BAI)</b> United States to 1877 (F,Sp,Su) .....	3
<b>HIST 2710 (BAI)</b> United States 1877-Present (F,Sp,Su).....	3

(Note: HIST 1700 does *not* count toward this requirement.)

No student, including transfer students, may count more than 12 credits of lower-division coursework toward the history minor. All teaching minors in history must take one of the following:

<b>HIST 4850</b> Interpreting the Past for Teachers (F,Sp).....	3
<b>HIST 4860</b> Teaching History (F) .....	3
<b>HIST 4870</b> Teaching World History: Themes, Approaches, and Materials (Sp) .....	3

Students should complete their remaining 9 credits by taking 3000- and 4000-level history courses.

No more than 3 credits of HIST 4930 (Directed Readings) can be applied toward the minor.

## Classics Minor

For information about the Classics Minor, which is administered through the Department of History, see page 211 of this catalog.

## Sample Four-year Plans

Sample semester-by-semester four-year plans for students working toward a bachelor's degree within the History Department can be found at: <http://www.usu.edu/degreplans/>

Students should consult with their advisors to develop a plan of study tailored to their individual needs and interests.

## Academic Opportunities

### Departmental Honors in History

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Students in the department with a minimum GPA of 3.5 may apply to pursue an honors degree in history. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. Those interested should consult the department honors coordinator. Additional information can be found online at: <http://www.usu.edu/honors/>

### Phi Alpha Theta

History students with a minimum GPA of 3.1 in history classes and an overall minimum GPA of 3.0 are eligible for membership in the national history honor society, Phi Alpha Theta. Those interested should consult the faculty advisor for Phi Alpha Theta.

### Undergraduate Teaching Fellows

The UTF program is designed to provide students, particularly potential teachers, with the opportunity to assist professors and, thereby, learn first-hand about the nature of the profession. UTFs must maintain a minimum GPA of 3.0 and be sponsored by a professor. Application forms are available in the History Department office and on the History Department website: <http://www.usu.edu/history>

## Additional Information

For updated information concerning programs and courses offered by the Department of History, visit the departmental web page at: <http://www.usu.edu/history>

Major requirement sheets, which provide detailed information about requirements for the History major, can be obtained from the department, or can be accessed online at: <http://www.usu.edu/majorsheets/>

## Financial Support

Scholarships, grants-in-aid, and work-study programs are available through the University. The History Department offers scholarships to outstanding students. In addition, undergraduates may be employed as research assistants and clerical assistants within the department. For current information on scholarships and employment opportunities, consult the department head.

## Graduate Programs

### Admission Requirements

Graduate applicants may be admitted to the program for either the master of arts or master of science in history if they meet the following qualifications: (1) hold a baccalaureate degree; (2) have at least a 3.0 cumulative GPA over the last 60 credits of undergraduate work, with a 3.5 GPA in history courses recommended; (3) submit Graduate Record Examination (GRE) general test scores, with a **required** minimum score at the 40th percentile on the verbal section, and a **recommended** minimum score at the 40th percentile on *both* the quantitative and written portions of the exam; (4) submit three letters of recommendation from persons acquainted with the applicant's academic performance and potential; and (5) submit a brief statement of proposed fields of interest and career goals.

The Department of History also strongly recommends that applicants have either an undergraduate major or minor in history or a closely related field. Familiarity with one or more foreign languages is highly desirable and is required for the master of arts degree and for master's level research in many fields of history. Applications will be strengthened by the submission of an example of the student's historical writing, such as a paper (about 15 pages in length) written for a seminar or upper-division course.

The final recommendation for admission will be made upon consideration of all the above factors by the department to the School of Graduate Studies.

### Degree Programs and Additional Requirements

#### Master's Degree, Plan A (Thesis)

The thesis option should be taken by anyone intending to do research or enter another program for the doctoral degree. A master of arts or master of science degree can be completed with this option.

The program consists of 30 semester credits beyond the bachelor's degree, 6 credits of which must be in thesis research. Students must take HIST 6000, as well as either HIST 6010 or 6020, or another theory-intensive course approved by the director of graduate studies. Students may apply a maximum of 4 internship credits earned while working in an archive, for a museum, on the staff of a scholarly journal, or as a teaching intern in an upper-division undergraduate course.

The remainder of the 30 credits may be taken as electives in history or related courses relevant to the student's program.

Upon arrival at USU, students are urged to meet with the departmental graduate advisor, who will direct them to one or more faculty members with similar interests. Through consultations with the graduate and faculty advisor, the first-year student will form a thesis committee and formulate a course of study. By the end of the first year, most students

will have submitted to their committees a proposal for the thesis, which they will write under the close supervision of the committee members. The oral defense usually takes place in the spring semester of the second year.

#### Master's Degree, Plan B (Nonthesis)

A nonthesis master's program can help a student attain employment in many areas, but is not recommended for students planning to secure a doctorate. A master of arts, master of science, or master of social sciences degree can be completed with this option.

The Plan B program consists of 30 credits beyond the bachelor's degree. The course requirements are identical to those of the Plan A program, except that only 3 thesis credits are permitted.

Students completing the Plan B program do not write a full-length thesis. Instead, Plan B students write a research paper of approximately 30 pages in length and submit a portfolio of their graduate writing, which includes two additional and distinct pieces of writing. Students defend their Plan B research papers and writing portfolios before their major professor and the members of the supervisory committee. Final approval of the Plan B rests with the department, rather than with the School of Graduate Studies.

#### Master of Arts

To receive a master of arts (MA) degree, students must successfully complete two years of foreign language at the undergraduate level. If two years of undergraduate language study already appear on the student's transcript, he or she must demonstrate current competence through successful completion of a language exam or by taking a 3000- or 4000-level language course for which a grade of *B* or higher proves competency. In all cases, an individual assessment must be made of a student's language status. For further information, see page 117.

Students planning to continue on for a doctorate should be aware that many doctoral programs in history require that students pass written proficiency exams in two or more languages.

#### Master of Science

To receive a master of science (MS) degree in history, students may be required to demonstrate, to the satisfaction of their supervisory committee, the ability to incorporate scientific methodologies in their research as appropriate.

#### Master of Social Sciences (MSS)

Like the MA and MS in history, the MSS degree requires a minimum of 30 credits, including 15 credits in the major discipline of history, plus a minimum of 15 credits from two approved minor areas, with at least two courses in each minor area. Accepted minor disciplines include instructional technology, environment and society, political science, psychology, and sociology/anthropology. This degree is designed for secondary school teachers who need more training to obtain licensure in additional teaching fields or who simply wish to deepen their understanding of a related field.

Students in the MSS program are required to take HIST 6000 and 3 credits of HIST 6970 for their Plan B. A supervisory committee consists of a major professor in history and two committee members, each representing one of the student's minor fields. MSS students, like other Plan B students in history, must write a research paper of approximately 30 pages and submit a portfolio of their graduate writing that consists of two separate and distinct pieces of work, one from each of their two minor fields. An oral defense of the student's Plan B paper and portfolio is held before the student's supervisory committee.

# Department of History

Additionally, the master of social sciences (MSS) in history requires students to demonstrate an understanding of statistical applications in the social sciences.

## Financial Assistance

The primary financial assistance offered by the Department of History is through graduate assistantships. Each year, the History Department offers to qualified students, on a competitive basis, a total of seven graduate assistantships. These assistantships entail approximately 20 hours of work per week, assisting faculty members with departmental introductory survey courses. The award carries a stipend and an out-of-state tuition waiver. To keep their assistantships, graduate assistants must maintain a GPA of 3.0 (or a *B* average) and be a full-time student (see page 111). While enrolled in the MA or MS program, graduate assistants may hold graduate assistantships for a maximum of two years. Applications for graduate assistantships should be postmarked *no later than February 1*, for the upcoming academic year.

Graduate students may be eligible for Carr Scholarships to supplement their graduate assistantships. Competitive grants to support travel and research are also available to history graduate students.

In addition, financial assistance is available through the *Western Historical Quarterly*, a journal published at USU. The editors of the journal offer, during alternate years, the S. George Ellsworth Editorial Fellowship and the Robert M. Uteley Editorial Fellowship. These fellowships are awarded to highly qualified students working as editorial assistants in that office. These fellowships are nationally competitive and allow graduate students to learn all aspects of journal production. They carry a stipend (with additional funding possible during the summer) and a waiver of the out-of-state portion of the tuition. Materials should be postmarked no later than February 1, for the upcoming academic year. Applicants will be notified in early April.

Funding for the S. George Ellsworth Fellowship is provided by the *Western Historical Quarterly*; the School of Graduate Studies; and the College of Humanities, Arts, and Social Sciences. The S. George Ellsworth Fellowship is being offered for the 2009-2010 academic year.

Funding for the Robert M. Uteley Fellowship is provided by the *Western Historical Quarterly* and the School of Graduate Studies. The Robert M. Uteley Fellowship is being offered for the 2010-2011 academic year. For further information about *Western Historical Quarterly* fellowships, write to: *Western Historical Quarterly*, Utah State University, 0740 Old Main Hill, Logan UT 84322-0740; or send e-mail to: [carolyn.doyle@usu.edu](mailto:carolyn.doyle@usu.edu).

The application deadline for both fellowships is February 1, for the upcoming academic year.

## Additional Funding

In addition to graduate assistantships and the *Western Historical Quarterly* editorial assistantships, the School of Graduate Studies awards a limited number of scholarships. To be eligible for these awards, all students should complete the application for admission and send it, along with GRE scores and letters of recommendation, to the School of Graduate Studies by February 1. A financial aid application form (which may be obtained from the History Department) should be returned to the History Department by February 1.

Students interested in establishing eligibility for federal loans and work-study will need to complete the Free Application for Federal Student Aid (FAFSA) and submit it to: Financial Aid Office, Utah State

University, 1800 Old Main Hill, Logan UT 84322-1800. Questions about eligibility should be directed to the Financial Aid Office, tel. (435) 797-0173.

## Career Opportunities

Some graduates of USU's master's program continue their formal education in PhD programs or law schools. Others find employment in the two-year college or secondary school systems, as teachers or administrators. Still others work for historical societies, museums, publishing firms, and a variety of enterprises in the private sector.

## Additional Information

Current announcements and other information are posted to the History Department website: <http://www.usu.edu/history>

## History Faculty

### Professors

*Jay Anderson*, folklore, folklife, film studies

*Philip L. Barlow*, Leonard J. Arrington Chair of Mormon History and Culture, religious studies, American religion, Mormon history

*C. Robert Cole*, England, modern European history

*Mark L. Damen*, ancient world, theatre history, Latin, Greek

*Norman L. Jones*, medieval, early modern Europe, Britain, Christianity

*David R. Lewis*, American Indian, environmental, Utah, editor of *Western Historical Quarterly*

*Daniel J. McInerney*, American intellectual history, Nineteenth Century, reform

*Charles S. Prebish*, Charles Redd Endowed Chair in Religious Studies, Buddhist studies and religion

*Leonard N. Rosenband*, France, European economic and labor history

*Stephen C. Siporin*, folklore, oral narrative folklore, folk art

*Frances B. Titchener*, ancient Greece and Rome, Latin, Greek, editor of *Ploutarchos*

### Associate Professors

*Christopher A. Conte*, Africa, world, and environmental history

*R. Edward Glatfelter*, Russia and East Asia, associate dean of College of Humanities, Arts and Social Sciences

*Colleen O'Neill*, West, Native American, labor, associate editor of *Western Historical Quarterly*

*Jennifer Ritterhouse*, U.S. history, African-American history, U.S. South, women's history

*James Sanders*, Latin America, Atlantic world

*Susan O. Shapiro*, Greek intellectual history, ancient Greek and Latin language

### Assistant Professors

*M. Lawrence Culver*, U.S. Southwest Borderlands; U.S. West, cultural, environmental, and urban history

*Victoria M. Grieve*, modern American cultural and intellectual history, art and culture of the West

*Timothy S. Wolters*, science and technology, American history

### Adjunct Professors

*Doran J. Baker*, Electrical and Computer Engineering Department, history of science

*Richard W. Clement*, Dean of Libraries

*Barry M. Franklin*, Secondary Education Program, history of education

*Christopher B. R. Pelling*, Regius Professor of Greek, Oxford University: Classics

**Senior Lecturer**

*Denise O. Conover*, American diplomatic history, U.S. military, American civilization

**Lecturer**

*Eric Kimball*, early American history, slavery and abolition, Atlantic history

**Adjunct Assistant Professors**

*Daniel M. Davis*, photograph curator, U.S. West

*H. Bert Jenson*, associate librarian

*Stephen C. Sturgeon*, manuscript curator, Twentieth Century U.S. West, political, environmental history

**Adjunct Instructor**

*Robert E. Parson*, University Archivist, Special Collections and Archives

**Trustee Professor Emeritus**

*Anne M. Butler*, U.S. West, U.S. Women

**Professors Emeritus**

*William F. Lye*, Africa, India, Canada

*Michael L. Nicholls*, early American history

*F. Ross Peterson*, U.S. modern political history, Black history

## Course Descriptions

History (HIST), pages 576-581

Latin (LATN), page 596

Greek (GRK), page 574

Classics (CLAS), page 530

# Honors Program

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**Director:** Christie L. Fox  
**Location:** Main 15  
**Phone:** (435) 797-2715  
**FAX:** (435) 797-3941  
**E-mail:** [honors@usu.edu](mailto:honors@usu.edu)  
**WWW:** <http://honors.usu.edu/>

**Honors Coordinator:** Danene Dustin, (435) 797-3790,  
[danene.dustin@usu.edu](mailto:danene.dustin@usu.edu)  
**Staff Assistant:** Amber Summers-Graham, (435) 797-2717,  
[amber.summers@usu.edu](mailto:amber.summers@usu.edu)

## Undergraduate Program

### Overview

Utah State University's Honors Program, established in 1964, provides an enhanced academic environment for highly motivated undergraduates. The Honors Program cultivates a community of scholars whose curiosity, creativity, and enthusiasm for learning foster educational achievement and personal growth.

Honors offers students intensive seminars, experimental classes, interdisciplinary courses, writing projects, leadership opportunities, and special activities. Participants may define independent study programs and design special research projects. Honors students work in close contact with professors in smaller classes; they pursue studies in greater depth than regular classes would allow. Participants also enjoy the company of other committed students who encourage and support one another's intellectual growth and productivity. Honors students participate actively in their own education.

Honors serves students who work hard, raise questions, and seek answers. It is designed for students who want to go beyond minimum requirements and narrow specialties. The program benefits those who want to make the most of their university experience.

The Honors program maintains strict standards for both entering and completing its program. However, there are no extra fees to pay, and there are Honors options suitable for entering freshmen, continuing students, and transfer students. The most important criterion for success is a student's motivation and dedication to learning.

### Entrance to the Honors Program

The Utah State University Honors Program admits students based on application. Students are asked to complete an application that includes an essay, a questionnaire on academic achievement, and a resume. The application is available on the Honors Program website: <http://honors.usu.edu/>

Students will be selected on the basis of: (1) overall academic achievement and promise, (2) extra-curricular and leadership activities, and (3) an essay.

Current and transfer students are also invited to apply. There are Honors options appropriate for students with three to four semesters remaining in their degree programs. For an application, contact the Honors Program or visit the website at: <http://honors.usu.edu/>

### Participation in Honors

To be eligible for entrance into Honors, a student must have a GPA of at least 3.50 and must complete an application. For most majors, to maintain eligibility and to graduate in Honors, a student must not allow her or his GPA to drop below 3.30. The Honors Office places students with a GPA of less than 3.30 on probation. A student with a GPA of less than 2.50 will be dropped from the program. Reinstatement may be requested if the GPA is raised to 3.30 or higher. Honors students must also register for one Honors class per semester in order to remain active in the program.

### Honors Degrees

Utah State University offers Honors degrees designed to fill a variety of student needs. Students may work toward one of three degree options:

1. **Departmental Honors.** Requires 15 semester credits as specified in a Departmental Honors plan, including a senior thesis/project.
2. **Departmental Honors with Honors in University Studies.** Requires 27 semester credits including 12 credits from the *Honors Course List* and at least 15 credits, including Honors senior thesis/project credits, in an approved Departmental Honors Plan.
3. **University Honors.** Requires 27 semester credits including at least 12 credits from the *Honors Course List* and as many as 15 credits, including Honors senior thesis/project credits, in an upper-division plan of study that has been approved by the Honors Director.

### Listing of Honors Courses

Class offerings change frequently. For the most complete list, see the *Honors Course List* available on the Honors Program website: <http://honors.usu.edu/>

### Course Descriptions

Honors (HONR), page 581

# Department of Instructional Technology and Learning Sciences

**Department Head:** Mimi Recker  
**Location:** Emma Eccles Jones Education 215A  
**Phone:** (435) 797-2692  
**FAX:** (435) 797-2693  
**E-mail:** mimi.recker@usu.edu  
**WWW:** <http://itls.usu.edu/>

**Degrees offered:** Master of Education (MEd), Master of Science (MS), Educational Specialist (EdS), Doctor of Philosophy (PhD) in Instructional Technology

**Graduate specializations:** *MEd*—Educational Technology, Information Technology and School Library Media Administration; *MS* and *EdS*—Instructional Development for Training and Education

## Undergraduate Programs

### Objectives and Requirements

There is no major in instructional technology at the undergraduate level because of the need for those preparing in the field to have especially strong general education knowledge as well as depth in a specialized field of study. The minors include **School Library Media** and **Multimedia Development**. The objectives and requirements of these minors are as follows:

#### School Library Media Minor Objectives

1. Provides students with library media skills.
2. Prepares students to receive a Utah Library Media Endorsement.
3. Prepares students for employment as a School Library Media Specialist.

#### School Library Media Minor Requirements

This minor is delivered through distance education. Those persons wanting endorsement for positions in the public schools must have or be working toward a valid Utah teaching license and the prescribed School Library Media minor. A 2.7 grade point average is required for admission and endorsement as a school library media specialist at the bachelor's level. For detailed requirements, contact the department.

#### Multimedia Development Minor Objectives

1. Provides students with design skills.
2. Develops students' multimedia production skills.
3. Prepares students for employment in the multimedia field.

#### Multimedia Development Minor Requirements

Persons not seeking a public school position may elect the minor in Multimedia Development, in conjunction with a major in other fields. The Multimedia Development minor is especially appropriate for fields which require computer-based instruction, such as business, computer science, engineering, communications, and others. For detailed requirements, contact the department.

## Graduate Programs

Instructional technology is a systematic way of analyzing, designing, developing, implementing, and evaluating the processes of learning and teaching with specific objectives based on research in human

learning and communication. It employs a combination of human and nonhuman resources to bring about more effective instruction. Instructional technology includes aspects of instructional design, product development, interactive learning technologies, multimedia, distance education, and library and information literacy. Each aspect of the field has unique contributions to make to the teaching-learning process.

The department offers specializations in Educational Technology, Information Technology and School Library Media Administration, and Instructional Development for Training and Education. A program emphasis in online learning communities in education and training is also offered.

Graduates are in demand in business and industrial settings, as well as in education, because of their preparation in training and instructional design. Admission to the graduate program is open to all students regardless of their undergraduate preparation.

### Admission Requirements

See general admission requirements, pages 36-37. The MS and MEd admission requirements include a 3.0 GPA for the last 60 semester credits (90 quarter credits) and an MAT score or GRE verbal and quantitative scores at or above the 40th percentile. In addition, the department requires that those applying for the EdS program have a master's degree, and a score at or above the 40th percentile on the verbal/quantitative tests of the GRE or 46 percent or above on the MAT. Those applying for the PhD program must have GRE verbal and quantitative test scores at or above the 40th percentile. Demonstrated writing and computer proficiency is required of all applicants. A minimum score of 213 computerized or 550 paper/pencil on the TOEFL is required for all prospective international students.

Applications for MS, EdS, and PhD degree programs must be submitted to the School of Graduate Studies by January 31. Applications for MEd programs must be submitted to the School of Graduate Studies by May 15. Space permitting, additional qualified candidates will be considered until the beginning of summer semester. Students who wish to be considered for financial aid must submit applications by January 31 for the coming academic year. All graduate students are expected to begin their programs in the fall semester.

Applicants for the EdS and PhD programs who do not hold a master's degree in Instructional Technology must complete additional course requirements.

**No applications will be considered until all required information is received by the School of Graduate Studies.**

### Degree Programs

#### Master of Science (MS)

This degree emphasizes instructional design and development, and prepares the graduate with skills to apply principles of instructional systems design to education and training. The program prepares instructional developers to take positions in corporate training programs in business and industry. It also leads to careers in public and higher education, development of interactive learning technologies, telecommunications, distance education, and adult education.

The MS degree is available to qualified students with bachelor's degrees from any field. Undergraduate students planning in advance for an MS in Instructional Technology should consider the department's Multimedia Development minor as part of their bachelor's program.



# Department of Instructional Technology and Learning Sciences

## Master of Education (MEd)

This master's program is only available through distance education via distance delivery methods. The MEd degree is a two-year cohort rotation (i.e., students proceed as a group through the two-year program). To be successful in this master's degree program, students should own or have access to a personal computer. They will also need a USU e-mail address and internet access in order to communicate with faculty members and other students in the program. Persons choosing the MEd have two specializations available:

**Educational Technology and Information Technology and School Library Media Administration.** A **Distance Learning Endorsement** is also available within the MEd. Students accepted to the MEd may also choose certain electives from the Administrative Supervisory Certificate (ASC) program. They may then apply for acceptance to the ASC.

The **Educational Technology** specialization is directed at public school educators and administrators who are interested in applying the principles of educational technology to the teaching/learning process. This specialization may lead to a position as a district-level or building-level educational technology specialist responsible for technology integration and in-service training related to computers and other technologies.

The **Information Technology and School Library Media Administration** specialization is directed at persons seeking employment in a school library media center. Students seeking this specialization must complete the School Library Media minor (delivered through distance education) and apply for a Utah State Library Media Endorsement. This specialization may lead to a position as a district-level or building-level school library media specialist (K-12). The library media specialist is prepared to apply principles of library and information technology to help students and teachers. The library media specialist also understands the effective use of learning resources in the teaching/learning process.

The goal of the **Distance Learning Endorsement Program** is to provide public school educators with the knowledge and skills they need in order to be effective teachers of students who are participating in distance education programs. To prepare them for meeting the challenges of teaching and learning at a distance in the K-12 setting, the program aids master teachers in becoming (1) effective communicators with distant learners across the barriers of time and distance, and (2) proficient users of telecommunications technologies in instruction. Students can apply for the State Distance Learning Endorsement.

## Educational Specialist Degree (EdS)

The Educational Specialist degree is intended for students interested in acquiring advanced skills in instructional technology beyond those of the master's degree. This program involves coursework, independent study, practicum experiences, and a culminating experience. The degree requires a minimum of 30 credits beyond the master's degree, providing the master's degree was received in the instructional technology field. For students with a master's degree in a field other than instructional technology, a minimum of 40 credits is required.

## Doctoral Degree (PhD)

The doctor of philosophy degree emphasizes research and theory building in instructional design and development. The degree offers advanced preparation for graduates seeking a career in higher education, research centers, or corporate training and development.

## Course Requirements

Course requirements for all degrees are dependent upon the area of emphasis and are individually planned by the student and the supervisory committee. For planning materials and program details, contact the department.

## Financial Assistance

Fellowships, assistantships, and other financial support are available and awarded on a competitive basis. Apply through the department.

## Instructional Technology and Learning Sciences Faculty

### Professors

*Byron R. Burnham*, Dean, School of Graduate Studies; adult learning  
*J. Nicholls Eastmond, Jr.*, theory and evaluation  
*Mimi Recker*, cognitive modeling, interactive learning

### Adjunct Associate Professor

*Michael K. Freeman*, educational leadership

### Assistant Professors

*Brian R. Belland*, scaffolding, problem-based learning, psychometrics, STEM education, service learning, technology integration  
*Joanne P. Bentley*, learning theory and evaluation  
*Anne R. Diekema*, information retrieval, digital libraries, metadata, evaluation  
*Yanghee Kim*, human/computer interaction in learning systems with an emphasis on pedagogical agents, intelligent tutoring systems, instructional design, learning theory, teacher education with an emphasis on technology integration  
*Victor R. Lee*, visual representations, curriculum design, cognitive science, everyday and intuitive reasoning, conceptual change  
*Brett E. Shelton*, immersive technologies, cognitive studies  
*Andrew E. Walker*, collaborative information filtering and problem-based learning, situated cognition  
*David A. Wiley*, learning objects, instructional design theory

### Adjunct Instructors

*JaDene M. Denniston*, school library media  
*Kevin L. Reeve*, distance education

### Lecturer

*Sheri Haderlie*, Instructional Technology and Learning Sciences  
Department Outreach Program Manager

### Professors Emeritus

*Alan M. Hofmeister*, research  
*M. David Merrill*, instructional design  
*Don C. Smellie*, foundations  
*Ron J. Thorkildsen*, research and interactive learning  
*R. Kent Wood*, theory, foundations

### Associate Professors Emeritus

*J. Steven Soulier*, message design, computer applications  
*Linda L. Wolcott*, distance education, library media, and foundations

## Course Descriptions

Instructional Technology and Learning Sciences (INST),  
pages 584-589

# Intensive English Language Institute

**Director:** Ann E. Roemer  
**Location:** Main 071  
**Phone:** (435) 797-2051  
**FAX:** (435) 797-4050  
**E-mail:** ann.roemer@usu.edu  
**WWW:** <http://www.usu.edu/ieli/>

**Assistant Director:**  
James E. Bame, Main 077, (435) 797-3908, jim.bame@usu.edu

**IELI Undergraduate and Graduate Advisor:**  
Margaret Garr, Main 069A, (435) 797-2081, m.garr@usu.edu

## Objectives

The Intensive English Language Institute (IELI) is an academic program in the College of Humanities, Arts and Social Sciences. IELI teaches international students, residents, and refugees the English skills and cultural knowledge they need to be successful university students. IELI also trains international teaching assistants (ITAs) for USU. Information about the ITA training is available through the School of Graduate Studies.

The IELI program accepts students seeking a degree at Utah State University, as well as students who want to study English for personal or professional reasons. Students may enroll to study *only* English.

Undergraduate students who apply to USU without a TOEFL score of at least 500 paper/pencil or 61 on the iBT (Internet-based test); and graduate students applying without a minimum TOEFL score of 550 paper/pencil or 79-80 on the iBT must take the IELI Placement Examination, given the first day of each semester, including the first day of the IELI summer session. Based on the examination results, students will be required to study in the IELI or be exempted from further study and permitted to take classes in their major fields. In lieu of the TOEFL, students can submit a minimum IELTS score of 5 (undergraduate students) or 6 (graduate students).

**Note:** The minimum TOEFL and IELTS scores acceptable for undergraduate students entering USU during the 2010-2011 academic year will be raised to 525 paper/pencil, iBT 71, and IELTS 6.0 (with a minimum of 5.0 on each sub-scale).

## Curriculum

Four levels of study are offered each semester. The ability levels of classes range from high-beginning through advanced. Several of the level 1 and 2 classes are combined into multilevel classes. Classes focus on listening, speaking, reading, writing, and cultural skills. In addition, there are topics courses, covering topics ranging from current events and the environment to academic literacy and the cultures of the U.S. Students must complete one topics course for every level they study in the IELI program.

Students advance from one level of a class to the next higher level by obtaining a grade of C- or higher in the lower-level class. Students who do not obtain a C- or higher in a class must repeat the class. Students who complete all level 4 classes with a C- or higher may begin taking courses outside of IELI. Students at level 4, who have less than a full course load remaining in IELI, must take other University credits sufficient to stay in status with visa requirements. Exceptions to this policy must be approved by the director of IELI in consultation with students' major field advisors and the Office of International Students and Scholars.

## Credit for Intensive English Study

Classes in IELI carry academic credit. Full-time students at each level take 18 credits per semester. A student who begins IELI at level 1 and progresses to level 4 may earn a total of 72 undergraduate elective credits. While all the credits will appear on a student's transcript, a maximum of 18 can be counted toward graduation. Application of the 18 credits will be determined by the student's college and major department. Students must, therefore, meet with their departmental advisors to determine the role of IELI credits in their graduation requirements.

## Services

New students in IELI take the Placement Examination and attend an orientation meeting prior to the beginning of each semester. All students are assigned an advisor in IELI who helps them with various difficulties they may encounter. In addition, all the services and privileges offered to students on campus are available to IELI students. These services include health care clubs, recreational opportunities, and numerous special programs for international students.

## Intensive English Language Institute Faculty

### Associate Professors

*Franklin I. Bacheller*  
*James E. Bame*  
*Glenda R. Cole*  
*Ann E. Roemer*  
*James R. Rogers II*  
*Thomas J. Schroeder*

### Associate Professors Emeritus

*Susan J. Carkin*  
*Lee Ann Rawley*

### Assistant Professor

*Nolan Weil*

## Course Descriptions

Intensive English Language Institute (IELI), page 583

# Interdisciplinary Studies Major

## Academic Advisement:

### College of Agriculture

Lisa Allen, (435) 797-2215, lisa.allen@usu.edu

### Emma Eccles Jones College of Education and Human Services

Terri Gass, (435) 797-1443, terri.gass@usu.edu

### College of Humanities, Arts, and Social Sciences

Mary Leavitt, (435) 797-3883, mary.leavitt@usu.edu

### College of Natural Resources

Maureen Wagner, (435) 797-2448, maureen.wagner@usu.edu

### College of Science

Richard Mueller, (435) 797-2479, rmueller@biology.usu.edu

**Degrees offered:** Bachelor of Science (BS) and Bachelor of Arts (BA)

## Objectives

The organization of academic departments and their associated degree programs reflects the history and traditions of study in those fields. The Interdisciplinary Studies major is intended to serve the needs of students who want to design a unique individualized academic program, obtain a broadly-based education, and diversify their professional potential. The degree is not intended to replace existing majors or curricula. Rather, it is designed to provide the *small number* of students whose degree needs cannot be met with other majors with a program which is less restrictive and more responsive to their individual plans and interests. Students who complete their programs will receive the Bachelor of Science or (if they meet the language requirement) the Bachelor of Arts degree. **The degree cannot be used as part of a dual major.**

The Interdisciplinary Studies major is available through the following five colleges: Agriculture; Education and Human Services; Humanities, Arts, and Social Sciences; Natural Resources; and Science. However, the major is *not* available to students enrolled in the Huntsman School of Business, the College of Engineering, or the Department of Computer Science. The Interdisciplinary Studies degree is also available through the University's Regional Campuses and Distance Education centers.

Students who think the Interdisciplinary Studies major may be right for them, but are not sure, should ask themselves the following questions:

1. Students must have a minimum of 45 semester credits completed before the major may be declared. Do I have 45 or more semester credits on my transcript? If not, how close am I?
2. Interdisciplinary Studies **cannot** duplicate existing majors. Have I explored the educational opportunities at USU? Have I reviewed the *General Catalog* to see what is already available at USU? Have I visited Career Services (University Inn 102) to explore career development programs? Why don't any of the existing majors meet my needs?
3. Which areas of study am I proposing to combine? Do they logically go together? Does USU offer the areas of study I am proposing to combine? What would the program I am proposing lead me to? Are there job opportunities out there?
4. If my degree crosses two or more colleges, which college would I propose to serve as the lead college?

If, after reviewing the above, students feel that they have a unique interest in a subject matter and USU can help, this may be the right major for them. Interested students should make an appointment with the advising center in the college from which the degree will be awarded.

## Admission Requirements

Students may apply for admission to the Interdisciplinary Studies major after completing 45 credits with a minimum GPA of 2.0, submitting an Application for Interdisciplinary Studies, and receiving approval for the Application.

Transfer students from other institutions or from other USU majors need to complete a minimum of 45 credits, achieve the required GPA, and have an approved Application for Interdisciplinary Studies for admission to this major in good standing.

Students who wish to pursue the degree must submit a letter of application containing the following information:

1. A clear statement of the student's educational objectives.
2. A proposed program of study including specific courses and listing the faculty member the student proposes to work with on the final thesis or project.
3. A brief statement explaining why the student feels the proposed program is worthy of a college degree.

A current unofficial transcript must be attached to the application. The application should be discussed with and reviewed by the student's major advisor.

## Requirements

Students will work with a faculty member or members who will assist in course selection and will oversee the successful completion of the 45 credits in the program. Courses selected must provide coherent, carefully planned programs of study in the area of interest, which must involve two or more disciplines. Courses used for University Studies Breadth Requirements and courses used for Depth Humanities and Creative Arts (DHA), Depth Life and Physical Sciences (DSC), and Depth Social Sciences (DSS) may be counted toward the degree *only with the permission of the college advisor*. However, courses meeting the Communications Intensive (CI) and Quantitative Intensive (QI) requirements may be applied toward requirements for the Interdisciplinary Studies degree.

Courses used to meet the 45-credit minimum requirement may come from any department, with the following restrictions:

1. At least 21 of the 45 credits **must** be numbered 3000 or above.
2. Courses used for the major must include **at least 15 credits each** from two different disciplines. A maximum of 3 internship credits may be counted toward the major. **Note:** Some colleges may require that *more than 15 credits* counted toward the major be taught by departments within their college; check with the college advisor for further information.
3. The coursework must focus on an overarching theme and must be consistent with the student's educational and career goals.

# Interdisciplinary Studies Major

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4. As part of the 45 credits, students must complete a 3-credit senior project, thesis, or capstone course supervised by their faculty advisor.
5. Students must pass every course approved for the program of study and must earn a composite GPA of at least 2.0 in the 45 credits of coursework used for the major. **Note:** Some colleges may have a higher GPA requirement; check with the college advisor for further information.
6. Courses used for the major may be used for a minor or to fill University Studies Breadth requirements *only with the permission of the college advisor.*

## Additional Information

Students interested in the Interdisciplinary Studies degree should contact the advising center in the college from which the degree will

be awarded. Students who would like to explore the degree, but are unsure which college they should enroll in, may discuss their interests with an advisor in the Office of University Advising, (435) 797-3373.

Students exploring whether or not the Interdisciplinary Studies major is right for them should review the major requirement sheet, which can be found online at: <http://www.usu.edu/majorsheets/>

For students pursuing the Interdisciplinary Studies major, the requirement sheet provides details of major requirements, as well as a worksheet for students to record their progress toward fulfilling major requirements.

## Course Description

Interdisciplinary Studies (ITDS), page 589

# Interior Design Program

**Program Director:** JoAnn Wilson  
**Location:** Family Life 320A  
**Phone:** (435) 797-1557  
**FAX:** (435) 797-8245  
**E-mail:** interiors@cc.usu.edu  
**WWW:** <http://interiordesign.usu.edu/>

**Academic Advisor:** Mary E. Leavitt, Taggart Student Center 302/  
Family Life 320H, (435) 797-3883, [mary.leavitt@usu.edu](mailto:mary.leavitt@usu.edu)

**Degrees Offered:** Bachelor of Interior Design (BID);  
Bachelor of Science (BS) and Bachelor of Arts (BA) in Interior Design,  
Sales and Marketing; Master of Science (MS) in Human Environments,  
with a specialization in Interior Design

## Overview

The program in interior design includes a Bachelor of Interior Design (BID); a BS and BA in Interior Design, Sales and Marketing; and an MS in Human Environments with a specialization in Interior Design. These degrees have been developed to prepare students for entry into the varied professions of interior design. Students identify, research, and creatively solve problems pertaining to the function and quality of the interior environment. Students also gain an understanding of the legal and ethical issues that guide and direct the profession.

An interior designer renders professional services with respect to both commercial and residential spaces. These services include programming, design analysis, space planning, aesthetics, interior construction, drafting, building codes, equipment, materials, and furnishings, in order to protect the health, safety, and welfare of the public.

## Undergraduate Programs

The Interior Design Program provides foundation training and technical skill building during the freshman and sophomore years. This is followed by a review process which determines the degree the student will pursue. The two available degrees are (1) **Bachelor of Interior Design (BID)** and (2) **BS or BA in Interior Design, Sales and Marketing**.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Course Requirements

**Minimum GPA for Admission:** Any student admitted to USU may take lower-division Interior Design classes.

**Additional Matriculation Requirements:** Each student must submit an application packet during April of his or her freshman/first year, which will be used to determine which students may matriculate into the program. **Transfer students who desire to enter the program are also required to submit an application packet for review during April of the year they would like to matriculate.** All students desiring to continue into the sophomore/second year classes in the Interior Design Program are required to submit a portfolio for review to determine placement into either the BID degree or the BS or BA in Interior Design, Sales and Marketing.

**Minimum GPA for Graduation:** 2.5, major; 2.0, Career

**Minimum Grade Accepted:** C in major requirements:  
*BID Degree*—MGT 2050, PHIL 3810, ID courses;  
*BS or BA in Interior Design, Sales and Marketing*—  
OSS 2800, MGT 2050, 3110, 3500, 3510, 3710, PHIL 3810,  
ID courses

These are sample plans. They outline University and major requirements in very general terms. While there are requirements that are sequential, many are flexible and do not need to be completed exactly in the order listed. Students should always check with their faculty and professional advisors to be sure they are meeting the requirements appropriately. To make an appointment with a professional advisor, call (435) 797-3883.

### All Majors

#### Freshman Year (32 credits)

##### Fall Semester (16 credits)

ID 1700 Interior Design Professional Seminar .....	1
ID 1750 (BCA) Design in Everyday Living .....	3
ID 1770 History of Interior Furnishings and Architecture I .....	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
ART 1120 Two-dimensional Design (or Interior Design substitute course approved by advisor).....	3
University Studies Breadth course .....	3

##### Spring Semester (16 credits)

ID 1700 Interior Design Professional Seminar .....	1
ID 1780 History of Interior Furnishings and Architecture II .....	3
ID 1790 (BCA) Interior Design Theory .....	3
ART 1020 Drawing I (or Interior Design substitute course approved by advisor).....	3
University Studies Breadth course .....	3
University Studies Quantitative Literacy (QL) course .....	3

Submit first-year application packet.

Complete the CIL exams by the end of the freshman year.

#### Sophomore Year (26 credits)

##### Fall Semester (13 credits)

ID 1700 Interior Design Professional Seminar .....	1
ID 2710 Architectural Graphics I .....	3
ID 2750 Computer Aided Drafting and Design I .....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode .....	3
Creative Elective course(s) (see advisor for list of approved courses).....	3

# Interior Design Program

## Spring Semester (13 credits)

ID 1700 Interior Design Professional Seminar .....	1
ID 2730 Interior Space Planning and Human Dimensions .....	3
ID 2760 Computer Aided Drafting and Design II .....	3
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern .....	3
University Studies Breadth course .....	3

## Bachelor of Interior Design (BID)

### Junior Year (32 credits)

#### Fall Semester (14 credits)

ID 1700 Interior Design Professional Seminar .....	1
ID 3730 (QI) Interior Materials and Construction .....	3
ID 3760 Commercial Design Studio .....	4
ID 3790 Architectural Systems .....	3
University Studies Breadth course .....	3

#### Spring Semester (14 credits)

ID 1700 Interior Design Professional Seminar .....	1
ID 3770 Residential Design Studio .....	4
ID 3780 Design Detailing .....	3
PHIL 3810 Aesthetics .....	3
University Studies Breadth course .....	3

#### Summer Semester (4 credits)

ID 4710 Interior Design Advanced Internship I .....	4
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### Senior Year (31 credits)

#### Fall Semester (16 credits)

ID 1700 Interior Design Professional Seminar .....	1
ID 4750 Senior Design Studio I .....	3
MGT 2050 Legal and Ethical Environment of Business .....	3
Depth Communications Intensive (CI) course .....	3
Depth Life and Physical Sciences (DSC) course .....	3
Creative Elective course (see advisor for list of approved courses) .....	3

#### Spring Semester (15 credits)

ID 1700 Interior Design Professional Seminar .....	1
ID 4740 (CI) Business and Professional Practices in Interior Design .....	3
ID 4760 Senior Design Studio II .....	3
ID 4770 Senior Exhibit .....	1
Depth Social Sciences (DSS) course .....	3
Upper-division elective course(s) .....	4

## BS or BA in Interior Design, Sales and Marketing

### Junior Year (33 credits)

#### Fall Semester (16 credits)

ID 1700 Interior Design Professional Seminar .....	1
ID 3730 (QI) Interior Materials and Construction .....	3
ID 3790 Architectural Systems .....	3
MGT 2050 Legal and Ethical Environment of Business .....	3
MGT 3110 (DSS) Managing Organizations and People .....	3
University Studies Breadth course .....	3

#### Spring Semester (13 credits)

ID 1700 Interior Design Professional Seminar .....	1
MGT 3510 Fundamentals of Entrepreneurship .....	3
MGT 3710 Developing Team and Interpersonal Skills .....	3
PHIL 3810 Aesthetics .....	3
University Studies Breadth course .....	3

#### Summer Semester (4 credits)

ID 4710 Interior Design Advanced Internship I .....	4
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### Senior Year (29 credits)

#### Fall Semester (14 credits)

ID 1700 Interior Design Professional Seminar .....	1
ID 4700 Topics in Interior Design .....	3
OSS 1550 (CI) Business Correspondence .....	3
Depth Life and Physical Sciences (DSC) course .....	3
Creative Elective course(s) (see advisor for list of approved courses) .....	3
Upper-division elective course .....	1

#### Spring Semester (15 credits)

ID 1700 Interior Design Professional Seminar .....	1
MGT 3500 Fundamentals of Marketing .....	3
OSS 2800 Principles of Selling .....	2
Upper-division elective courses .....	9

## Freshman/First-Year Application Packet

All Interior Design students (i.e., freshmen and transfer students) must submit an application packet. The application packet assesses basic skills and creativity. Acceptance of students into the Interior Design Program will allow them to register for Architectural Graphics I (ID 2710) and Computer Aided Drafting and Design I (ID 2750). The application packet, detailed instructions, and submission information can be found online at: <http://interiordesign.usu.edu/>

## Laptop Computer Requirement

It is *strongly recommended* that freshmen have a laptop computer. Students entering sophomore-level interior design courses must have their own laptop computer. Specifications for the laptop will be provided by the Interior Design Program. Computer specifications can be found at: <http://interiordesign.usu.edu/>. Required software will be made available through a special leasing program.

## Sophomore Review/Second-Year Review

In addition to basic undergraduate and graduate requirements set forth in this catalog, students in Interior Design must participate in a Sophomore Review in order to matriculate to junior class standing. The review takes place during the spring semester of a student's sophomore year in the program. Students wishing to enroll in junior-level courses must submit projects from as many of the following courses as possible: ID 1740, 1760, 1790, 2710, 2720, 2730, 2750, 2760; ART 1020, 1120; and one elective art skills class.

Selection is based on a letter of intent; a portfolio demonstrating creative potential, problem solving skills, and graphic fluency; and cumulative GPA from ID required courses.

Students accepted into the advanced courses will be placed into *either* the Studio Interior Design (BID) degree *or* the Interior Design, Sales and Marketing (BS or BA) degree. The final selection of students to matriculate to the upper division is a decision of the ID faculty.

If a student who has been approved to take classes stops out of the program, he or she will be readmitted if space is available. Students may also be asked to resubmit their portfolio. Due to space limitations, first preference will be given to students with continuous registration in the program.

# Interior Design Program

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## Tours

Students need to be more aware of their historical and contemporary surroundings. When students are exposed to design and culture outside of the state, their world views expand. Directly applying these influences will improve their design skills.

The Interior Design Program sponsors a national or international design tour every other year. These tours include a variety of learning and teaching opportunities, which include individual and group tutorials, projects, seminars, lectures, and visits to museums, galleries, and studios. Students receive credit for these tours through the Interior Design Travel Course (ID 4780). Students should participate in at least one travel event while enrolled in the program.

## Interior Design Programmatic Learning Objectives

1. Students will research and apply elements and principles of interior design.
2. Students will interact and apply design skills in collaborative and professional environments.
3. Students will be given a base from which to specify appropriate materials and products for interior environments.
4. The program will prepare students for activities involving laws, codes, and best sustainability and environmental practices.
5. The program will provide educational and technical curriculum that addresses Council for Interior Design Accreditation (CIDA) standards.

## Assessment

Every six years, the Interior Design Program undergoes a rigorous accreditation assessment by the program's national accreditation board, the Council for Interior Design Accreditation (CIDA). CIDA learning objectives are incorporated into course content, and are also explained and mapped in the accreditation section of the Interior Design website. See **Learning Objectives** link and **Mapping** link at: <http://interiordesign.usu.edu/assessment.htm>

The Interior Design Program's learning objectives are in accordance with national CIDA standards. Assessing whether or not objectives have been met involves analysis of curriculum, syllabi, project demonstrations or briefs, handouts, and blank exams, as well as reviews of student work.

## Additional Information

Major requirement sheets, which provide detailed information about requirements for the Interior Design major, can be obtained from the Interior Design Program, or online at: <http://www.usu.edu/majorsheets/>

## Graduate Program

The Master of Science in Human Environments with a specialization in Interior Design allows students to pursue a variety of personal research interests, such as sustainability, LEED (Leadership in Energy and Environmental Design) certification, historic preservation, residential design, marketing and analysis of interior design products and services, etc.

Human Environments is the study of the circumstances, objects, or conditions by which one is surrounded. The MS program prepares students for the challenges of the human environmental needs of the future.

## Interior Design Faculty

### Associate Professor

*JoAnn Wilson*, Director of Interior Design Program

### Assistant Professor

*Darrin S. Brooks*, residential design and interior history

### Lecturers

*Steven R. Mansfield*, architecture and computer aided design

*Susan Tibbitts*, architectural graphics, sales and marketing

## Course Descriptions

Interior Design (ID), pages 582-583

# International Studies Major and Minor

**Contact:** Veronica Ward  
**Location:** Main 324E  
**Phone:** (435) 797-1319  
**FAX:** (435) 797-3751  
**E-mail:** veronica.ward@usu.edu  
**WWW:** <http://politicalscience.usu.edu/>

**Advising:** Political Science Department, Main 320, (435) 797-1306

**Degree offered:** Bachelor of Arts (BA)

**Area Options:** World Economy and Development, Peace and Security, Global Environment and Natural Resources, and Peoples and Nations

## Admission Requirements for this Major

1. New freshmen admitted to USU in good standing qualify for admission to this major.
2. Transfer students from other institutions or from other USU majors need a 2.5 total GPA for admission to this major in good standing.

## Overview

Problems of security, development, ethnic conflict, and human rights, as well as problems relating to the environment and natural resources, are increasingly confronted at a global rather than a national level. With its theoretical models and real-world application, the study of international studies is an exciting and highly relevant interdisciplinary major. This program cultivates the development of language and intercultural skills, develops understanding of global problems and circumstances, and expands the student's capacity to make informed judgments regarding complex international and global issues.

## Requirements

In addition to completing the necessary core courses listed below, students must also choose **one area option** from one of the four available options. Through these options, students gain a level of expertise in their chosen area.

Each student must also complete a senior research project (3 credits). This project must fit within the area option chosen by the student. Under the direction of a faculty member, this project may be completed within the context of an existing course, or may be completed independently under the guidance of the chosen faculty member.

In addition to the senior research project and the choice of one area option, students must also complete an international experience component. Students may choose a traditional study abroad experience in an accredited program, which must be approved by the international studies advisor. Students may also choose an internship. The internship must have a clear international focus and must be supervised by the international studies advisor, who must approve proposals for internships. Students may count a total of 3 credits earned during an internship toward completion of the major.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of

close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Graduation Requirements

### International Studies Major (39 credits minimum) (3.0 GPA)

**Minimum GPA for Admission:** 2.5, Career  
**Minimum GPA for Graduation:** 3.0, major courses; 2.0, Career  
**Minimum Grade Accepted:** C- in major requirements

#### A. Core Courses (15 credits)

**ANTH 1010 (BSS)** Cultural Anthropology (F,Sp) (3 cr) **or**  
**ANTH 2010 (BSS)** Peoples of the Contemporary World (Sp) (3 cr) ..... 3  
**ECN 1500 (BAI)** Introduction to Economic Institutions, History, and Principles (F,Sp,Su) (3 cr) **or**  
**ECN 3400 (DSS)** International Economics for Business (F,Sp,Su) (prereq: APEC/ECN 2010) (3 cr) ..... 3  
**GEOG 1300 (BSS)** World Regional Geography (F) ..... 3  
**HIST 1500 (BHU)** Cultural and Economic Exchange in the Pre-Nineteenth Century World (F,Sp) (3 cr) **or**  
**HIST 1510 (BHU)** The Modern World (F,Sp,Su) (3 cr) ..... 3  
**POLS 2100** Introduction to International Politics (F,Sp) ..... 3

#### B. Electives (6 credits)

Students may earn these credits by taking any of the courses listed in the four area options: (1) World Economy and Development, (2) Peace and Security, (3) Global Environment and Natural Resources, and (4) Peoples and Nations.

#### C. Language Requirement

Students must acquire at least a basic knowledge of one foreign language. Students must successfully complete one course at the 3000 level *or* (if this is not possible) receive a waiver from the international studies advisor.

#### D. Area Option Requirement (15 credits)

Students must choose *one* option from the four listed below. Students must complete courses from *at least two* different departments within their chosen option, for a total of 15 credits.

#### E. Senior Research Project (3 credits)

Each student must complete a senior research project which must fit within the area option chosen by the student.



# International Studies Major and Minor

## Area Options

### World Economy and Development

<b>ANTH/GEOG/SOC 5650 (DSS)</b> Developing Societies (F)	3
<b>ECN 5100</b> History of Economic Thought (Sp) (prereq: APEC/ECN 2010)	3
<b>ECN 5150 (DSS)</b> Comparative Economic Systems (F,Sp) (prereq: APEC/ECN 2010)	3
<b>ECN 5400</b> International Trade Theory (F) (prereq: ECN 4020; ECN 3010 or 4010)	3
<b>FIN 4300</b> International Finance (F,Sp)	3
<b>HIST 4610</b> Themes and Methods in Economic History	3
<b>MGT 3820 (DSS)</b> International Management (F,Sp)	3
<b>MGT 4590</b> Global Marketing Strategy (F,Sp) (prereq: MGT 3500, 4540, 4550)	3
<b>MGT 4890 (CI)</b> Business Strategy in a Global Context (F,Sp,Su) (prereq: senior standing; FIN 3400; MGT 3110, 3500, 3700)	3
<b>MIS 4550 (CI)</b> Principles of International Business Communications (Sp)	3
<b>PHIL 3520 (DHA)</b> Business Ethics	3
<b>PLSC 4300</b> World Food Crops and Cropping Systems: The Plants That Feed Us (F even)	3
<b>POLS 3100</b> Global Issues (F)	3
<b>POLS 5120</b> Economics of Russia and Eastern Europe, 9th Century to 21st Century (F)	3
<b>POLS 5210</b> Comparative Political Change/Development (F)	3
<b>POLS 5480</b> International Trade Policy (Sp)	3
<b>SOC 3600</b> Sociology of Urban Places (F)	3
<b>SOC 3610 (DSS)</b> Rural Sociology (F)	3
<b>SOC 4730</b> Women in International Development (Sp)	3

### Peace and Security

<b>GEOG/POLS 3430</b> Political Geography (Sp)	3
<b>HIST 3230</b> Early Modern Europe	3
<b>HIST 3240</b> Modern Europe from 1789 to the Present	3
<b>HIST 3310</b> Balkans Since 1389	3
<b>HIST 3410</b> The Modern Middle East	3
<b>HIST 3460</b> Comparative Asian History	3
<b>HIST 4290</b> Europe and the French Revolution, 1700-1815	3
<b>HIST 4310</b> History of Nationalism	3
<b>HIST 4390</b> British Imperialism from 1688 to the Present	3
<b>HIST 4810</b> American Military History	3
<b>HIST 4820</b> World War II in Europe (Sp)	3
<b>HIST 4821 (DHA)</b> World War II in Asia (Sp)	3
<b>PHIL 4610 (DHA)</b> Social and Political Philosophy	3
<b>POLS 3100</b> Global Issues (F)	3
<b>POLS 3190 (DSS)</b> Gender, Power, and Politics (F)	3
<b>POLS 3400 (DSS)</b> United States Foreign Policy (F,Sp)	3
<b>POLS 3700</b> Terrorism and Counterterrorism (F)	3
<b>POLS 4210</b> European Union Politics (Sp)	3
<b>POLS 4220 (CI)</b> Ethnic Conflict and Cooperation (Sp)	3
<b>POLS 4280</b> Politics and War (Sp)	3
<b>POLS 4450 (CI)</b> United States and Latin America (Sp)	3
<b>POLS 4460</b> National Security Policy (Sp)	3
<b>POLS 4470</b> Foreign Policy in the Pacific (Sp)	3
<b>POLS 4890</b> Special Topics (F,Sp) (1-5 cr) <b>or</b>	
<b>POLS 4990 (CI)</b> Senior Research Seminar (F,Sp) (3 cr)	1-5

(Note: POLS 4890 and 4990 may only be counted toward the major when the topic is appropriate.)

### Global Environment and Natural Resources

<b>APEC 5560</b> Natural Resource and Environmental Economics (Sp) (prereq: APEC/ECN 2010)	3
<b>BIOL 3100 (CI)</b> Bioethics (Sp)	3
<b>ENVS 2340 (BSS)</b> Natural Resources and Society (F,Sp)	3
<b>ENVS 3330</b> Environment and Society (Sp)	3
<b>ENVS 5550</b> Sustainable Development (Sp)	3

<b>ENVS/SOC 5640</b> Conflict Management in Natural Resources (Sp)	3
<b>GEOG 1000 (BPS)</b> Physical Geography (F,Sp,Su)	3
<b>GEOG 2130</b> Population Geography (Sp)	3
<b>HIST 3530</b> African Environmental History	3
<b>HIST 3950 (DHA/CI)</b> Environmental History	3
<b>PHIL 3510 (DHA)</b> Environmental Ethics (Sp)	3
<b>POLS 3100</b> Global Issues (F)	3
<b>SOC 4620 (DSS)</b> Sociology of the Environment and Natural Resources (Sp)	3
<b>WATS 4750</b> Fundamentals of Remote Sensing Science (F)	3
<b>WATS 4930</b> Geographic Information Systems (F)	4
<b>WILD 2200 (BLS)</b> Ecology of Our Changing World (F,Sp)	3

### Peoples and Nations

<b>ANTH 3130 (CI)</b> Peoples of Latin America	3
<b>ANTH 3160 (DSS)</b> Anthropology of Religion (F)	3
<b>ANTH 3200 (DSS/CI)</b> Perspectives on Race (Sp)	3
<b>ANTH/LING 4100</b> The Study of Language (F,Sp)	3
<b>ANTH 4230 (DSS)</b> Medical Anthropology: Matter, Culture, Spirit, and Health (Sp)	3
<b>ANTH 5100 (DSS)</b> Anthropology of Sex and Gender (Sp)	3
<b>ENGL 3060 (DHA)</b> British and Commonwealth Cultures	3
<b>ENGL 4230</b> Language and Society (F)	3
<b>ENGL 5320 (CI)</b> Literature and Cultural Difference (Sp)	3
<b>GEOG 1400 (BSS)</b> Human Geography (Sp)	3
<b>GEOG 2130</b> Population Geography (Sp)	3
<b>GEOG 4200 (CI)</b> Regional Geography (F,Sp,Su)	3
<b>HIST 3240</b> Modern Europe from 1789 to the Present	3
<b>HIST 3260</b> History of Spain and Portugal	3
<b>HIST 3280</b> East Central Europe Since 1520	3
<b>HIST 3310</b> Balkans Since 1389	3
<b>HIST 3330</b> The Soviet Union and its Heirs	3
<b>HIST 3410</b> The Modern Middle East	3
<b>HIST 3460</b> Comparative Asian History	3
<b>HIST 3480</b> History of China	3
<b>HIST 3510</b> Africa and the World	3
<b>HIST 3630</b> History of Modern Latin America	3
<b>HIST 3640</b> History of Social Movements in Latin America	3
<b>HIST 3650</b> Caribbean History	3
<b>HIST 3660</b> History of Mexico	3
<b>HIST 4310</b> History of Nationalism	3
<b>HIST 4330</b> Modern Germany with Special Emphasis on the Twentieth Century	3
<b>JCOM 4020 (DSS)</b> Mass Media and Society	3
<b>LANG 3550 (DHA)</b> Culture of East Asia	3
<b>LATS 2200</b> Introduction to Latin America (F)	3
<b>LING 4900</b> Analysis of Cross-Cultural Difference	3
<b>PHIL 3700 (DHA)</b> Philosophy of Religion (F)	3
<b>PHIL 3710</b> Philosophies of East Asia (F)	3
<b>PHIL 3750</b> Religion and Science in the Modern World (F)	3
<b>POLS 2200 (BSS)</b> Comparative Politics (F,Sp)	3
<b>POLS 3190 (DSS)</b> Gender, Power, and Politics (F)	3
<b>POLS 3210 (DSS)</b> Western European Government and Politics (F)	3
<b>POLS 3220 (DSS)</b> Russian and East European Government and Politics (F)	3
<b>POLS 3230</b> Middle Eastern Government and Politics (F)	3
<b>POLS 3250 (DSS)</b> Chinese Government and Politics (F)	3
<b>POLS 3270 (DSS)</b> Latin American Government and Politics (F)	3
<b>POLS 4220 (CI)</b> Ethnic Conflict and Cooperation (Sp)	3
<b>POLS 4230</b> Issues in Middle East Politics (Sp)	3
<b>POLS 4260</b> Southeast Asian Government and Politics (Sp)	3
<b>PSY 4240 (DSS)</b> Multicultural Psychology (F) (prereq: PSY 1010)	3
<b>SOC 3200 (DSS)</b> Population and Society (F,Sp)	3
<b>SOC 4330</b> Religion, Science, and Society (Sp)	3
<b>SOC 4370</b> Sociology of Gender (F)	3
<b>SOC 4710</b> Asian Societies (Sp)	3
<b>SPCH 3330 (DSS)</b> Intercultural Communication (F,Sp)	3

# International Studies Major and Minor

## Sample Four-year Plan for International Studies Major

A sample semester-by-semester four-year plan for students working toward a Bachelor of Arts degree in International Studies can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## International Studies Minor (18 credits) (3.0 minimum overall GPA)

### A. Core Courses (15 credits)

- ANTH 1010 (BSS)** Cultural Anthropology (F,Sp) (3 cr) **or**
- ANTH 2010 (BSS)** Peoples of the Contemporary World (Sp) (3 cr) ..... 3
- ECN 1500 (BAI)** Introduction to Economic Institutions, History, and Principles (F,Sp,Su) (3 cr) **or**
- ECN 3400 (DSS)** International Economics for Business (F,Sp,Su) (prereq: APEC/ECN 2010) (3 cr) ..... 3

- GEOG 1300 (BSS)** World Regional Geography (F) ..... 3
- HIST 1500 (BHU)** Cultural and Economic Exchange in the Pre-Nineteenth Century World (F,Sp) (3 cr) **or**
- HIST 1510 (BHU)** The Modern World (F,Sp,Su) (3 cr) ..... 3
- POLS 2100** Introduction to International Politics (F,Sp) ..... 3

### B. Electives (3 credits)

Any course listed in any of the four area options is acceptable.

## Additional Information

For detailed information about requirements for the International Studies major and minor, see the major requirement sheet, which can be obtained from the Political Science Department, or online at: <http://www.usu.edu/majorsheets/>

# Department of Journalism and Communication

**Interim Department Head:** Bradford "J" Hall

**Location:** Animal Science 310

**Phone:** (435) 797-3292

**FAX:** (435) 797-3973

**E-mail:** jcom@aggiemail.usu.edu

**WWW:** <http://www.usu.edu/journalism>

**Assistant Department Head:**

Penny M. Byrne, Animal Science 108A, (435) 797-3289,  
penny.byrne@usu.edu

**Degrees offered:** Bachelor of Science (BS) and Bachelor of Arts (BA) in Journalism; BS in Agricultural Communication and Journalism (offered jointly with Agricultural Systems Technology and Education Department, see pages 151-152); Master of Science (MS) and Master of Arts (MA) in Communication

**Note:** Applications for admission to the MS and MA degrees in Communication are not currently being accepted. For information about when they may be accepted, contact the Department of Journalism and Communication.

**Undergraduate emphases:** Broadcast/Electronic Media, Print Journalism, Public Relations/Corporate Communications

## Undergraduate Programs

### Objectives

The undergraduate major in the Journalism and Communication Department, leading to the Bachelor of Arts or the Bachelor of Science degree in Journalism, is designed to prepare students for careers in a wide range of communication fields, through instruction in the philosophical groundings, theoretical perspectives, and hands-on applications of communications skills and practice. The curriculum integrates practical mass communications skills training with critical thinking skills, while helping students to understand the processes and effects of communication, as well as the relationships, roles, and interactions of mass communication with other social institutions.

Attainment of the goals articulated in the Journalism and Communication Mission Statement requires that Journalism majors exhibit proficiency in the following areas:

1. **Journalism and Communication Skills:** Writing and verbal skills, information-gathering, fact-checking, the synthesis of ideas, and deductive logic.
2. **Technological Skills:** Both the ability to use effectively, as well as the knowledge of, current delivery systems for information and their impacts.
3. **Philosophical Grounding:** Understanding of the philosophical, historical, and ethical antecedents of modern mass journalism and communication practice in the context of the First Amendment and a free and open society, and how these lessons apply in day-to-day mass media practice for media producers and consumers.
4. **Critical Thinking:** The ability to evaluate mass media messages and campaigns, to understand how media and society interact, and the implications of that interaction.
5. **Professional and Personal Responsibility:** Affirmation of the individual's responsibilities as either a producer or consumer of information in a democratic mass media age.
6. **Market Savvy:** Exposure to real-world situations that instruct and demonstrate application of classroom lessons.

The Department of Journalism and Communication maintains professional studios and labs, designed to train students in various communications and journalism skills. These include the multimedia computer newsroom, a digital nonlinear video editing lab, a full TV studio, and a digital (Mac) photography lab. Students receive instruction in traditional journalistic basics, such as writing, information-gathering, reporting, and video production; in new technologies of online information gathering; and in critical-thinking skills of media literacy.

### Requirements

#### Course Requirements

Journalism majors must complete a minimum of 30 credits and a maximum of 36 credits (38 for Broadcast/Electronic Media emphasis) in Journalism and Communication courses, while pursuing one of the three course sequences outlined below. Of the 120 semester credits required for graduation from Utah State University, Journalism majors must complete at least 65 credits in other departments within the College of Humanities, Arts, and Social Sciences. In addition, majors must complete a minor/cognate area outside of the Journalism and Communication Department, selected with the approval of an advisor.

Therefore, the basic Journalism course of study is as follows: Journalism and Communication courses, 30-36 credits; General Education requirements, 27-31 credits; Depth Education requirements, 15 credits; courses in the minor/cognate area, 12-21 credits; electives from outside the Journalism and Communication Department, 17-33 credits; **Total Credits, 120.**

#### Major Status

Students may apply for major status upon completion of a minimum of 60 semester credits, including the Journalism Premajor Core requirements, while maintaining a 2.5 cumulative GPA. Students may declare themselves as Journalism Premajors at any time after their admission to the University. Majors must maintain a minimum 2.5 GPA, both overall and in the major. Students whose GPA drops below 2.5 will be placed on probation and may be dropped from the major if grades do not improve within one semester. All courses in the major must be taken for a grade (not *Pass-Fail*). Courses must be taken in sequence.

Students transferring from other institutions may be accepted into the major if they fulfill these requirements. Up to 9 transferred semester credits may count toward the major, if approved by an advisor.

The Department of Journalism and Communication, as well as Utah State University, allows students to take a class a *maximum* of three times. Failure to achieve the Journalism and Communication Department's minimum grade of C+ in three attempts in any of the three premajor core classes, or a minimum grade of C in any other JCOM course required for the major, will result in the student being dropped from the Journalism major.

Students attempting to register for any JCOM class for the third time will be required to meet with the department head, who will remind them of the three-and-out rule. Students will be asked to sign a form attesting to their understanding of this rule.

Students must complete the premajor core (JCOM 1130, 1500, and 2010) with a C+ or better before continuing in the Journalism major. Students lacking the minimum grades in the premajor core will be blocked from taking courses in the Broadcast/Electronic Media, Print Journalism, and Public Relations/Corporate Communications emphases.

# Department of Journalism and Communication

## Premajor Core Requirement (9 credits)

The following courses are required for all majors, and must be completed prior to application for major status:

<b>JCOM 1500 (BSS)</b> Introduction to Mass Communication (F,Sp) .....	3
<b>JCOM 1130</b> Beginning Newswriting for Mass Media (F,Sp,Su) .....	3
<b>JCOM 2010 (BSS)</b> Media Smarts: Making Sense of the Information Age (F,Sp).....	3

Prior to taking JCOM 1130, students must complete ENGL 1010, Introduction to Writing (or equivalent) and an English proficiency test. Passing scores on the Computer and Information Literacy (CIL) exams are also required prior to enrollment in JCOM 1130. Majors must complete each of the premajor requirements with a C+ or better.

## Major Requirements (6 credits)

The following courses are required for all majors after acceptance into the department:

<b>JCOM 2160 (CI)</b> Introduction to Online Journalism (F,Sp).....	3
(prereq: min of C+ in JCOM 1130, 1500, and 2010)	
<b>JCOM 4030</b> Mass Media Law (F,Sp).....	3
(prereq: junior standing or instructor's permission)	

## Emphasis Areas

Each student must select one of the following emphasis areas:

### Broadcast/Electronic Media Emphasis (30-38 credits)

**Minimum GPA for Admission:** 2.5, Career  
**Minimum GPA for Graduation:** 2.5, major courses; 2.5 USU; 2.5, Career  
**Minimum Grade Accepted:** C in major courses; C+ in JCOM 1130, 1500, and 2010

#### A. Premajor Core Requirements (9 credits)

Journalism majors must complete the Premajor Core Requirements *before* taking courses in section B below.

#### B. Broadcast/Electronic Media Requirements (12 credits)

<b>JCOM 2220</b> Introduction to Video Media (F,Sp).....	3
<b>JCOM 2230</b> Writing for Electronic Media (F).....	3
Additional major requirements (JCOM 2160, 4030) .....	6

#### C. Newscast or Corporate Video/Multimedia (6-8 credits)

Students should complete *one* of the two options of courses listed below.

<b>JCOM 4210 (CI)</b> Newscast I (F,Sp) (4 cr) <b>and</b> <b>JCOM 4220 (CI)</b> Newscast II (F,Sp) (4 cr).....	8
<b>Or</b> <b>JCOM 4230</b> Corporate Video (F,Sp) (3 cr) <b>and</b> <b>JCOM 5210</b> Website Design and Production (F,Sp) (3 cr).....	6

#### D. Communication Electives (3-9 credits)

Students should consult with their advisor to choose appropriate electives.

## Print Journalism Emphasis (30-36 credits)

**Minimum GPA for Admission:** 2.5, Career  
**Minimum GPA for Graduation:** 2.5, major courses; 2.0 USU; 2.0, Career  
**Minimum Grade Accepted:** C in major courses; C+ in JCOM 1130, 1500, and 2010

#### A. Premajor Core Requirements (9 credits)

Journalism majors must complete the Premajor Core Requirements *before* taking courses in section B below.

#### B. Print Journalism Requirements (15 credits)

<b>JCOM 2170 (CI)</b> Reporting Public Affairs (F,Sp) .....	3
<b>JCOM 3110 (CI)</b> Beyond the Inverted Pyramid (F,Sp) .....	3
<b>JCOM 3120 (CI)</b> Copy Editing and Publication Design (F,Sp) .....	3
Additional major requirements (JCOM 2160, 4030) .....	6

#### C. Communication Electives (6-12 credits)

Students should consult with their advisor to choose appropriate electives.

### Public Relations/Corporate Communications Emphasis (30-36 credits)

**Minimum GPA for Admission:** 2.5, Career  
**Minimum GPA for Graduation:** 2.5, major courses; 2.5 USU; 2.5, Career  
**Minimum Grade Accepted:** C in major courses; C+ in JCOM 1130, 1500, and 2010

#### A. Premajor Core Requirements (9 credits)

Journalism majors must complete the Premajor Core Requirements *before* taking courses in section B below.

#### B. Required Courses (12 credits, may be taken concurrently)

<b>JCOM 2300</b> Introduction to Public Relations (F,Sp) .....	3
<b>JCOM 2310 (CI)</b> Writing for Public Relations (F,Sp) .....	3
Additional major requirements (JCOM 2160, 4030) .....	6

#### C. Upper-division Required Courses (6 credits; must be taken in sequence after completion of JCOM 2300, 2310)

<b>JCOM 3300</b> Strategic Research Methods in Public Relations (F,Sp) ...	3
<b>JCOM 5300 (CI)</b> Case Studies in Public Relations (F,Sp) (3 cr) <b>or</b> <b>JCOM 5320</b> Public Relations Agency (F,Sp) (3 cr).....	3

**D. Electives (3-9 credits; at least 3 credits in skills course and 3 credits upper division. A 3-credit upper-division skills course meets all elective requirements.)**

## Other Communications Electives

In addition to the Pre-major, major, and emphasis area courses listed above, students must select additional electives from courses in the Department of Journalism and Communication, to ensure a total of 30-36 credits completed in the Journalism and Communication Department.

## Sample Four-year Plans

Sample semester-by-semester four-year plans for students working toward a bachelor's degree within the Journalism and Communication Department can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

# Department of Journalism and Communication

## Journalism Minor

Students may earn a minor in Journalism by completing a minimum of 18 JCOM credits. The minimum GPA requirements for Journalism minors are the same as those required for Journalism majors.

These credits must include:

<b>JCOM 1130</b> Beginning Newswriting for the Mass Media (F,Sp,Su) .....	3
<b>JCOM 1500 (BSS)</b> Introduction to Mass Communication (F,Sp) .....	3

For the remaining 12 JCOM credits, students must select one of the following options:

(a)	
<b>JCOM 2170 (CI)</b> Reporting Public Affairs (F,Sp) .....	3
JCOM faculty advisor-approved upper-division JCOM credits .....	9
(b)	
<b>JCOM 2220</b> Introduction to Video Media (F,Sp) .....	3
<b>JCOM 2230</b> Writing for Electronic Media (F,Sp) .....	3
JCOM faculty advisor-approved upper-division JCOM credits .....	6
(c)	
<b>JCOM 2300</b> Introduction to Public Relations (F,Sp) .....	3
<b>JCOM 2310 (CI)</b> Writing for Public Relations (F,Sp) .....	3
JCOM faculty advisor-approved upper-division JCOM credits .....	6

## Financial Support

In addition to general scholarships and other financial support opportunities available through the University and the College of Humanities, Arts, and Social Sciences, the Department of Journalism and Communication awards various scholarships to majors. For a listing of scholarships, deadlines, and application requirements, contact the Department of Journalism and Communication. In addition, many professional paid and unpaid internships are available through the department.

## Careers in Journalism and Communication

Journalism majors often begin their careers in various media professions, such as newspapers, radio and TV broadcasting, and public relations, many serving as interns while still attending school. Upon graduation, they land jobs in a variety of capacities for both journalism businesses and other industries requiring workers with excellent communication and problem-solving skills. In recent years, USU journalism students have routinely won state, regional, and national awards in print and video journalism, multimedia and new technologies, and, increasingly, public relations.

This success translates into an excellent reputation for USU students among businesses hiring USU students as interns and hiring USU graduates for professional positions. Jobs held by recent graduates include newspaper and magazine reporter, photographer, graphic artist, and editor; radio and television reporter, anchor, and producer; public relations director and account executive; multimedia software designer for HTML, web pages, CD-ROMs, etc.; and public information officer for politicians, legislative and lobbying groups, sports teams, and colleges, as well as for environmental organizations and other groups in the business and public sectors. Training and expertise

in communication, including writing and reporting, visual literacy, publication layout and design, computer graphics, and online applications, prove to be valuable add-on skills for graduates entering a variety of occupations or going on to graduate school and law school.

In addition to these kinds of opportunities enjoyed by undergraduates, master's degree graduates often return to communication careers in new capacities, or teach at the community college level in journalism and communication departments.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu); or contact the Journalism and Communication departmental advisor, Penny Byrne, at [penny.byrne@usu.edu](mailto:penny.byrne@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For further information about publications, curriculum, scholarships, faculty, and other program offerings, including USU's TV studio facilities; weekly newscasts and TV programs; the award-winning student news website, the Hard News Café; and the Media and Society Lecture Series; check out the Journalism and Communication Department's website: <http://www.usu.edu/journalism>

For detailed information about requirements for the Journalism major and minor, see the major requirement sheet, which can be obtained from the department, or accessed online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

The Master of Science (MS) and the Master of Arts (MA) degrees in Communication combine professional practice and theoretical training, and are designed to fit individual student needs. Students may specialize in print, photo, or broadcast journalism. Application to the graduate program is made through the USU School of Graduate Studies.

**Note:** Applications for admission to the MS and MA degrees in Communication are not currently being accepted. For information about when they may be accepted, contact the Department of Journalism and Communication.

# Department of Journalism and Communication

## Objectives

The master's program in Communication at Utah State University offers a three-track approach to graduate study, designed for the maximum individual flexibility in pursuit of the student's goals.

The **Plan A**, also known as the "Thesis Option" or "Media Research," is a course of study designed for students considering or planning to go on to a doctoral program. The Plan A option requires more coursework in theory and methodology, as well as in research tools, in order to provide grounding for advanced study at the PhD level, whether in communication or another discipline. This option also requires completion of a master's thesis, consisting of original research.

The **Plan B**, also known as the "Professional Option" or "Media Practice," is designed for students seeking the master's degree as a terminal degree, and planning to go from USU into the mass media professions, or into a teaching position at the junior college level. Typically, Plan B students are mid-career media professionals seeking retooling, refreshers, or credentials for community college teaching. The Plan B option requires a professional project, approved by a major professor, in place of the research thesis.

The **Plan C**, another "Professional Option," is the same as the Plan B *except*, instead of a professional project, the student enrolls in additional coursework.

All three options—A, B, and C—require the student to pass comprehensive exit exams.

Graduate students in Communication work closely with advisors throughout their programs to design coursework and a research or professional activity agenda, along with appropriate study in a cognate area outside of Communication, that will permit them to achieve their individual goals, within the core framework of Communication coursework, whether they include professional training or additional doctoral work.

## Admission Requirements

For admission to the graduate program in Communication, all students must complete the department's English Language Proficiency Examination, and must complete or demonstrate competency in the following Communication foundation courses:

<b>JCOM 1130</b> Beginning Newswriting for the Mass Media (F,Sp,Su) .....	3
<b>JCOM 2010 (BSS)</b> Media Smarts: Making Sense of the Information Age (F,Sp).....	3
<b>JCOM 3110 (CI)</b> Beyond the Inverted Pyramid (F,Sp) .....	3
<b>JCOM 4030 (DSS)</b> Mass Media Law (F,Sp).....	3

Competency may be demonstrated through previous coursework or experience, and one or more of these requirements may be waived with permission of the graduate program coordinator. These credits do not count toward the graduate degree. In addition, other undergraduate courses may be required.

## Degree Requirements

Students may enroll in the Plan A (thesis), Plan B (Professional Option, with professional project), or Plan C (Professional Option with additional coursework in lieu of project) as outlined below. Plans A and B require 30 semester credits, while Plan C requires 33 semester credits. Plan A is intended for students planning to continue graduate study, teach, or enter professions requiring research skills. Plans B and

C are intended for students seeking a terminal professional degree. Selection of the A, B or C option must be made in consultation with the student's advisor and filed with the graduate coordinator by the end of the first semester of study.

All students must complete core requirements. Students must, in consultation with their advisor, select an appropriate research tools class in research methods; the course need not be taught by the Journalism and Communication Department. To remain in good standing, all students must fulfill Graduate School requirements.

### Plan A: Media Research

**Core Requirements (21 credits).** All students must complete the following courses: JCOM 6000 (3 cr.), 6020 (3 cr.), 6040 (3 cr.), 6400 (3 cr.), and 6970 (6 cr.). In addition, students must select an appropriate 3-credit Research Tools course (from any department), providing methodological training most appropriate for the student, in consultation with the advisor.

**Cognate/Electives (9 credits).** With advisor permission, students may include additional Journalism and Communication electives.

### Plan B: Professional Option (Project)

**Core Requirements (18 credits).** All students must complete the following courses: JCOM 6000 (3 cr.), 6020 (3 cr.), 6040 (3 cr.), 6400 (3 cr.), and 6970 (3 cr.). In addition, students must select an appropriate 3-credit Research Tools course (from any department), providing methodological training most appropriate for the student, in consultation with the advisor.

**Cognate/Electives (12 credits).** With advisor permission, students may include additional Journalism and Communication electives.

### Plan C: Professional Option (Additional Coursework)

**Core Requirements (15 credits).** All students must complete the following courses: JCOM 6000 (3 cr.), 6020 (3 cr.), 6040 (3 cr.), and 6400 (3 cr.). In addition, students must select a 3-credit Research Tools course (from any department), in consultation with the advisor.

**Cognate/Electives (18 credits).** With advisor permission, students may include additional Journalism and Communication electives.

## Additional Information

For more information about graduate studies in the Department of Journalism and Communication, contact the School of Graduate Studies or the Department of Journalism and Communication. Also, check out the departmental website at:  
<http://www.usu.edu/journalism>

## Journalism and Communication Faculty

### Professor

*Edward C. Pease*, journalism, media criticism

### Professor Emeritus

*Nelson B. Wadsworth*, print journalism

# Department of Journalism and Communication

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## Associate Professors

*Cathy Ferrand Bullock*, mass communication theory and research methods

*Penny M. Byrne*, broadcasting, media law

*Brenda Cooper*, media criticism, gender and mass communication

## Associate Professor Emeritus

*James O. Derry*, international mass communication development

## Assistant Professor

*Nancy M. Williams*, print journalism, Internet

## Lecturers

*R. Troy Oldham*, public relations, corporate communications

*Preston Parker*, public relations, corporate communications

## Video Lab Supervisor

*S. Dean Byrne*, broadcast and electronic media

## Adjunct Instructors

*Cami Boehme*, Internet, corporate communications

*Tim Vitale*, public relations

*Jay C. Wamsley*, print journalism

## Course Descriptions

Journalism and Communication (JCOM), pages 590-593

# Department of Landscape Architecture and Environmental Planning

**Interim Department Head:** Sean E. Michael

**Location:** Fine Arts Visual 230

**Phone:** (435) 797-0500

**FAX:** (435) 797-0503

**E-mail:** laepinfo@usu.edu

(faculty e-mail addresses available on departmental website)

**WWW:** <http://www.laep.usu.edu/>

## **Undergraduate Program Director:**

Michael L. Timmons, Fine Arts Visual 260, (435) 797-1510,

michael.timmons@usu.edu

## **Undergraduate Advisement:**

HASS Advising Center, Taggart Student Center 302,

(435) 797-3883, mary.leavitt@usu.edu

## **Graduate Program Questions:**

Kathy Allen, Fine Arts Visual 230, (435) 797-0500,

laepinfo@usu.edu

**Degrees offered:** Bachelor of Landscape Architecture (BLA) and Master of Landscape Architecture (MLA); Master of Science (MS) in Bioregional Planning. BLA and first professional MLA programs are fully accredited by the American Society of Landscape Architects.

## **Department Objectives**

The objectives of the department are to (1) provide an educational and technical program responsive to current societal needs related to environmental planning, landscape architecture, and urban design; (2) give students the opportunity to participate in collaborative learning experiences with other disciplines on campus; (3) prepare students for professional careers in the private or public sector; and (4) conduct original research to advance the body of knowledge in landscape architecture, environmental planning, and design.

## **Undergraduate Programs**

### **Admission and Graduation Requirements**

The Bachelor of Landscape Architecture (BLA) degree program is an intensive four-year studio-based course of study, fully accredited by the American Society of Landscape Architects. Accreditation standards require the department to maintain a reasonable faculty/student ratio. Space in the program is restricted by facility availability and faculty size. Admission to the upper division is competitive, and is limited to students who are determined by the faculty to have the best potential for academic success. Matriculation into the upper division will normally be limited to 25 students, although additional students may be matriculated in special circumstances at the discretion of the LAEP faculty.

Any student admitted to USU is eligible for enrollment in lower-division LAEP courses. At the end of the sophomore year, a selection process will determine which students will matriculate into the upper division of the program.

Students applying for matriculation must have a minimum USU GPA of 2.5. Eligibility for matriculation requires the completion of the following prerequisite courses:

<b>LAEP 1200</b> Basic Graphics in Landscape Architecture (F).....	4
<b>LAEP 1300</b> Computer Applications in Landscape Architecture (Sp).....	3
<b>LAEP 1350</b> Theory of Design (Sp).....	4
<b>LAEP 2300</b> History of Landscape Architecture (F).....	3
<b>LAEP 2600 (QI)</b> Landscape Construction I (F) .....	4
<b>LAEP 2650</b> Architecture and the Built Environment (Sp).....	4
<b>LAEP 2700 (CI)</b> Site Analysis: Social, Behavioral, and Biophysical Dimensions (F).....	5
<b>LAEP 2720</b> Site Planning and Design (Sp).....	5
<b>PLSC 2620</b> Woody Plant Materials: Trees and Shrubs for the Landscape (F) .....	3

Selection of students to be matriculated to the upper division is based on a letter of intent; a portfolio demonstrating creative potential, problem solving skills, and graphic fluency; and cumulative GPA earned in the eight LAEP prefix courses listed above. Portfolios and letters of intent are to be submitted by the last Monday in March. Detailed information regarding the letter of intent and portfolio requirements may be obtained from the LAEP Department website: <http://www.laep.usu.edu/>. The final selection of students to matriculate to the upper division is a decision of the LAEP faculty. The review of students for matriculation will take place during the week following spring semester final exams, and students will be notified as soon as possible thereafter.

Students who have had LAEP courses waived or covered by articulation from another institution will have their GPA calculated only on the basis of LAEP grades actually earned at USU.

Transfer students from other programs of landscape architecture who have completed the equivalent of the lower-division USU LAEP coursework may apply for admission to the upper division of the program through submission of a portfolio, letter of intent, transcript of grades, and description of landscape architecture courses taken. Students who have previously been enrolled and matriculated into the upper division at USU, and must interrupt their education for up to three academic years, may resume their studies at the same level of the program which they departed upon returning to USU. Students who have stopped-out longer than three years must reapply, following the guidelines specified for transfer students. The decision on applications from transfer students and for readmission rests with the LAEP faculty and will be considered on a case-by-case basis.

### **Computer Requirement**

Computer competency is essential in the contemporary professional environment. Appropriate computer skills are required for most entry-level opportunities in landscape architecture and environmental planning.

Course content increasingly relies on computer skills and personal access to computers with the appropriate software.

All students in the BLA program (beginning with LAEP 1300) must purchase, lease, or otherwise obtain continuing and uninterrupted access to a personal computer, preferably a laptop, which meets the configuration requirements specified by the LAEP Department. Contact the department for current specifications.

### **Recommended High School Courses**

High school students planning to major in landscape architecture may enhance their preparation with courses in art, natural sciences, social sciences, computer applications, and math through college algebra.



# Department of Landscape Architecture and Environmental Planning

## BLA Degree

**Minimum GPA for Admission:** 2.5, USU

**Additional Matriculation Requirements:** completion of prerequisite courses, portfolio review, and submission of letter of intent (usually at end of the sophomore year)

**Minimum GPA for Graduation:** 2.0, USU

**Minimum Grade Accepted:** C- in LAEP prefix courses

The Bachelor of Landscape Architecture (BLA) degree is a four-year program consisting of courses relating to theory, design, history, and the various technical areas of the profession. The degree provides a substantial basis for a professional career, as well as an excellent foundation for advanced graduate studies. In addition to the courses required for upper-division status, the following LAEP courses are required for graduation:

LAEP 3100 Recreation/Open Space (F)	5
LAEP 3120 Residential Planning and Design (Sp)	5
LAEP 3500 Planting Design (F)	4
LAEP 3610 Landscape Construction II (Sp)	4
LAEP 3700 City and Regional Planning (Sp)	3
LAEP 4100 Urban Theory, Systems, and Design (F)	5
LAEP 4110 Construction Document Preparation (F)	4
LAEP 4120 Emerging Areas in Landscape Architecture I (F,Sp,Su)	2
LAEP 4130 Emerging Areas in Landscape Architecture II (F,Sp,Su)	2
LAEP 4910 Professional Practice I (Sp)	1
LAEP 4920 (CI) Professional Practice II (Sp)	1

### Non-LAEP Courses Required for BLA majors:

The following courses taught outside the LAEP Department are required for all BLA majors. Note that several of these courses will also assist in fulfillment of University Studies Requirements.

ENGL 3080 (CI) Introduction to Technical Communication (F,Sp)	3
GEO 3100 (DSC) Natural Disasters (Sp)	3
MATH 1010 Intermediate Algebra (F,Sp,Su)	4
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F)	3
PLSC 3420 Landscape Irrigation Design (Sp)	2
SOC 3610 (DSS) Rural Sociology (F) (3 cr) <b>or</b>	
SOC 4620 (DSS) Sociology of the Environment and Natural Resources (Sp) (3 cr)	3
WATS 1200 (BLS) Biodiversity and Sustainability (F,Sp) (3 cr) <b>or</b>	
WILD 2200 (BLS) Ecology of Our Changing World (F,Sp) (3 cr)	3

All required courses with an LAEP prefix must be passed with a grade of C- or better. Students must also complete the University Studies requirements. For more detailed information, see major requirement sheet available from the department, or online at: <http://www.usu.edu/majorsheets/>

## Sample Four-year Plan for Landscape Architecture Major

A sample semester-by-semester four-year plan for students working toward a Bachelor of Landscape Architecture (BLA) degree can be found at: <http://www.usu.edu/degreepans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Undergraduate Travel Requirement

The undergraduate curriculum includes a requirement for a minimum of 1 credit of travel and study outside of the bioregion. This travel requirement can be satisfied by one or both of the following courses, depending upon the specific content of the course at the time of offering. (Check with the department for specific information.)

LAEP 4350 Travel Course (F,Sp,Su)	1-3
LAEP 4900 Special Problems (F,Sp,Su)	1-5

### Study Abroad

The department currently has a cooperative agreement with the University of Ljubljana, Slovenia where students can study for a semester. Approved courses of study in design and planning programs offered by other institutions may count toward the travel requirement; however, course substitutions are subject to faculty approval.

### Faculty-Sponsored Field Study Travel

The department has a long tradition of a professionally oriented "Spring Break" trip, which is offered for undergraduate students under LAEP 4350. Recent trips have included San Francisco, Los Angeles, Portland, Seattle, Vancouver, Boston, and Washington DC.

The department also offers an international (2-week) field study experience, the destination of which changes from year to year. For example:

*May 2005 and 2007*—The Italian Renaissance Villa and Town Planning: Looks at Greek (Paestum) and Roman (Pompeii, Roman Forum) antecedents, as well as Renaissance Villas from the region surrounding Rome to Florence and the Tuscan landscape.

*March 2006 and 2008*—Paris and Berlin: Looks at the development of the urban fabric with a concentration on contemporary urban development issues, as well as public places and architecture of historical significance.

### Individual Travel

Undergraduate students desiring to count individual travel toward their degree will need to enroll for LAEP 4900 (Special Problems). Prior to enrollment, students must have a sponsoring faculty member and must submit a proposal for individual travel/study to the faculty for review. The content, objectives, and outcomes of the proposal will be evaluated for consistency with the educational objectives of the travel program.

### Specialized Service Courses

The following courses are available for majors in other fields who may wish to gain an exposure to the different aspects of landscape architecture and environmental planning. A minor is not given in LAEP; however, these service courses are available, without prerequisites, for those requesting them.

LAEP 1030 (BCA) Introduction to Landscape Architecture (F,Sp,Su)	3
LAEP 1200 Basic Graphics in Landscape Architecture (F)	3
LAEP 2300 History of Landscape Architecture (F)	3
LAEP 3700 City and Regional Planning (Sp)	3

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also

# Department of Landscape Architecture and Environmental Planning

complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school.

The LAEP Department offers a departmental honors program for BLA students. To qualify, students must be matriculated in the upper division of the LAEP program and must have a cumulative GPA of at least 3.50. The 15-credit honors course requirement for LAEP honors recognition is met by completion of the following: (1) a 3-credit honors thesis during the senior year, (2) two readings seminars (LAEP 6910 and 6930), and (3) an additional 10 credits of upper-division honors coursework.

Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For detailed information about requirements for the Bachelor of Landscape Architecture, see the major requirement sheet, which can be obtained from the department, or accessed online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

The department offers three master's degrees, including two in Landscape Architecture and one in Bioregional Planning.

### MLA First Professional Degree in Landscape Architecture

The department offers a three-year, first professional degree for students with a bachelor's degree in any area of study. This option allows students having a wide range of undergraduate experience to obtain an accredited degree in landscape architecture that fulfills the educational requirement for professional registration and allows entrance into the field of landscape architecture.

### MLA Advanced Professional Degree

Students with a bachelor's degree in landscape architecture can obtain a master's degree within two years. This advanced professional degree affords landscape architects the opportunity to expand their knowledge in areas of special interest.

### Master of Science in Bioregional Planning

This joint interdisciplinary program is offered by the department in conjunction with the Department of Environment and Society, College of Natural Resources.

For more information about required and recommended coursework, as well as other requirements for these degrees, visit the departmental website: <http://www.laep.usu.edu/>

## Graduate Travel Requirement

All graduate students are required to complete a 1 or 2 credit travel course (LAEP 6550, Travel Course; or LAEP 6900, Special Problems) within the three years of their degree. The travel requirement may be fulfilled as part of the faculty-led international or national field trip experience (which changes venue from year to year), or it may be arranged through independent study outside of the bioregion with permission of the faculty.

## Master of Landscape Architecture

The program for the Master of Landscape Architecture (MLA) emphasizes both traditional site planning and design, as well as broader areas of the profession, such as large-scale regional landscape analysis and planning, open space conservation, historic landscape preservation, and sustainable design. The MLA first professional degree is fully accredited by the Landscape Architectural Accreditation Board of the American Society of Landscape Architects.

The Master of Landscape Architecture program is designed to prepare the student for the landscape architect's challenging role of providing a holistic approach to environmental planning and design. In order for landscape architects to contribute effectively to an interdisciplinary effort, they must be competent in the fundamentals of landscape architecture and also have an understanding of the subject matter of other professions. Landscape architects must master the communication skills necessary to achieve meaningful collaboration. In support of this philosophy, the following are the major objectives of the MLA program.

1. To provide a well-structured curriculum in fundamental professional knowledge and skills.
2. To research, analyze, and resolve land use and design issues related specifically to the Intermountain West. The scope of the program examines national, regional, and local issues; and their impact on the visual, physical, and cultural setting of the Intermountain West.
3. To integrate field experience and research into major graduate studio courses structured around real-world projects.
4. To provide opportunities for each student for exploration and development of an area of concentration as noted elsewhere.
5. To draw upon the regional, national, and international relationships of Utah State University to facilitate a program of academic and professional excellence which will allow the student to achieve eminence in practice, research, or education.

## Areas of Faculty Expertise

The Master of Landscape Architecture program provides opportunities for each student to study and conduct research in areas which take advantage of the strengths of Utah State University and the landscape context of the Intermountain West centered around the expertise of the LAEP Department faculty, including: *Community Planning*—Bell, Lavoie, Licon, Nicholson, Timmons; *Cultural and Historic Landscapes and Preservation*—Borecki, Timmons; *Design/Theory and Representation*—Lavoie; *Land Rehabilitation/Revegetation*—Ellsworth; *Open Space Conservation*—Bell, Licon; *Public Lands/ Recreation*—Borecki, Christensen, Ellsworth, Michael, Timmons; *Site Planning*—Bell, Christensen, Lavoie, Timmons; *Socially Equitable Design*—Christensen; *Sustainable Landscapes*—Bell, Licon; *Urban Regional Landscape Planning*—Licon, Nicholson; *Visual Resource Management*—Ellsworth; *Watershed Sustainability*—Borecki.

These areas of faculty expertise include an assessment of the relevant environmental, design, social, economic, and public policy issues utilizing a wide range of computer-compatible techniques and models.

## Admission Requirements

The application deadline for consideration in the first round of reviews is March 15. Applications received later than March 15 will be considered as space availability allows. February 1 is the application deadline for consideration for some scholarships, fellowships, and other financial aid. For general admissions requirements, see the appropriate sections of this catalog.

# Department of Landscape Architecture and Environmental Planning

## Computer Requirement

Computer competency is essential in the contemporary professional environment. Appropriate computer skills are required for most entry-level opportunities in landscape architecture and environmental planning. Therefore, course content increasingly relies on computer skills and personal access to computers with the appropriate software.

All students entering the MLA program must purchase, lease, or otherwise obtain continuing and uninterrupted access to a personal computer, preferably a laptop, which meets the configuration requirements specified by the LAEP Department. Contact the department for current specifications.

## Course of Study

The graduate program director oversees academic advising of all incoming students until they have selected a thesis topic. A major professor whose interests are closely aligned to those of the student (see *Areas of Faculty Expertise* on page 329 and *Areas of Concentration* on pages 330-332) then supervises thesis work. A minimum of 30 graduate-level credits, including thesis work, is required. Students supplement requirements with courses negotiated with the major professor and supervisory committee. An area of concentration may be pursued by selecting a relevant course of study, as outlined on pages 330-332.

### First Year (33 credits)

During the first year, coursework concentrates on basic professional competency.

#### Fall Semester (17 credits)

LAEP 1200 Basic Graphics in Landscape Architecture .....	4
LAEP 2600 (QI) Landscape Construction I .....	4
LAEP 6270 Site Analysis: Social, Behavioral, and Biophysical Dimensions .....	5
LAEP 6860 Faculty/Interdisciplinary Seminar I (taught <i>both</i> fall and spring semesters) .....	1
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape .....	3

#### Spring Semester (16 credits)

LAEP 1300 Computer Applications in Landscape Architecture .....	3
LAEP 1350 Theory of Design .....	4
LAEP 2720 Site Planning and Design .....	5
LAEP 6230 History of Landscape Architecture .....	3
LAEP 6890 Seminar on Thesis Proposals and Procedures .....	1

### Second Year (32-33 credits)

During the second year, students can begin to specialize in one or more areas of concentration.

#### Fall Semester (18 credits)

LAEP 3600 Landscape Materials .....	2
LAEP 6310 Recreation and Open Space Planning and Design (5 cr) <b>or</b> LAEP 6410 Redefining the Urban Landscape (5 cr) .....	5
LAEP 6350 Planting Design for Sustainability .....	4
LAEP 6740 Planning Theory and Implementation Issues .....	3
LAEP 6910 Reading Seminar I .....	1
BIOL 6960 Graduate General Ecology (or equivalent elective) .....	3

Additional credits should be added as electives from the student's chosen area of concentration.

### Spring Semester (14-15 credits)

LAEP 3610 Landscape Construction II .....	2
LAEP 6320 Residential Planning and Design .....	5
<b>Or</b> (LAEP 6320; <b>or</b> LAEP 4120 and 4130)	
LAEP 4120 Emerging Areas in Landscape Architecture I (2 cr) <b>and</b> LAEP 4130 Emerging Areas in Landscape Architecture II (2 cr) .....	4
(With faculty approval, students may complete LAEP 4120 and 4130 <i>instead of</i> LAEP 6320.)	
LAEP 6750 Implementation and Regulatory Techniques in Planning ...	3
LAEP 6160 Professional Practice I .....	1
LAEP 6170 Professional Practice II .....	1
LAEP 6930 Reading Seminar II .....	1
PLSC 3420 Landscape Irrigation Design .....	2

Additional credits should be added as electives from the student's chosen area of concentration.

### Third Year (18 credits)

#### Fall Semester (11 credits)

LAEP 4110 Construction Document Preparation .....	4
LAEP 6100 Regional Landscape Analysis and Planning .....	5
LAEP 6970 Thesis Research (Plan A, Thesis) (2 cr) <b>or</b> LAEP 6960 Master's Project (Plan B, Terminal Project) (2 cr) .....	2

Additional credits should be added as electives from the student's chosen area of concentration.

#### Spring Semester (7 credits)

LAEP 6110 Landscape Planning for Wildlife .....	3
LAEP 6970 Thesis Research (Plan A, Thesis) (4 cr) <b>or</b> LAEP 6960 Master's Project (Plan B, Terminal Project) (4 cr) .....	4

Additional credits should be added as electives from the student's chosen area of concentration.

**Note:** Recommended electives are listed on area of concentration sheets, which are available from the department. Selection of electives should be related to thesis or terminal project content and should be selected in consultation with the student's mentor and/or thesis/project committee. Specific elective coursework may be required by the thesis/project committee in order to properly prepare the student for thesis or project work (Plan A or B).

## Areas of Concentration

The program possesses an enviable reputation for graduating students with strong core professional skills. In addition to these skills, the department has the following four areas of concentration which reflect the strengths of the faculty, along with elective course offerings in other units of the University: (1) Open Space Conservation Planning and Green Space Design, (2) Cultural and Historic Landscapes, (3) Community Planning and Urban Design, and (4) Sustainable Landscapes. These four areas of concentration have recommended courses of study as outlined below, reflecting a depth of study in a particular area of landscape architectural theory and practice. Students may choose one of these areas, or they may create their own course of study to reflect their particular interests. Note that *all* students *must* complete the core MLA curriculum, in addition to courses noted in the various areas of concentration. For current requirements, contact the LAEP graduate program director. **Since these areas of concentration are not approved as graduate specializations, they will not appear on student transcripts or diplomas.**

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## Open Space Conservation Planning and Green Space Design

This area of concentration focuses on the conservation, planning, and design of open space. This focus will appeal to individuals who are interested in working for land trusts or for state and local governments in planning or land conservation roles, as well as to landscape architects in public or private practice who are interested in the design and planning of open space. With a strong basis in the Landscape Architecture program in the design and planning of open space (along with the theory, policy, and legal issues), supporting courses can be found in other units in the University. Elective courses can be found in Sociology, focusing on conflict management and the social implications of resource policy; Economics, focusing on valuation and impact analysis; and Natural Resources, focusing on ecology, spatial systems, collaborative problem-solving, and conservation biology.

### Supporting Coursework

**LAEP 2700 (CI)** Site Analysis: Social, Behavioral, and Biophysical Dimensions (F).....5

### Electives

**APEC 5560** Natural Resource and Environmental Economics (Sp).....3  
**APEC 6710** Community Planning and Impact Analysis (F).....3  
**ENVS 4000 (DSS)** Human Dimensions of Natural Resource Management (F).....3  
**ENVS 5000** Collaborative Problem-Solving for Environment and Natural Resources (Sp).....3  
**NR 6510** Biophysical and Human Dimensions of Ecosystems (F,Sp,Su).....3  
**SOC 6630** Natural Resources and Social Development (Sp).....3  
**SOC 6640** Conflict Management in Natural Resources (Sp).....3  
**WILD 4600** Conservation Biology (Sp).....3  
**WILD 7220** Community-based Conservation Partnerships (Sp).....3

## Cultural and Historic Landscapes

The graduate concentration in Cultural and Historic Landscapes prepares students for work in the research, documentation, analysis, understanding, planning, and management of human-influenced landscapes. Cultural landscapes have been defined by the World Heritage Convention of UNESCO as representing the "combined works of nature and of man. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic, and cultural forces, both external and internal." They are grouped into three broad categories, which include: (1) the historic designed landscape or site, (2) the organically evolved or vernacular landscape, and (3) the associative cultural (ethnographic) landscape. (UNESCO. World Heritage Convention. Operational Guidelines for the Implementation of the World Heritage Convention. Paris: UNESCO, 1996.) The National Park Service notes that, "Historic landscapes vary in size from small gardens to several thousand-acre national parks. In character they range from designed to vernacular, rural to urban, and agricultural to industrial spaces. Vegetable patches, estate gardens, cemeteries, farms, quarries, nuclear test sites, suburbs, and abandoned settlements all may be considered historic landscapes." (Historic American Landscapes Survey website: <http://www.nps.gov/history/hdp/>)

Ever-expanding populations are exerting increased development pressure on historic resources, leading to a growing domestic and international demand for landscape architects trained in this area of concentration. Career application of skills can range from topics as wide-ranging as preservation planning and heritage tourism to regional land-use planning and urban design, in both the public and private sectors.

### Supporting Coursework

**LAEP 6410** Redefining the Urban Landscape (F).....5

### Electives

**ANTH 6110** Southwest Indian Cultures, Past and Present (F).....3  
**ANTH 6130** Ethnographic Field School (Su).....3-6  
**ANTH 6650** Developing Societies (F).....3  
**HIST 6000** Historical Methods and Research (F).....3  
**HIST 6030** Research Seminar.....3  
**HIST 6460** Seminar in Environmental History.....3  
**HIST 6610** Seminar on the American West (F).....3-4  
**HIST 6620** Seminar in Native American Studies (F).....3-4  
**HIST 6760** Cultural and Historical Museums (Sp).....3  
**HIST 6770** Seminar in Folklore and Folklife (F,Sp,Su).....3  
**SOC 5640** Conflict Management in Natural Resources (Sp).....3

## Community Planning and Urban Design

This area of concentration focuses on both large and small communities, with particular application to the Western United States. This curriculum path will appeal to students who want to apply their landscape architecture skills to community focused projects, which could range in scale from an ethnic neighborhood in a city of two million to a downtown redevelopment project for a small town in the rural West. Opportunities upon graduation would include private firms offering planning and design services, as well as public agencies at the local, state or federal level.

### Supporting Coursework

**LAEP 2700 (CI)** Site Analysis: Social, Behavioral, and Biophysical Dimensions (F).....5  
**LAEP 6410** Redefining the Urban Landscape (F).....5

### Electives

**APEC 5560** Natural Resource and Environmental Economics (Sp).....3  
**APEC 5850** Regional and Community Economic Development (F).....3  
**GEOG 3610** Geography of Rural/Urban Planning (F).....3  
**SOC 3600** Sociology of Urban Places (F).....3  
**SOC 3610 (DSS)** Rural Sociology (F).....3  
**SOC 6200** Social Demography (F).....3  
**SOC 6230** Techniques of Demographic Analysis (Sp).....3  
**SOC 6700** Advanced Rural Sociology (Sp).....3

## Sustainable Landscapes

Sustainability is a broad concept. It can be integrated into virtually every aspect of landscape architecture and environmental planning. The sustainable landscapes area of concentration in the LAEP department is focused on sustainability issues associated with the built landscape and the interface between built landscapes and open space. Coursework includes such subjects as low water use landscaping, planting design, planning for urban wildlife, storm water management, community economic development, and green business. In addition to coursework and thesis writing, students in the sustainable landscapes area of concentration organize and implement the department's annual Sustainability Conference, which is now in its eighth year.

### Supporting Coursework

**BIOL 2220** General Ecology (F,Sp).....3  
**LAEP 6310** Recreation and Open Space Planning and Design (F).....5  
**LAEP 6740** Planning Theory and Implementation Issues (F).....3

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## Electives

<b>ENVS 4000 (DSS)</b> Human Dimensions of Natural Resource Management (F).....	3
<b>GEO 3100 (DSC)</b> Natural Disasters (Sp).....	3
<b>NR 6510</b> Biophysical and Human Dimensions of Ecosystems (F,Sp,Su).....	3
<b>NR 6520</b> Structure and Function of Ecological and Social Systems (F,Sp,Su).....	3
<b>NR 6530</b> Integrated Inventory, Analysis, and Assessment of Ecosystems (F,Sp,Su).....	3
<b>NR 6540</b> Ecosystem Management Implementation (F,Sp,Su).....	3
<b>SOC 6620</b> Environment, Technology, and Social Change (Sp).....	3
<b>SOC 6640</b> Conflict Management in Natural Resources (Sp).....	3
<b>SOC 7640</b> Population and Environment (Sp).....	3
<b>SOIL 4000</b> Soil and Water Conservation (F).....	4
<b>WATS 5490</b> Small Watershed Hydrology (F).....	4
<b>WATS 6530</b> Water Quality and Pollution (Sp).....	3
<b>WATS 7640</b> Riparian Ecology and Management (Sp).....	3
<b>WILD 4700</b> Ecological Foundations of Restoration (Sp).....	3
<b>WILD 7300/5300</b> Wildlife Damage Management Principles (Sp).....	3
<b>WILD 7400</b> Plant Population Ecology (F).....	3

## Graduate Travel Requirement

The graduate curriculum includes a requirement for a minimum of 1 credit of travel and study outside of the bioregion. This travel requirement can be satisfied by one or both of the following courses:

<b>LAEP 6550</b> Travel Course (F,Sp,Su).....	1-3
<b>LAEP 6900</b> Special Problems (F,Sp,Su).....	1-5

## Study Abroad

The department currently has a cooperative agreement with the University of Ljubljana, Slovenia where students can study for a semester and complete research projects as appropriate. Approved courses of study in design and planning programs offered by other institutions may count toward the travel requirement; however, course substitutions are subject to faculty approval.

## Faculty-Sponsored Field Study Travel

The department has a long tradition of a professionally oriented "Spring Break" trip, which is offered for graduate students under LAEP 6550. Recent trips have included San Francisco, Los Angeles, Portland, Seattle, Vancouver, Boston, and Washington D.C.

The department also offers the opportunity to join faculty on research trips under an international (2-week) field study experience, the destination of which changes from year to year. For example:

*May 2005 and 2007*—The Italian Renaissance Villa and Town Planning: Looks at Greek (Paestum) and Roman (Pompeii, Roman Forum) antecedents, as well as Renaissance Villas from the region surrounding Rome to Florence and the Tuscan landscape.

*March 2006 and 2008*—Paris and Berlin: Looks at the development of the urban fabric with an concentration on contemporary urban development issues, as well as public places and architecture of historical significance.

## Individual Travel

Graduate students desiring to count individual travel toward their degree will need to enroll for LAEP 6900 (Special Problems). Prior to enrollment, students must have a sponsoring faculty member and must submit a proposal for individual travel/study to the faculty for review. The content, objectives, and outcomes of the proposal will be evaluated for consistency with the educational objectives of the travel program.

## Additional Information

For more detailed information about currently required and recommended coursework, as well as other requirements for this degree, visit the departmental website: <http://www.laep.usu.edu/>

## Master of Science in Bioregional Planning (joint degree program with Environment and Society)

Informed planning and management of natural resources and systems supersedes individual disciplines, requiring an interdisciplinary approach for the successful resolution of environmental issues. The intent of this program's curriculum is to integrate the biophysical disciplines more closely while also addressing the social and political sciences. This degree program is offered jointly by the Department of Landscape Architecture and Environmental Planning in the College of Humanities, Arts, and Social Sciences, and by the Department of Environment and Society in the College of Natural Resources.

## Course of Study

This two-year MS program is comprised of an interdisciplinary core of courses and faculty for addressing complex issues in the areas of bioregional planning and management. Emphasis is placed on four problematic content areas: biophysical, social/demographic, economic, and public policy. The spatial focus is on the planning for large landscape areas with dispersed populations with a primary economic base in agriculture, energy development, tourism/recreation, retirement communities, and natural resources.

The program requires a minimum of 36 graduate-level credits, including 3-6 credits of work on a thesis or paper/project. Nine of the required credits may be in an area of concentration. These nine credits are to be negotiated with the candidate's major professor and supervisory committee. A capstone course is required for all LAEP students. Requirements for the MS in Bioregional Planning are as follows:

### Required

Environment Systems Research Institute (ESRI) certification course or ENVS 6900 (Geographic Information Systems), LAEP 6740, and ENVS 6900 (Shibley Seminar/ NEPA/EIS).

### Research Methods/Case Studies (3-4 credits)

One of the following courses is required: SOC 6100, 6150, WILD 6500.

### Biophysical (3-4 credits)

One of the following courses is required: WATS 6330, WILD 6710. For those students without a background in ecology, WILD 4600 is also required. Credits earned for WILD 4600 or equivalent *do not apply* to the graduate program.

### Social/Economic Policy (3-4 credits)

One of the following courses is required: ENVS 6000, POLS 5180, or SOC 6630.

### Capstone Course (5 credits)

LAEP 6100 is required for all LAEP students.

### Area of Concentration (9 credits)

Nine credits should be available to the candidate for an area of concentration.

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## Thesis or Project (3 or 6 credits)

A thesis or Plan B paper/project option is required and is to be negotiated with the candidate, major professor, and supervisory committee.

**Total Credits: 36-39**

## Environmental Field Service

### Practical Education and Community Service

The department sponsors a program of planning and design services in which MS, MLA, and BLA students participate. The Environmental Field Service program engages students with community leaders and citizens and tests concepts and skills acquired in the classroom while working on real projects.

## Internships and Cooperative Education

Many students take advantage of the practical learning opportunities available through internships and cooperative education programs. The student, in cooperation with the department and government agency or private firm, makes the necessary arrangements. Internships and cooperative education experiences are not required for degree completion. In some cases, these experiences may be used as the basis for waiver of selected courses, subject to approval in advance by the major professor, graduate program director, and department head. Students completing these experiences are required to make a summary presentation to department faculty and students.

## Financial Assistance

The application deadlines for scholarships and financial assistance vary. For current application deadline information, contact the LAEP Department, the USU Financial Aid Office, and the School of Graduate Studies. Acceptance to pursue graduate study does not guarantee the student financial assistance.

## Career Opportunities

The Department of Landscape Architecture and Environmental Planning provides education for careers in landscape architectural site planning, design, environmental planning, and management, with special consideration for conditions in the Intermountain West. Graduates are employed by local, state, and federal agencies, as well as by private sector professional firms. LAEP graduates also find employment in academia at both the undergraduate and graduate levels.

## Landscape Architecture and Environmental Planning Faculty

### Swaner Professor

*Carlos V. Licon*, sustainable landscapes, open space, community, urban and regional landscape planning

### Professors

*John C. Ellsworth*, visual resources management, land rehabilitation/ revegetation, public lands and recreation

*Sean E. Michael*, human-environment relationships, crime prevention through environmental design (CPTED), bioregional and recreation design

### Professor Emeritus

*Craig W. Johnson*, wildlife habitat planning and design, riparian buffers, site planning, planting design

### Associate Professors

*David L. Bell*, community planning and design, construction document preparation

*Caroline Lavoie*, urban design and cultural landscapes, design theory, landscape and planning theory

*John K. Nicholson*, urban and regional planning, computer applications, transportation, green building

*Michael L. Timmons*, site planning and design, recreation and open space planning, landscape history, historic preservation

### Associate Professor Emeritus

*Vern J. Budge*, landscape construction, recreation planning

### Assistant Professors

*Malgorzata (Margie) Ryzewicz-Borecki*, graphics, design implementation, sustainable stormwater practices

*Keith Christensen*, socially equitable design, site analysis, site planning, public lands/recreation

## Course Descriptions

Landscape Architecture and Environmental Planning (LAEP), pages 593-595

# Department of Languages, Philosophy, and Speech Communication

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**Degrees offered:** Bachelor of Arts (BA) in French, German, and Spanish; BA and Bachelor of Science (BS) in Philosophy; BA and BS in Speech; Master of Second Language Teaching (MSLT)

## Undergraduate Programs

### Mission Statement

The Department of Languages, Philosophy, and Speech Communication offers programs in modern languages and literature, philosophy, and speech communication. While these programs differ widely in their curricula, they are bound together by two considerations: (1) an emphasis on humanistic content and method of inquiry; and (2) a recognition on the part of the departmental faculty that a critical part of becoming an educated person lies in achieving a greater

understanding of one's self and of others, an understanding opened up through insight into the spoken and written word.

Courses offered by the department provide majors and minors with opportunities to achieve this understanding by increasing their communicative, logical, interpretive, linguistic and research skills; their ability to function within an increasingly globalized society; and their awareness of ethical, aesthetic, and other values. Courses offered by the department also give students in the teaching emphasis and teaching minors the opportunity to serve the needs of the education professions.

Through its participation in the University Studies program, the department provides all students with an opportunity to gain knowledge of how people come to understand themselves through their cultural, literary, and philosophical achievements. The department also furthers the education of both traditional and nontraditional students through faculty participation in interdisciplinary programs such as Honors, Latin American Studies, Medieval and Early Modern Studies, Liberal Arts, Asian Studies, and Women and Gender Studies; and in cooperative education, distance learning, extension, and study-abroad programs.

### Admission Requirements

Admission requirements for freshmen desiring entrance to major programs offered by the Department of Languages, Philosophy, and Speech Communication are the same as those for Utah State University (see pages 30-35). Transfer students from other institutions and from other majors within Utah State University must have an overall minimum GPA of 2.5 (2.75 for Spanish) to be admitted to the department's major programs.

For admission to the speech major, students must submit an application and meet the following prerequisites:

1. Students must have earned at least 25 semester credits at USU or at another college or university.
2. A cumulative GPA of 2.5 or higher must have been attained.
3. Either SPCH 1020 or 2110 (or an equivalent course) must have been completed with a grade of C+ or better.

Admission is limited to 25 students each year. Decisions will be based on: (1) academic record, (2) realistic career or professional study objective, (3) ability of this program to prepare the student for his or her intended career, (4) satisfactory speaking and writing competencies, and (5) motivation and creativity demonstrated by class performance, work experience, volunteer activities, and other means provided by the student during the application process.

All students majoring in programs offered by this department must maintain a minimum GPA of 2.5 in their major (3.0 in Spanish) to be in good standing in the department and to obtain official approval for graduation.

### Career Information

For career and graduate school information, students should contact undergraduate advisors in the department.

### Scholarship Information

Four scholarships are offered through the Department of Languages, Philosophy, and Speech Communication. The **Brett Blanch Memorial Scholarship** is awarded to an outstanding philosophy major. The **Carl T. Degener Memorial Scholarship** is awarded to an outstanding language major at the junior level. Outstanding upper-division students

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in French (and under some circumstances Spanish) are eligible for the **Jean Inness Scholarship**. The **Thain Scholarship** is awarded to an outstanding high school senior enrolling in a language or philosophy course at USU. The **Harold J. Kinzer Scholarship** is awarded to a speech major who has earned a minimum of 9 upper-division USU credits toward the major or who is currently enrolled at USU. To qualify for the Kinzer Scholarship, the student must have at least one more semester remaining at USU and must have a 3.7 or higher GPA in the major courses. The **Jaime Cantarovici Memorial Scholarship** is awarded to an outstanding undergraduate senior majoring in Spanish. For further details about available scholarships, contact the departmental office.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For detailed information about requirements for majors and minors within the Languages, Philosophy, and Speech Communication Department, see the major requirement sheets, which are available from the department, or which can be accessed online at: <http://www.usu.edu/majorsheets/>

## Graduate Program

### Master of Second Language Teaching (MSLT)

The Master of Second Language Teaching (MSLT) degree program is designed for students desiring additional training at the graduate level in an integrative, interdisciplinary program combining coursework in the field of Foreign Language Education, Bilingual Education, and ESL/EFL Education. Attainment of the degree requires the completion of a minimum of 30 credits of coursework in the MSLT program. The program leading to the MSLT consists of a core curriculum of 18 credits and a professional curriculum of 12 credits. Courses in the core curriculum are designed to respond to the program's emphasis areas in language, literacy, and culture. Courses in the professional curriculum address teaching methodology, curriculum preparation, materials development, and testing. A Master's Project in the form of a substantial, cumulative Master's Portfolio is also required. The Master's Portfolio will include a comprehensive statement of the candidate's philosophy of second language teaching and learning and how this philosophy will be applied in a professional environment. This project will be defended at the end of the degree program. All candidates must take a series of research courses in the professional curriculum designed to aid in preparing the Portfolio Project.

This master's degree program does not lead to licensure by the Utah State Board of Education. Individuals who do not have Utah State Board of Education licensure and wish to obtain that credential must take the three-semester Secondary Teacher Education Program (STEP) in the Secondary Education Program of the School of Teacher Education and Leadership (TEAL) in the Emma Eccles Jones College of Education and Human Services.

For program information, including admission requirements, degree requirements, courses, and financial assistance, contact the departmental office or see the program's website at: <http://lpsc.usu.edu>

## Languages

Language faculty members in the Department of Languages, Philosophy, and Speech Communication teach courses leading to undergraduate degrees in French, German, and Spanish, as well as to undergraduate minors in Chinese, French, German, Japanese, Portuguese, Russian, and Spanish. Teaching emphases and minors are also offered in French, German, and Spanish. The department also offers a minor program in Linguistics.

### French, German, and Spanish Major Programs

The goal of the French, German, and Spanish BA degree programs is to prepare students to be able to take advanced studies in these languages, literatures, and cultures; to be quality teachers of these languages, literatures, and cultures in the public schools; and to provide those who may enter other professions a solid grounding in these languages, literatures, and cultures, in order that they may function as members of the international community. The curricula supporting these goals includes courses in language, literature, civilization, culture, and linguistics. See the course requirements which follow.

## Course Requirements

### Language Major Requirements

#### French Major and Minor Requirements

##### Minimum Departmental Requirements

<b>Total Credits:</b>	
French Major .....	33
French Major, Teaching Emphasis .....	31 FREN & 31 SCED
French Minor .....	12
French Minor, Teaching Emphasis .....	15 FREN & 31 SCED
French Major, Teaching Emphasis without licensure .....	35
French Minor, Teaching Emphasis without licensure .....	19

Grade Point Average to Declare a Major or Minor.....	2.5 Career GPA
Grade Point Average to Graduate with Major or Minor.....	2.5 GPA within Major/Minor Classes

##### Notes:

Courses for French Majors and Minors require a minimum of C- or better.

Courses for French Majors and Minors *may not* be taken on a *Pass/Fail* Basis (except for FREN 30307).

### French Major (33 credits) (2.5 GPA)

#### A. Required Course (3 credits)

LING 4100 <sup>s,DE</sup> The Study of Language (F,Sp).....	3
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<sup>DE</sup>Available as a regular on-campus class or online through Regional Campuses and Distance Education (RCDE).



# Department of Languages, Philosophy, and Speech Communication

## B. Elective Courses (30 credits minimum)

Students must complete at least 30 credits of upper-division coursework selected from the following list.

FREN 3030 <sup>7</sup> Advanced French for Everyday Communication (graded pass/fail only) (Su)	3
FREN 3060 (CI) <sup>2</sup> French Conversation	3
FREN 3070 <sup>7</sup> Advanced French Language Study Abroad I (Su)	4
FREN 3080 <sup>7</sup> Advanced French Language Study Abroad II (Su)	4
FREN 3090 (CI) <sup>3</sup> French Intermediate Written Communication	3
FREN 3500 (DHA) Topics in French Literature in Translation (repeatable for credit)	3
FREN 3510 (CI) Business French (F)	3
FREN 3550 (DHA) French Civilization	3
FREN 3570 France Today	3
FREN 3600 <sup>6</sup> Textual Analysis	3
FREN 3820 <sup>7</sup> Advanced Independent Study: Experiencing Paris (Su)	2
FREN 3880 Individual Readings (F,Su)	1-4
FREN 3900 <sup>1</sup> Topics in French and Francophone Studies	3
FREN 4060 (CI) <sup>2</sup> Advanced French Conversation	3
FREN 4090 (CI) <sup>3</sup> Advanced Written Communication	3
FREN 4200 <sup>5</sup> Applied French Linguistics and Phonetics	3
FREN 4610 (DHA) <sup>1</sup> Period Studies in French Literature	3
FREN 4620 (DHA) <sup>1</sup> Genre Studies in French Literature	3
FREN 4880 Individual Readings (F,Sp)	1-4
FREN 4900 <sup>1</sup> Seminar in French and Francophone Studies	3
FREN 4920 <sup>1,4</sup> French Language Tutoring (F,Sp)	1-2
LING 4900 Analysis of Cross-Cultural Difference (Sp) (3 cr) or SPCH 3330 (DSS) Intercultural Communication (F,Sp) (3 cr)	3

Students should note that *no more than two* upper-division French courses taught in English can be applied toward the French majors.

## French Major—Teaching Emphasis with Secondary School Licensure (31 FREN credits & 31 SCED credits) (2.5 GPA)

**Note:** The following requirements *only* specify courses offered by the Department of Languages, Philosophy, and Speech Communication. To be licensed to teach in the Utah public secondary school system, students with a teaching emphasis must also complete additional courses (approximately 31 credits) required by the Secondary Education Program. For more information, please contact the Secondary Education Program, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on page 341. Information is also provided on the Web at: [http://secondaryeducation.usu.edu/cs\\_admission.php](http://secondaryeducation.usu.edu/cs_admission.php)

### I. French and Linguistics Courses (31 credits)

#### A. Required Courses (25 credits)

LING 4100 <sup>5,DE</sup> The Study of Language (F,Sp)	3
FREN 4200 <sup>5,9</sup> Applied French Linguistics and Phonetics	3
FREN 3060 (CI) <sup>2</sup> French Conversation (3 cr) or FREN 4060 (CI) <sup>2</sup> Advanced French Conversation (3 cr)	3
FREN 3090 (CI) French Intermediate Written Communication (3 cr) or FREN 4090 (CI) <sup>3</sup> Advanced Written Communication (3 cr)	3
FREN 3550 (DHA) French Civilization (3 cr) or FREN 3570 France Today (3 cr)	3
FREN 3600 <sup>6</sup> Textual Analysis	3
FREN 4610 (DHA) <sup>1</sup> Period Studies in French Literature	3
FREN 4620 (DHA) <sup>1</sup> Genre Studies in French Literature	3
FREN 4920 <sup>1,4</sup> French Language Tutoring (F,Sp)	1-2

<sup>DE</sup>Available as a regular on-campus class or online through Regional Campuses and Distance Education (RCDE).

## B. Elective Courses (6 credits)

Students must complete 6 additional upper-division credits in coursework either not taken above or from the following list:

FREN 3500 (DHA) Topics in French Literature in Translation (repeatable for credit)	3
FREN 3510 (CI) Business French (F)	3
FREN 3900 <sup>1</sup> Topics in French and Francophone Studies	3
FREN 4900 <sup>1</sup> Seminar in French and Francophone Studies	3
LING 4900 Analysis of Cross-Cultural Difference (Sp) (3 cr) or SPCH 3330 (DSS) Intercultural Communication (F,Sp) (3 cr)	3
FREN 3030 <sup>7</sup> Advanced French for Everyday Communication (Su)	3
FREN 3070 <sup>7</sup> Advanced French Language Study Abroad I (Su)	4
FREN 3080 <sup>7</sup> Advanced French Language Study Abroad II (Su)	4
FREN 3820 <sup>7</sup> Advanced Independent Study: Experiencing Paris (Su)	2
FREN 3880 Individual Readings (F,Sp,Su)	1-4
FREN 4880 Individual Readings (F,Sp,Su)	1-4

## II. Secondary Teacher Education Program (STEP) Courses (31 credits; 35 credits including courses for teaching minor)

For further information, review the *Secondary Teacher Education Program (STEP) Level Outline* on page 341.

### French Minor (12 credits) (2.5 GPA)

To receive a French minor, students must complete 12 upper-division credits in French. Students should note that *only one credit of FREN 4920* may count toward the French minor. In addition, courses taken for the French minor programs may not be taken on a *pass/fail* basis, with the exception of FREN 3030. Students should also note that *no more than one* upper-division French course taught in English can be applied toward the French minor.

### French Minor—Teaching Emphasis with Secondary School Licensure (46 credits) (2.5 GPA)

**Note:** The following requirements *only* specify courses offered by the Department of Languages, Philosophy, and Speech Communication. To be licensed to teach in Utah public secondary school system, students with a teaching emphasis must also complete additional courses (approximately 31 credits) required by the Secondary Education Program. For more information, please contact the Secondary Education Program, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on page 341. Information is also provided on the Web at: [http://secondaryeducation.usu.edu/cs\\_admission.php](http://secondaryeducation.usu.edu/cs_admission.php)

Students should note that *only one credit of FREN 4920* may count toward the French Minor—Teaching Emphasis. In addition, courses taken for the French minor programs may not be taken on a *pass/fail* basis, with the exception of FREN 3030.

### I. French and Linguistics Courses (19 credits)

#### A. Required Courses (16 credits)

FREN 3090 (CI) <sup>3</sup> French Intermediate Written Communication (3 cr) or FREN 4090 (CI) <sup>3</sup> Advanced Written Communication (3 cr)	3
FREN 3550 (DHA) French Civilization (3 cr) or FREN 3570 France Today (3 cr)	3
FREN 3600 <sup>6</sup> Textual Analysis	3
FREN 4200 <sup>9</sup> Applied French Linguistics and Phonetics	3
LING 3300 <sup>10</sup> Clinical Experience I (F) (1 cr) or LING 4300 <sup>10</sup> Clinical Experience II (F) (1 cr)	1
LING 4400 <sup>10</sup> Teaching Modern Languages (F)	3

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## B. Elective Courses (3 credits)

Students must complete an additional three credits in coursework selected from the following list:

<b>FREN 4610 (DHA)</b> <sup>1</sup> Period Studies in French Literature.....	3
<b>FREN 4620 (DHA)</b> <sup>1</sup> Genre Studies in French Literature.....	3
<b>LING 4900</b> Analysis of Cross-Cultural Difference (Sp) (3 cr) <b>or</b>	
<b>SPCH 3330 (DSS)</b> Intercultural Communication (F,Sp).....	3
<b>FREN 3030</b> <sup>7</sup> Advanced French for Everyday Communication (Su).....	3
<b>FREN 3070</b> <sup>7</sup> Advanced French Language Study Abroad I (Su).....	4
<b>FREN 3080</b> <sup>7</sup> Advanced French Language Study Abroad II (Su).....	4
<b>FREN 3500 (DHA)</b> Topics in French Literature in Translation (repeatable for credit).....	3
<b>FREN 3510 (CI)</b> Business French (F).....	3
<b>FREN 3820</b> <sup>7</sup> Advanced Independent Study: Experiencing Paris (Su)...	2
<b>FREN 3880</b> Individual Readings (F,Su).....	1-4
<b>FREN 4900</b> <sup>1</sup> Seminar in French and Francophone Studies.....	3
<b>FREN 4920</b> <sup>1,8</sup> French Language Tutoring (F,Sp).....	1-2

## II. Secondary Teacher Education Program (STEP)

### Courses (31 credits; 35 credits including courses for teaching emphasis)

For further information, review the *Secondary Teacher Education Program (STEP) Level Outline* on page 341.

## French Major and/or Minor—Teaching Emphasis without Secondary School Licensure (major 35 credits, minor 19 credits) (2.5 GPA)

It is possible to have a teaching emphasis within a major or minor in French without receiving Secondary School teaching licensure. However, unless the student is an elementary education major, he or she *would not* be able to teach in Utah public schools (nor at many private ones). Graduating without licensure may allow employment at some community colleges and universities.

In order to complete the French Major—Teaching Emphasis *without* Secondary School Licensure, students must fulfill all of the requirements listed under Section I (French and Linguistics Courses) of the French Major—Teaching Emphasis *with* Secondary School Licensure (31 credits), plus either LING 3300<sup>10</sup> or 4300<sup>10</sup> (1 credit) and LING 4400<sup>10</sup> (3 credits), for a total of 35 credits.

Similarly, to complete a French Minor—Teaching Emphasis *without* Secondary School Licensure, students must fulfill all of the requirements listed under Section I (French and Linguistics Courses) of the French Minor—Teaching Emphasis *with* Secondary School Licensure (15 credits), plus either LING 3300<sup>10</sup> or 4300<sup>10</sup> (1 credit) and LING 4400<sup>10</sup> (3 credits), for a total of 19 credits.

<sup>1</sup>This course requires FREN 3600 or instructor's permission. FREN 3900, 4900, and 4920 may be repeated for credit with different content.

<sup>2</sup>Students with foreign experience may be advised to enroll in FREN 3060 or 4060, depending upon results of a placement test and/or instructor's determination.

<sup>3</sup>Students with foreign experience may be advised to enroll in FREN 3090 or 4090, depending upon results of a placement test and/or instructor's determination.

<sup>4</sup>Only two credits of FREN 4920 may count toward the French Major or French Major—Teaching Emphasis.

<sup>5</sup>It is recommended that LING 4100 be taken before FREN 4200.

<sup>6</sup>This course may be repeated one time for credit with different content.

<sup>7</sup>Offered only through USU's Summer Study Abroad program in France.

<sup>8</sup>Only one credit of FREN 4920 may count toward the French Minor or French Minor—Teaching Emphasis.

<sup>9</sup>Students should take FREN 4200 near the end of their coursework. Please note that FREN 4200 is offered every other year.

<sup>10</sup>LING 3300 or 4300 and LING 4400 must be taken *during the same semester*, and should be the *last* courses taken for the major or minor.

## German Major and Minor Requirements

### Minimum Departmental Requirements

#### Total Credits:

German Major .....	33
German Major, Teaching Emphasis .....	31 GERM & 31 SCED
German Minor .....	12
German Minor, Teaching Emphasis .....	15 GERM & 31 SCED
German Major, Teaching Emphasis without licensure.....	35
German Minor, Teaching Emphasis without licensure.....	19

Grade Point Average to Declare a Major or Minor.....2.5 Career GPA

Grade Point Average to Graduate

with Major or Minor.....2.5 GPA within Major/Minor Classes

#### Notes:

Courses for German Majors and Minors require a minimum of C- or better.

Courses for German Majors and Minors *may not* be taken on a *Pass/Fail* Basis.

## German Major (33 credits) (2.5 GPA)

### A. Required Courses (9 credits)

<b>GERM 3000 (DHA)</b> Introduction to German Studies (F).....	3
<b>GERM 3040 (CI)</b> Advanced German Grammar and Composition (F)...	3
<b>LING 4100</b> <sup>DE</sup> The Study of Language (F,Sp).....	3

<sup>DE</sup>Available as a regular on-campus class or online through Regional Campuses and Distance Education (RCDE).

### B. Elective Courses (24 credits)

Students must complete at least 24 credits of upper-division coursework from the following list.

<b>GERM 3050 (CI)</b> Advanced German Grammar and Composition (Sp).....	3
<b>GERM 3300 (DHA)</b> Contemporary German Speaking Cultures (Sp)....	3
<b>GERM 3510 (CI)</b> Business German (Sp) .....	3
<b>GERM 3540 (CI)</b> Techniques in Translating German Texts (F) .....	3
<b>GERM 3550 (DHA)</b> Cultural History of German Speaking Peoples (F).....	3
<b>GERM 3600 (DHA)</b> Survey of German Literature I (F).....	3
<b>GERM 3610 (DHA)</b> Survey of German Literature II (Sp) .....	3
<b>GERM 3800</b> <sup>11</sup> German III Study Abroad (Su).....	3
<b>GERM 3880</b> <sup>11</sup> Individual Readings (F,Sp) .....	1-4
<b>GERM 4200</b> Applied German Linguistics and Phonetics (Sp).....	3
<b>GERM 4610</b> German Narratives (Sp).....	3
<b>GERM 4650 (DHA)</b> Trends in Modern German Literature (F).....	3
<b>GERM 4800</b> <sup>11</sup> German IV Study Abroad (Su).....	1-4
<b>GERM 4880</b> <sup>11</sup> Individual Readings (F,Sp) .....	1-4
<b>GERM 4900</b> <sup>11</sup> Special Topics (Sp).....	3
<b>GERM 4910</b> German for Special Purposes (Sp).....	3
<b>GERM 4920</b> <sup>11,12</sup> German Language Tutoring (F,Sp,Su) .....	1
<b>LING 4900</b> Analysis of Cross-Cultural Difference (Sp) (3 cr) <b>or</b>	
<b>SPCH 3330 (DSS)</b> Intercultural Communication (F,Sp) (3 cr).....	3

**Note:** Credits obtained in lower-division German courses *cannot* be applied toward the German major programs.

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## German Major—Teaching Emphasis with Secondary School Licensure (31 GERM credits & 31 SCED credits) (2.5 GPA)

**Note:** The following requirements *only* specify courses offered by the Department of Languages, Philosophy, and Speech Communication. To be licensed to teach in the Utah public secondary school system, students with a teaching emphasis must also complete additional courses (approximately 31 credits) required by the Secondary Education Program. For more information, please contact the Secondary Education Program, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on page 341. Information is also provided on the Web at: [http://secondaryeducation.usu.edu/cs\\_admission.php](http://secondaryeducation.usu.edu/cs_admission.php)

### I. German and Linguistics Courses (31 credits)

#### A. Required Courses (18 credits)

LING 4100 <sup>13,DE</sup> The Study of Language (F,Sp).....	3
LING 4900 Analysis of Cross-Cultural Difference (Sp) (3 cr) or SPCH 3330 (DSS) Intercultural Communication (F,Sp) (3 cr).....	3
GERM 3000 (DHA) Introduction to German Studies (F).....	3
GERM 3040 (CI) Advanced German Grammar and Composition (F)....	3
GERM 3050 (CI) Advanced German Grammar and Composition (Sp).....	3
GERM 4200 <sup>14</sup> Applied German Linguistics and Phonetics (Sp).....	3

#### B. Elective Courses (13 credits)

GERM 3300 (DHA) Contemporary German Speaking Cultures (Sp)....	3
GERM 3510 (CI) Business German (Sp).....	3
GERM 3540 (CI) Techniques in Translating German Texts (F).....	3
GERM 3550 (DHA) Cultural History of German Speaking Peoples (F).....	3
GERM 3600 (DHA) Survey of German Literature I (F).....	3
GERM 3610 (DHA) Survey of German Literature II (Sp).....	3
GERM 3800 <sup>11</sup> German III Study Abroad (Su).....	1-4
GERM 3880 <sup>11</sup> Individual Readings (F,Sp).....	1-4
GERM 4610 German Narratives (Sp).....	3
GERM 4650 (DHA) Trends in Modern German Literature (F).....	3
GERM 4800 <sup>11</sup> German IV Study Abroad (Su).....	1-4
GERM 4880 <sup>11</sup> Individual Readings (F,Sp).....	1-4
GERM 4900 <sup>11</sup> Special Topics (Sp).....	3
GERM 4910 German for Special Purposes (Sp).....	3
GERM 4920 <sup>11,12</sup> German Language Tutoring (F,Sp,Su).....	1

### II. Secondary Teacher Education Program (STEP) Courses (31 credits; 35 credits including courses for teaching minor)

For further information, review the *Secondary Teacher Education Program (STEP) Level Outline* on page 341.

## German Minor (12 credits) (2.5 GPA)

To receive a German minor, students must complete 12 upper-division credits in German. Students should note that *only one credit* of GERM 4920 may count toward the German minor. In addition, courses taken for the German minor programs *may not* be taken on a *pass/fail* basis.

## German Minor—Teaching Emphasis with Licensure (50 credits) (2.5 GPA)

**Note:** The following requirements *only* specify courses offered by the Department of Languages, Philosophy, and Speech Communication. To be licensed to teach in the Utah public secondary school system, students with a teaching emphasis must also complete additional courses (approximately 31 credits) required by the Secondary Education Program. For more information, please contact the Secondary Education Program, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on page 341. Information is also provided on the Web at: [http://secondaryeducation.usu.edu/cs\\_admission.php](http://secondaryeducation.usu.edu/cs_admission.php)

Students should note that *only 1 credit* from GERM 4920 may count toward the German Minor—Teaching Emphasis. In addition, courses taken for the German minor programs *may not* be taken on a *pass/fail* basis.

### I. German and Linguistics Courses (19 credits)

#### A. Required Courses (16 credits)

LING 4900 Analysis of Cross-Cultural Difference (Sp) (3 cr) or SPCH 3330 (DSS) Intercultural Communication (F,Sp) (3 cr).....	3
GERM 3040 (CI) Advanced German Grammar and Composition (F).....	3
GERM 3050 (CI) Advanced German Grammar and Composition (Sp).....	3
GERM 4200 <sup>14</sup> Applied German Linguistics and Phonetics (Sp).....	3
LING 3300 <sup>15</sup> Clinical Experience I (F) (1 cr) or LING 4300 <sup>15</sup> Clinical Experience II (F) (1 cr).....	1
LING 4400 <sup>15</sup> Teaching Modern Languages (F).....	3

#### B. Elective Courses (3 credits)

GERM 3300 (DHA) Contemporary German Speaking Cultures (Sp)....	3
GERM 3510 (CI) Business German (Sp).....	3
GERM 3540 (CI) Techniques in Translating German Texts (F).....	3
GERM 3550 (DHA) Cultural History of German Speaking Peoples (F).....	3
GERM 3600 (DHA) Survey of German Literature I (F).....	3
GERM 3610 (DHA) Survey of German Literature II (Sp).....	3
GERM 3800 <sup>11</sup> German III Study Abroad (Su).....	1-4
GERM 3880 <sup>11</sup> Individual Readings (F,Sp).....	1-4
GERM 4610 German Narratives (Sp).....	3
GERM 4650 (DHA) Trends in Modern German Literature (F).....	3
GERM 4800 <sup>11</sup> German IV Study Abroad (Su).....	1-4
GERM 4880 <sup>11</sup> Individual Readings (F,Sp).....	1-4
GERM 4900 <sup>11</sup> Special Topics (Sp).....	3
GERM 4910 German for Special Purposes (Sp).....	3
GERM 4920 <sup>11,12</sup> German Language Tutoring (F,Sp,Su).....	1

### II. Secondary Teacher Education Program (STEP) Courses (31 credits; 35 credits including courses for teaching emphasis)

For further information, review the *Secondary Teacher Education Program (STEP) Level Outline* on page 341.

## German Teaching Emphasis and/or Minor—Teaching Emphasis without Secondary School Licensure (major 35 credits) (minor 19 credits) (2.5 GPA)

It is possible to have a teaching emphasis within a major or minor in German without receiving Secondary School teaching licensure. However, unless the student is an elementary education major, he or she *would not* be able to teach in Utah public schools (nor at many private ones). Graduating without licensure may allow employment at some community colleges and universities.

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In order to complete the German Major—Teaching Emphasis *without* Secondary School Licensure, students must fulfill all of the requirements listed under Section I (German and Linguistics Courses) of the German Major—Teaching Emphasis *with* Secondary School Licensure (31 credits), plus either LING 3300<sup>15</sup> or LING 4300<sup>15</sup> (1 credit) and LING 4400<sup>15</sup> (3 credits), for a total of 35 credits.

Similarly, to complete a German Minor—Teaching Emphasis *without* Secondary School Licensure, students must fulfill all of the requirements listed under Section I (German and Linguistics Courses) of the German Minor—Teaching Emphasis *with* Secondary School Licensure (15 credits), plus either LING 3300<sup>15</sup> or 4300<sup>15</sup> (1 credit) and LING 4400<sup>15</sup> (3 credits) for a total of 19 credits.

<sup>11</sup>This course may be repeated for credit.

<sup>12</sup>Only 2 credits of GERM 4920 may count toward the German major.

<sup>13</sup>LING 4100 should be taken at the beginning of the student's coursework.

<sup>14</sup>GERM 4200 should be taken near the end of the student's coursework. However, GERM 4200 is not offered every year. Therefore, students should check to see when the course will be offered.

<sup>15</sup>LING 3300 or 4300 and LING 4400 must be taken *during the same semester*, and should be the last courses taken for the major or minor.

<sup>DE</sup>Available as a regular on-campus class or online through Regional Campuses and Distance Education (RCDE).

## Spanish Major and Minor Requirements

### Minimum Departmental Requirements

#### Total Credits:

Spanish Major .....	33
Spanish Major, Teaching Emphasis .....	34 SPAN & 31 SCED
Spanish Minor .....	15
Spanish Minor, Teaching Emphasis .....	19 SPAN & 31 SCED
Spanish Major, Teaching Emphasis without licensure.....	38
Spanish Minor, Teaching Emphasis without licensure.....	19
Grade Point Average to Declare a Major or Minor.....	2.75 Career GPA
Grade Point Average to Graduate	
with Major or Minor.....	3.00 GPA within Major/Minor Classes

#### Notes:

Courses for Spanish Majors and Minors require a minimum of C- or better.

Courses for Spanish Majors and Minors *may not* be taken on a *Pass/Fail* Basis (except for courses designated as *Pass/Fail*, such as LING 3300<sup>23</sup>, 4300<sup>23</sup>, SPAN 3010, 3520, 4920).

At least half (50 percent) of the credits earned for these degrees must be completed in upper-division USU courses offered by the Department of Languages, Philosophy, and Speech Communication, and having prefixes of SPAN or LING. All other credits (including transfer and study abroad credits) must be approved by the Spanish faculty in order to be counted toward these degrees.<sup>16</sup>

Students with prior language credit or language experience should take the department placement test before admission to the Spanish Major or Minor. Credits obtained in lower-division Spanish courses cannot be applied toward the Spanish major or minor programs.

### Spanish Major (33 credits) (3.00 GPA)

#### A. Required Courses (24 credits)

LING 4100<sup>DE</sup> The Study of Language (F,Sp)..... 3

#### Select at least *one* of the following two courses:

SPAN 3040<sup>DE</sup> Advanced Spanish Grammar (F,Sp)..... 3

SPAN 3800<sup>17</sup> Spanish III Study Abroad (Su)..... 1-4

#### Select at least *one* of the following three courses:

SPAN 3550 (DHA)<sup>DE</sup> Spanish Culture and Civilization (F,Sp)..... 3

SPAN 3570 (DHA)<sup>DE</sup> Latin American Culture and Civilization (F,Sp).... 3

SPAN 4800<sup>17</sup> Hispanic Culture and Civilization—  
Study Abroad (Su)..... 1-4

#### Select at least *three* of the following six courses:

Select *one or two* courses from this group:

SPAN 3600 (DHA) Survey of Spanish Literature I (F,Sp)..... 3

SPAN 3610 (DHA) Survey of Spanish Literature II (F,Sp)..... 3

SPAN 3650<sup>17</sup> Spanish Literature—Study Abroad (F,Sp)..... 1-4

Select *one or two* courses from this group:

SPAN 3620 (DHA) Survey of Latin American Literature I (F,Sp)..... 3

SPAN 3630 (DHA) Survey of Latin American Literature II (F,Sp)..... 3

SPAN 3660<sup>17</sup> Latin American Literature—Study Abroad (F,Sp)..... 1-4

#### Complete *both* of the following two courses:

SPAN 4900<sup>17</sup> Topics of Spanish Literature (F,Sp)..... 3

SPAN 4910<sup>17</sup> Topics of Latin American Literature (F,Sp)..... 3

### B. Elective Courses (9 credits)

Students must complete 9 additional credits in courses either *not taken above* or *selected from the following list*:

SPAN 3010<sup>17,18,19</sup> Hispanic Outreach Practicum (P/F only)  
(F,Sp,Su)..... 1-4

SPAN 3060 (CI) Advanced Spanish Conversation  
and Composition (F,Sp)..... 3

SPAN 3100 Spanish for Healthcare Professionals (Sp)..... 3

SPAN 3510 Business Spanish (F,Sp)..... 3

SPAN 3520<sup>17,18,19</sup> Business Spanish Practicum (P/F only)  
(F,Sp,Su)..... 1-4

SPAN 4200<sup>20</sup> Applied Spanish Linguistics and Phonetics (Sp)..... 3

SPAN 4880<sup>17,18,21</sup> Individual Readings (F,Sp)..... 1-4

SPAN 4920<sup>17,18,19,22</sup> Spanish Language Tutoring (P/F only) (F,Sp)..... 1

LING 4900 Analysis of Cross-Cultural Difference (Sp) (3 cr) **or**

SPCH 3330 (DSS) Intercultural Communication (F,Sp) (3 cr)..... 3

## Spanish Major—Teaching Emphasis (65 credits) (3.00 GPA)

**Note:** The following requirements *only* specify courses offered by the Department of Languages, Philosophy, and Speech Communication. To be licensed to teach in the Utah public secondary school system, students with a teaching emphasis must also complete additional courses (approximately 31 credits) required by the Secondary Education Program. For more information, please contact the Secondary Education Program, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on page 341. Information is also provided on the Web at: [http://secondaryeducation.usu.edu/cs\\_admission.php](http://secondaryeducation.usu.edu/cs_admission.php)

### I. Spanish and Linguistics Courses (34 credits)

#### A. Required Courses (28 credits)

LING 4100<sup>DE</sup> The Study of Language (F,Sp)..... 3

SPAN 4200<sup>20</sup> Applied Spanish Linguistics and Phonetics (Sp)..... 3

SPAN 4920<sup>17,18,19,22</sup> Spanish Language Tutoring (P/F only) (F,Sp,Su) .. 1

#### Select at least *one* of the following two courses:

SPAN 3040<sup>DE</sup> Advanced Spanish Grammar (F,Sp)..... 3

SPAN 3800<sup>17</sup> Spanish III Study Abroad (Su)..... 1-4

#### Select at least *one* of the following three courses:

SPAN 3550 (DHA)<sup>DE</sup> Spanish Culture and Civilization (F,Sp)..... 3

SPAN 3570 (DHA)<sup>DE</sup> Latin American Culture and Civilization (F,Sp).... 3

SPAN 4800<sup>17</sup> Hispanic Culture and Civilization—  
Study Abroad (Su)..... 1-4

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Select at least *three* of the following six courses:

Select *one or two* courses from this group:

<b>SPAN 3600 (DHA)</b> Survey of Spanish Literature I (F,Sp).....	3
<b>SPAN 3610 (DHA)</b> Survey of Spanish Literature II (F,Sp).....	3
<b>SPAN 3650<sup>17</sup></b> Spanish Literature—Study Abroad (Su) .....	1-4

Select *one or two* courses from this group:

<b>SPAN 3620 (DHA)</b> Survey of Latin American Literature I (F,Sp).....	3
<b>SPAN 3630 (DHA)</b> Survey of Latin American Literature II (F,Sp).....	3
<b>SPAN 3660<sup>17</sup></b> Latin American Literature—Study Abroad (Su) .....	1-4

Complete *both* of the following two courses:

<b>SPAN 4900<sup>17</sup></b> Topics of Spanish Literature (F,Sp) .....	3
<b>SPAN 4910<sup>17</sup></b> Topics of Latin American Literature (F,Sp).....	3

## B. Elective Courses (6 credits)

Students must complete 5 additional credits in courses either *not taken above or selected from the following list*:

<b>SPAN 3010<sup>17,18,19</sup></b> Hispanic Outreach Practicum ( <i>P/F</i> only) (F,Sp,Su) .....	1-4
<b>SPAN 3060 (CI)</b> Advanced Spanish Conversation and Composition (F,Sp).....	3
<b>SPAN 3510</b> Business Spanish (F,Sp).....	3
<b>SPAN 3520<sup>17,18,19</sup></b> Business Spanish Practicum ( <i>P/F</i> only) (F,Sp,Su).....	1-4
<b>SPAN 4880<sup>17,21</sup></b> Individual Readings (F,Sp) .....	1-4
<b>LING 4900</b> Analysis of Cross-Cultural Difference (Sp) .....	3

## Spanish Minor (15 credits) (3.00 GPA)

### A. Required Courses (12 credits)

Select at least *one* of the following two courses:

<b>SPAN 3040<sup>DE</sup></b> Advanced Spanish Grammar (F,Sp).....	3
<b>SPAN 3800<sup>17</sup></b> Spanish III Study Abroad (Su).....	1-4

Select at least *three* of the following nine courses:

Select *one or two* courses from this group:

<b>SPAN 3550 (DHA)<sup>DE</sup></b> Spanish Culture and Civilization (F,Sp).....	3
<b>SPAN 3570 (DHA)<sup>DE</sup></b> Latin American Culture and Civilization (F,Sp).....	3
<b>SPAN 4800<sup>17</sup></b> Hispanic Culture and Civilization—Study Abroad (Su).....	1-4

Select *one or two* courses from this group:

<b>SPAN 3600 (DHA)</b> Survey of Spanish Literature I (F,Sp).....	3
<b>SPAN 3610 (DHA)</b> Survey of Spanish Literature II (F,Sp).....	3
<b>SPAN 3620 (DHA)</b> Survey of Latin American Literature I (F,Sp).....	3
<b>SPAN 3630 (DHA)</b> Survey of Latin American Literature II (F,Sp).....	3
<b>SPAN 3650<sup>17</sup></b> Spanish Literature—Study Abroad (F,Sp) .....	1-4
<b>SPAN 3660<sup>17</sup></b> Latin American Literature—Study Abroad (F,Sp) .....	1-4

### B. Elective Courses (3 credits)

Students must complete 3 additional credits in courses either *not taken above or selected from the following list*:

<b>SPAN 3010<sup>17,18,19</sup></b> Hispanic Outreach Practicum ( <i>P/F</i> only) (F,Sp,Su).....	1-4
<b>SPAN 3060 (CI)</b> Advanced Spanish Conversation and Composition (F,Sp).....	3
<b>SPAN 3100</b> Spanish for Healthcare Professionals (Sp).....	3
<b>SPAN 3510</b> Business Spanish (F,Sp).....	3
<b>SPAN 3520<sup>17,18,19</sup></b> Business Spanish Practicum ( <i>P/F</i> only) (F,Sp,Su) .....	1-4
<b>SPAN 4200<sup>20</sup></b> Applied Spanish Linguistics and Phonetics (Sp).....	3
<b>SPAN 4920<sup>17,18,19,22</sup></b> Spanish Language Tutoring ( <i>P/F</i> only) (F,Sp).....	1
<b>LING 4100<sup>DE</sup></b> The Study of Language (F,Sp).....	3
<b>LING 4900</b> Analysis of Cross-Cultural Difference (Sp) (3 cr) <b>or</b>	
<b>SPCH 3330 (DSS)</b> Intercultural Communication (F,Sp) (3 cr).....	3

## Spanish Minor—Teaching Emphasis (19 credits) (3.00 GPA)

**Note:** The following requirements *only* specify courses offered by the Department of Languages, Philosophy, and Speech Communication. To be licensed to teach in the Utah public secondary school system, students with a teaching emphasis must also complete additional courses (approximately 31 credits) required by the Secondary Education Program. For more information, please contact the Secondary Education Program, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on page 341. Information is also provided on the Web at: [http://secondaryeducation.usu.edu/cs\\_admission.php](http://secondaryeducation.usu.edu/cs_admission.php)

### Required Courses (19 credits)

<b>SPAN 4200<sup>20</sup></b> Applied Spanish Linguistics and Phonetics (Sp).....	3
<b>LING 3300<sup>23</sup></b> Clinical Experience I (F) (1 cr) <b>or</b>	
<b>LING 4300<sup>23</sup></b> Clinical Experience II (F) (1 cr).....	1
<b>LING 4400<sup>23</sup></b> Teaching Modern Languages (F).....	3

Select at least *one* of the following two courses:

<b>SPAN 3040<sup>DE</sup></b> Advanced Spanish Grammar (F,Sp) .....	3
<b>SPAN 3800<sup>17</sup></b> Spanish III Study Abroad (Su).....	1-4

Select at least *three* of the following nine courses:

Select *one or two* courses from this group:

<b>SPAN 3550 (DHA)<sup>DE</sup></b> Spanish Culture and Civilization (F).....	3
<b>SPAN 3570 (DHA)<sup>DE</sup></b> Latin American Culture and Civilization (Sp).....	3
<b>SPAN 4800<sup>17</sup></b> Hispanic Culture and Civilization—Study Abroad (F,Sp,Su) .....	1-4

Select *one or two* courses from this group:

<b>SPAN 3600 (DHA)</b> Survey of Spanish Literature I (F,Sp).....	3
<b>SPAN 3610 (DHA)</b> Survey of Spanish Literature II (F,Sp).....	3
<b>SPAN 3620 (DHA)</b> Survey of Latin American Literature I (F,Sp).....	3
<b>SPAN 3630 (DHA)</b> Survey of Latin American Literature II (F,Sp).....	3
<b>SPAN 3650<sup>17</sup></b> Spanish Literature—Study Abroad (Su) .....	1-4
<b>SPAN 3660<sup>17</sup></b> Latin American Literature—Study Abroad (Su) .....	1-4

## Teaching Emphasis for Spanish Major and Minor

### Spanish Major and/or Minor—Teaching Emphasis with Secondary School Licensure

To receive secondary school licensure, students must complete the Secondary Teacher Education Program (STEP). For further information, review the *Secondary Teacher Education Program (STEP) Level Outline* shown on page 341.

### Spanish Major and/or Minor—Teaching Emphasis without Secondary School Licensure

It is possible to have a teaching emphasis within a major or minor in Spanish without receiving Secondary School teaching licensure. However, unless the student is an elementary education major, he or she *would not* be able to teach in Utah public schools (nor at many private ones). Graduating without licensure may allow employment at some community college and universities.

In order to complete the Spanish Major—Teaching Emphasis *without* Secondary School Licensure, students must fulfill all of the requirements listed under Section I (Spanish and Linguistics Courses) of the Spanish Major—Teaching Emphasis (34 credits), plus either LING 3300<sup>23</sup> or LING 4300<sup>23</sup> (1 credit) and LING 4400<sup>23</sup> (3 credits), for a total of 38 credits.

# Department of Languages, Philosophy, and Speech Communication

Similarly, to complete a Spanish Minor—Teaching Emphasis *without* Secondary School Licensure, students must fulfill all of the requirements listed under the Spanish Minor—Teaching Emphasis (15 credits), plus either LING 3300<sup>23</sup> or 4300<sup>23</sup> (1 credit) and LING 4400<sup>23</sup> (3 credits) for a total of 19 credits.

<sup>16</sup>Students desiring to apply study abroad credits toward these degrees must obtain approval from the Spanish faculty prior to participating.  
<sup>17</sup>This course may be repeated for additional credit.  
<sup>18</sup>Enrollment in this course is by permission of instructor only.  
<sup>19</sup>Only 3 credits maximum in practicum courses may count toward a Spanish major or minor.  
<sup>20</sup>This course is required for a teaching emphasis in the Spanish major or minor.  
<sup>21</sup>Permission of instructor is required. Instructor will give permission *only* to students who have completed *both* SPAN 4900 and 4910.  
<sup>22</sup>This practicum is required for a teaching emphasis in the Spanish major.  
<sup>23</sup>LING 3300 or 4300, and LING 4400 must be taken *during the same semester*, and should be the *last* courses taken for the major or minor.  
<sup>24</sup>To obtain the packet to register for this 1-credit course, students should visit the departmental office in Main 204.  
<sup>DE</sup>Available as a regular on-campus class or online through Regional Campuses and Distance Education (RCDE).

## Secondary Teacher Education Program (STEP) Level Outline (31 credits; 35 credits including courses for teaching emphasis/minor)

Most of the courses listed below count for *both* the teaching emphasis and the teaching minor.

### A. Level 1 (first semester in program)

SCED 3100 Motivation and Classroom Management (F,Sp)	3
SCED 3210 (C/DSS) Educational and Multicultural Foundations (F,Sp)	3
LING 3300/4300 <sup>25,27</sup> Clinical Experience I and II (F) (P/F <i>only</i> )	1
LING 4400 <sup>26,27</sup> Teaching Modern Languages (F)	3
(LING 3300/4300 and 4400 may be taken in <i>either</i> Level 1 or Level 2.)	
INST 3500 Technology Tools for Secondary Teachers (F, Sp, Su)	1

### B. Level 2

SPED 4000 Education of Exceptional Individuals (may be taken earlier) (F,Sp,Su)	2
SCED 4200 (CI) Reading, Writing, and Technology (F,Sp)	3
SCED 4210 Cognition and Evaluation of Student Learning (F,Sp)	3

### C. Level 3

Because student teaching requires a major commitment of time and energy, students should take *only* the courses listed below during this semester. Students are also urged to forgo outside employment, if possible, during the student teaching experience.

LING 5500 Student Teaching Seminar (F,Sp)	2
LING 5630 Student Teaching in Secondary Schools (F,Sp)	10

<sup>25</sup>The Clinical Experience II course is taught under course number 4300 in various departments. Course title varies among departments.

<sup>26</sup>The Special Methods II course is taught under course number 4400.

<sup>27</sup>LING 3300 or 4300 and LING 4400 must be taken *during the same semester*, and should be the *last* courses taken for the major or minor.

## Additional Language Minor Requirements

### Minimum Departmental Requirements

#### Total Credits:

Chinese Minor	12
Japanese Minor	12
Portuguese Minor	12
Russian Minor	12
Linguistics Minor	12

Grade Point Average to Declare Minor	2.5 Career GPA
Grade Point Average to Graduate with Minor	2.0 Career GPA and 2.5 GPA within Minor Classes

### Notes:

Courses for Minors *may not* be taken on a *Pass/Fail* basis. Courses for Minors require a minimum grade of C- or better. At least half (50 percent) of credits for Minors must be completed through USU, and approved by the department head. Any 4920 course is repeatable; however, *only 1 credit* may be applied toward the minor.

### Chinese Minor

Select 12 upper-division credits in Chinese from the following courses:

CHIN 3010 Chinese Third Year I (F)	4
CHIN 3020 Chinese Third Year II (Sp)	4
CHIN 3100 (DHA) Readings in Contemporary Chinese Culture (Sp)	3
CHIN 3510 Chinese Business Language (F)	3
CHIN 3880 Individual Readings in Chinese (F,Sp)	1-2
CHIN 4920 <sup>28</sup> Chinese Language Tutoring (F,Sp,Su)	1

### Japanese Minor

Select 12 credits from the following courses:

JAPN 3010 Japanese Third Year I (F)	4
JAPN 3020 Japanese Third Year II (Sp)	4
JAPN 3050 <sup>28</sup> Japanese Calligraphy (Sp)	1
JAPN 3100 Readings in Contemporary Japanese Culture (F)	3
JAPN 3510 Japanese for the Business Environment (Sp)	3
JAPN 4920 <sup>28</sup> Japanese Language Tutoring (F,Sp)	1

### Portuguese Minor

Complete the following courses (13 credits):

PORT 2020 Portuguese Second Year II (Sp)	4
PORT 3040 (CI) Advanced Portuguese Grammar and Composition (must be completed at USU) (F,Sp)	3
PORT 3570 (DHA) Brazilian Culture and Civilization (must be completed at USU) (F)	3
PORT 3630 (DHA) Survey of Brazilian Literature (must be completed at USU) (Sp)	3

### Russian Minor

Select 12 credits from the following courses:

RUSS 3040 Advanced Russian Grammar and Composition (F)	3
RUSS 3050 Advanced Russian Grammar and Composition (Sp)	3
RUSS 3300 (DHA) Contemporary Russian Language and Culture (Sp 2007, F 2008)	3
RUSS 3510 (CI) Business Russian (F 2007)	3
RUSS 3540 Russian Translation for Science, Business, and Culture (Sp 2008)	3
RUSS 4880 <sup>28</sup> Individual Readings (F,Sp)	1-4
RUSS 4920 <sup>28</sup> Russian Language Tutoring (F,Sp)	1

<sup>28</sup>This course is repeatable for credit, and may be taken a *maximum* of three times.

### Linguistics Minor

Select 3 credits from the following courses:

LING 4100 <sup>DE</sup> The Study of Language (F,Sp)	3
ENGL 3020 (DHA) Perspectives in Linguistics (Sp)	3
ENGL 4200 Linguistic Structures (F,Sp,Su)	3

<sup>DE</sup>Available as a regular on-campus class or online through Regional Campuses and Distance Education (RCDE).

Select 9 credits from the following courses:

LING 4400 Teaching Modern Languages (F,Sp)	3
LING 4520 Technology for Language Teaching (Su)	3
LING 4900 Analysis of Cross-Cultural Difference (Sp)	3
ENGL 4210 History of the English Language (Sp)	3
ENGL 4220 Ethnic Literacy (F,Sp)	3
ENGL 4230 Language and Society (F)	3
ENGL 5210 Topics in Linguistics (F)	3

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## Four-year Plan for Linguistics Minor

It is suggested that students completing the Linguistics Minor take the courses listed above in the following sequence:

### Freshman Year

ENGL 3020 (DHA) or LING 4100 or ENGL 4200

### Sophomore Year

LING 4900 or ENGL 4230

### Junior Year

ENGL 4210 or ENGL 4230

### Senior Year

LING 4400 or LING 4520 or ENGL 5210

For additional information on language major and minor programs offered by the Department of Languages, Philosophy, and Speech Communication, contact the department office.

## Sample Four-year Plans

Sample semester-by-semester four-year plans for students working toward a Bachelor of Arts degree in French, German, or Spanish can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Proficiency Tests, Placement in Language Courses, and Obtaining Credit by Special Examination

Students who have completed one or more years of language study may take proficiency tests to determine their proper placement in language courses.

When basic skills in a department-taught language (other than French, German, Spanish, and Russian) have been acquired by means other than college courses, students can receive 4-20 lower-division credits with a letter grade by completing a course in that language at a higher level than the credits to be acquired. This course needs to be completed with a grade of *B* or better.

These credits will count as transfer credits. They will not count toward a certain semester or the USU GPA, but will be counted into the cumulative GPA. Please contact the department for further details.

## Technology Assisted Language Center

The department operates a technology assisted language center, located in Main 004, for instructional use associated with language classes, and for students desiring additional language practice outside of the classroom. The center includes computer workstations capable of running multimedia applications, as well as audio equipment.

## Exchange Programs, Semester Abroad Programs, and Summer Study Abroad Programs

The Department of Languages, Philosophy, and Speech Communication assists students with academic advising for study abroad exchange programs, semester abroad programs, and summer study abroad programs. Students must be in good standing at the University, and it is recommended that the students have some language preparation in order to participate in these programs.

Students desiring to count study abroad credits toward a major or minor in this department must obtain approval for these courses prior to their participation in the study abroad program. For information about Spanish study abroad programs, contact the department office at (435) 797-1209 or visit the Spanish website at: <http://lpsc.usu.edu/Default.asp?id=27>

For other study abroad program information, contact the USU Study Abroad Office, Taggart Student Center 313, or visit their website at: <http://www.usu.edu/studyabroad/>

## National Honor Societies

**Lambda Pi Eta (LPH)** is the National Communication Honor Society of the National Communication Association for undergraduate junior and senior communication students. Among the goals of LPH are to recognize, foster, and reward outstanding scholastic achievement; and to provide an opportunity for faculty and students to discuss and exchange ideas about their field of interest.

**Sigma Delta Pi (SDP)** is the National Collegiate Hispanic Honor Society of the American Association of Teachers of Spanish and Portuguese for students studying Spanish. Among the goals of SDP are to honor those who attain excellence in the study of the Spanish language and of the literature and culture of the Spanish-speaking peoples, and to encourage college and university students to acquire a greater interest in and a deeper understanding of Hispanic culture.

**Phi Sigma Iota (PSI)** is an international language honor society for juniors, seniors, and graduate students who excel in foreign language. PSI promotes international communication and understanding, as well as a sentiment of unity among nations. Phi Sigma Iota helps members further their training through scholarship and graduation honors. The society also promotes trips abroad.

## Languages Course Descriptions

Chinese (CHIN), pages 529-530

French (FREN), pages 566-567

German (GERM), pages 572-574

Italian (ITAL), page 589

Japanese (JAPN), pages 589-590

Korean (KOR), page 593

Language (LANG), page 595

Linguistics (LING), pages 596-597

Navajo (NAV), page 618

Portuguese (PORT), pages 640-641

Russian (RUSS), pages 650-651

Spanish (SPAN), pages 656-657

## Philosophy

Philosophy at USU reflects the ideals of the liberal arts in encouraging the respect for truth without promoting dogmatism, and in offering the opportunity for students to increase their self-understanding at the same time as they increase their knowledge of the world around them.

Philosophy faculty in the Department of Languages, Philosophy, and Speech Communication teach courses leading to an undergraduate major and a minor in philosophy. The mission of the Philosophy program at Utah State University is to provide a high-quality education

# Department of Languages, Philosophy, and Speech Communication

leading to an understanding of the major areas of inquiry represented within the discipline of philosophy. Coursework emphasizes the areas of the history of philosophy, logic, ethical theory and applied ethics, and metaphysics and epistemology. The curriculum is designed to meet a wide variety of student interests in pursuing a major in philosophy. It provides a rigorous foundation for students intending to further their education in law school or graduate school in philosophy, and it also provides an exciting and challenging education for those students who enjoy thinking about ideas for their own sake. Coursework is also designed to enrich the education of students majoring in other subjects, by providing them with opportunities to gain an understanding of philosophical perspectives on and philosophical foundations of their chosen fields.

## Minimum Departmental Requirements

### Total Credits:

Philosophy Major .....	30
Philosophy Minor .....	18

Grade Point Average to Declare a Major or Minor .....	2.5 Career GPA
Grade Point Average to Graduate with Major or Minor .....	2.5 Career GPA and 2.5 GPA within Major/Minor Classes

### Notes:

Courses for Philosophy Majors and Minors require a minimum grade of C- or better.

Bachelor of Arts (BA) degree additional requirements include two years of language, or same as University Requirement. The Bachelor of Science (BS) degree in philosophy can be awarded to philosophy majors who have taken 12 credits in math or science beyond the University Studies Requirements, as approved by an advisor.

## Course Requirements

### Bachelor of Arts in Philosophy (30 credits) (2.5 GPA)

All philosophy majors must complete 30 credits of philosophy. Up to 6 *pass/fail* credits in philosophy courses may be applied toward the philosophy major. The requirements are distributed as follows:

#### A. Required Courses (15 credits)

PHIL 1120 (BHU) Social Ethics (F) (3 cr) or	
PHIL 2400 (BHU) Ethics (Sp) (3 cr) .....	3
PHIL 1200 (BHU) Practical Logic (Sp) (3 cr) or	
PHIL 2200 (QI) Deductive Logic (F,Sp) (3 cr) .....	3
PHIL 3100 (CI) Ancient Philosophy (3 cr) or	
PHIL 3110 Medieval Philosophy (3 cr) .....	3
PHIL 3120 (CI) Early Modern Philosophy (3 cr) or	
PHIL 3150 (CI) Kant and His Successors (3 cr) .....	3
PHIL 4300 Epistemology (3 cr) or	
PHIL 4400 Metaphysics (F) (3 cr) .....	3

#### B. Elective Courses (15 credits)

Choose five other philosophy courses not already taken above, four of which must be at the upper-division level (3000 or higher).

PHIL 3160 (CI) Contemporary Philosophy .....	3
PHIL 3180 (CI) Contemporary European Philosophy .....	3
PHIL 3500 Medical Ethics (F) .....	3
PHIL 3510 Environmental Ethics (Sp) .....	3
PHIL 3520 <sup>DE</sup> Business Ethics .....	3
PHIL 3700 Philosophy of Religion (F) .....	3
PHIL 3710 Philosophies of East Asia (F) .....	3
PHIL 3720 Philosophical Theology after Kant (F) .....	3
PHIL 3730 (CI) Philosophy of the New Testament .....	3
PHIL 3800 Philosophy in Literature .....	3
PHIL 3810 Aesthetics (Sp) .....	3

PHIL 4310 Philosophy of Science .....	3
PHIL/HIST 4320 History of Scientific Thought .....	3
PHIL 4410 Philosophy of Mind .....	3
PHIL 4420 Philosophy of Language .....	3
PHIL 4500 Contemporary Ethical Theory .....	3
PHIL 4530 (DSC) Ethics and Biotechnology .....	3
PHIL 4540 Human Values and Information Technology .....	3
PHIL 4600 Philosophy of Law .....	3
PHIL 4610 Social and Political Philosophy .....	3
PHIL 4900 Special Topics (F,Sp) .....	3
PHIL 4910 Readings and Research (F,Sp) .....	1-4
PHIL 4920 Senior Honors Seminar (Sp) .....	3
PHIL 4930 Senior Honors Thesis (F,Sp,Su) .....	1-4
PHIL 4990 Philosophy Seminar .....	3
PHIL 5200 Symbolic Logic .....	3
PHIL 5510 Ethics and the Environment .....	3
PHIL 5600 Legal Ethics .....	3

<sup>DE</sup>Available as a regular on-campus class or as a Face-to-Face or Interactive Broadcast course through Regional Campuses and Distance Education (RCDE).

### C. Language Requirement

To receive a Bachelor of Arts (BA) degree, students must also complete the foreign language requirement.

### Bachelor of Science in Philosophy (30 credits) (2.5 GPA)

All philosophy majors must complete 30 credits of philosophy. Up to 6 *pass/fail* credits in philosophy courses may be applied toward the philosophy major. The requirements are distributed as follows:

#### A. Required Courses (15 credits)

PHIL 1120 (BHU) Social Ethics (F) (3 cr) or	
PHIL 2400 (BHU) Ethics (Sp) (3 cr) .....	3
PHIL 1200 (BHU) Practical Logic (Sp) (3 cr) or	
PHIL 2200 (QI) Deductive Logic (F,Sp) (3 cr) .....	3
PHIL 3100 (CI) Ancient Philosophy (3 cr) or	
PHIL 3110 Medieval Philosophy (3 cr) .....	3
PHIL 3120 (CI) Early Modern Philosophy (3 cr) or	
PHIL 3150 (CI) Kant and His Successors (3 cr) .....	3
PHIL 4300 Epistemology (3 cr) or	
PHIL 4400 Metaphysics (F) (3 cr) .....	3

#### B. Elective Courses (15 credits)

Choose five other philosophy courses not already taken above, four of which must be at the upper-division level (3000 or higher). (See list of elective courses for Bachelor of Arts in Philosophy, shown in previous elective courses listing.)

#### C. Science Requirement

To receive a Bachelor of Science (BS) degree, students must take 12 credits in math or science beyond the University Studies Requirements, as approved by an advisor.

### Bachelor of Arts in Philosophy with Concentration in Ethics (30 credits) (2.5 GPA)

All philosophy majors must complete 30 credits of philosophy. Up to 6 *pass/fail* credits in philosophy courses may be applied toward the philosophy major. The requirements are distributed as follows:



# Department of Languages, Philosophy, and Speech Communication

## A. Required Courses (21 credits)

PHIL 1200 (BHU) Practical Logic (Sp) (3 cr) or	
PHIL 2200 (QI) Deductive Logic (F,Sp) (3 cr).....	3
PHIL 2400 (BHU) Ethics (Sp).....	3
PHIL 3100 (CI) Ancient Philosophy (3 cr) or	
PHIL 3110 Medieval Philosophy (3 cr) .....	3
PHIL 3120 (CI) Early Modern Philosophy (3 cr) or	
PHIL 3150 (CI) Kant and His Successors (3 cr).....	3
PHIL 4300 Epistemology (3 cr) or	
PHIL 4400 Metaphysics (F) (3 cr) .....	3

### Select one of the following three courses:

PHIL 1120 (BHU) Social Ethics (F) .....	3
PHIL 4500 Contemporary Ethical Theory.....	3
PHIL 4610 (DHA) Social and Political Philosophy .....	3

### Select one of the following four courses:

PHIL 3500 Medical Ethics (F).....	3
PHIL 3510 (DHA) Environmental Ethics (Sp).....	3
PHIL 3520 (DHA) Business Ethics.....	3
PHIL 4530 (DSC) Ethics and Biotechnology .....	3

## B. Elective Courses (9 credits)

Choose three other philosophy courses not already taken above, at least two of which must be at the upper-division level (3000 or higher). (See list of elective courses for Bachelor of Arts in Philosophy, shown in previous elective courses listing.)

## C. Language Requirement

To receive a Bachelor of Arts (BA) degree, students must also complete the foreign language requirement.

## Bachelor of Science in Philosophy with Concentration in Ethics (30 credits) (2.5 GPA)

All philosophy majors must complete 30 credits of philosophy. Up to 6 *pass/fail* credits in philosophy courses may be applied toward the philosophy major. The requirements are distributed as follows:

### A. Required Courses (21 credits)

PHIL 1200 (BHU) Practical Logic (Sp) (3 cr) or	
PHIL 2200 (QI) Deductive Logic (F,Sp) (3 cr).....	3
PHIL 2400 (BHU) Ethics (Sp).....	3
PHIL 3100 (CI) Ancient Philosophy (3 cr) or	
PHIL 3110 Medieval Philosophy (3 cr) .....	3
PHIL 3120 (CI) Early Modern Philosophy (3 cr) or	
PHIL 3150 (CI) Kant and His Successors (3 cr).....	3
PHIL 4300 Epistemology (3 cr) or	
PHIL 4400 Metaphysics (F) (3 cr) .....	3

### Select one of the following three courses:

PHIL 1120 (BHU) Social Ethics (F) .....	3
PHIL 4500 Contemporary Ethical Theory.....	3
PHIL 4610 (DHA) Social and Political Philosophy .....	3

### Select one of the following four courses:

PHIL 3500 Medical Ethics (F).....	3
PHIL 3510 (DHA) Environmental Ethics (Sp).....	3
PHIL 3520 (DHA) <sup>DE</sup> Business Ethics.....	3
PHIL 4530 (DSC) Ethics and Biotechnology .....	3

<sup>DE</sup>Available as a regular on-campus class or as a Face-to-Face or Interactive Broadcast course through Regional Campuses and Distance Education (RCDE).

## B. Elective Courses (9 credits)

Choose three other philosophy courses not already taken above, two of which must be at the upper-division level (3000 or higher). (See list of elective courses for Bachelor of Arts in Philosophy, shown in previous elective courses listing.)

## C. Science Requirement

To receive a Bachelor of Science (BS) degree, students must take 12 credits in math or science beyond the University Studies Requirements, as approved by an advisor.

## Philosophy Minor (18 credits) (2.5 GPA)

A minor in philosophy may be obtained by completing six philosophy courses, at least four of which must be at the upper-division level. Up to 3 *pass/fail* credits in philosophy courses may be applied toward the philosophy minor.

## Sample Four-year Plans for Philosophy Major

Sample semester-by-semester four-year plans for students working toward a Bachelor of Arts or Bachelor of Science degree in Philosophy or Philosophy with a Concentration in Ethics can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Philosophy Course Descriptions

Philosophy (PHIL), pages 631-632

## Speech Communication

Speech Communication has been taught continuously at USU almost from the University's founding in 1888. Speech Communication faculty in the Department of Languages, Philosophy, and Speech Communication teach courses leading to a Bachelor of Arts or Bachelor of Science degree in Speech, as well as to minors in Organizational Communication and Speech Communication Teaching.

This major focuses on how people communicate to create meanings across a wide range of contexts, including interactions that occur in personal relationships and public interactions, with those from other cultures, and with those in business and other applied settings. Students learn to think critically about the messages they receive and to develop skills promoting the understanding and practice of effective and ethical communication behaviors.

Students majoring in speech are encouraged to earn a BA degree by completing two years of study in a foreign language. This broadens cultural and social awareness and can increase one's understanding of the nature of language in general.

Admission to the speech major will be limited to 25 students each year. Admission decisions will be based on (1) academic record, (2) realistic career or professional study objective, (3) ability of this program to prepare the student for intended career, (4) satisfactory speaking and writing competencies, and (5) motivation and creativity demonstrated by class performance, work experience, volunteer activities, and other means offered by the student during the application process.

# Department of Languages, Philosophy, and Speech Communication

Students not admitted may apply the following year. If not admitted on the second application, the student will be permitted to complete a minor, but will not be considered again for the major.

To obtain guidelines for applying to the speech major, contact the Department of Languages, Philosophy, and Speech Communication.

The minor program in **Organizational Communication** is designed for students who seek communication and human relations competencies, an understanding of human communication behavior, and the critical thinking skills required for success in a variety of careers.

The course of study leading to a minor in **Speech Communication Teaching** is designed to develop the communication competencies and the understanding of communication processes and theory necessary for effective high school speech communication instruction. Prior to student teaching, the program features practicum experience in which students learn how to critique and coach speech communication students.

**Pre-Speech Major.** Since admission to the speech major is limited to 25 students per year, students not yet admitted to the speech major will be allowed to enter a pre-speech major. While a student in the pre-speech major is waiting to be admitted into the speech major, he or she should complete SPCH 1020 (Public Speaking) and SPCH 2110 (Interpersonal Communication). For more information about the application process for the speech major, contact the Department of Languages, Philosophy, and Speech Communication. Each semester new applicants will be considered for admission to the speech major.

## Minimum Departmental Requirements

### Total Credits:

Speech Major .....	30
Organizational Communication Minor .....	15
Speech Communication Teaching Minor .....	19

Grade Point Average to Declare a Major or Minor.....2.5 Career GPA  
Grade Point Average to Graduate with Major or Minor...2.0 Career GPA  
and 2.5 GPA within Major/Minor Classes

## Course Requirements

### Speech Major (30 credits) (2.5 GPA) (C- or better required for all major classes)

As many as 15 credits completed at other colleges or universities may be used to partially satisfy these requirements. For more information, students should contact their advisor. Students must earn an overall GPA of at least 2.5 in all classes applied toward the major.

#### A. Communication Core (6 credits)

SPCH 1020 (CI) Public Speaking (F,Sp) .....	3
SPCH 2110 (CI) Interpersonal Communication (F,Sp) .....	3

#### B. Senior Year Capstone Course (3 credits)

This course, which is offered spring semester *only*, must be taken during the student's senior year.

SPCH 5100 (CI) Theories of Speech Communication (Sp).....	3
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#### C. Thematic Area Courses (18 credits)

Two courses are required from each of the following three thematic areas:

#### 1. Organization (6 credits)

SPCH 3050 (DSS) Technical and Professional Communication (Sp) ...	3
SPCH 3250 (CI) Organizational Communication (F) .....	3
SPCH 3600 Communication and Conflict (F) .....	3
SPCH 5090 Small Group Theory (Sp) .....	3
MGT 3710 Developing Team and Interpersonal Skills (F,Sp) .....	3

#### 2. Society (6 credits)

SPCH 3330 (DSS) Intercultural Communication (F) .....	3
SPCH 4200 Language, Thought, and Action (Sp) .....	3
SPCH 5000 Studies in Speech Communication:	
Visual Communication .....	3
SPCH 5250 Environmental Rhetoric (Sp) .....	3
MGT 3820 (DSS) International Management (F,Sp) .....	3
LING 4900 Analysis of Cross-Cultural Difference (Sp) .....	3

#### 3. Influence (6 credits)

SPCH 2270 Argumentation and Debate (F) .....	3
SPCH 3400 (CI) Persuasion (F) .....	3
SPCH 4460 Communication Criticism (F) .....	3
SPCH 5000 Studies in Speech Communication:	
Advanced Persuasion (Sp) .....	3
MIS 4350 Introduction to Performance Improvement Projects (Sp) .....	3

#### D. Elective courses (3 credits)

Any course listed above in section C, *Thematic Area Courses* (or those listed below) may serve as an elective.

SPCH 2250 <sup>29</sup> Introductory Internship/Co-op (F,Sp,Su) .....	1-6
SPCH 2280 Listening (Sp) .....	2
SPCH 3000 Speech Communication Teaching	
Practicum (repeatable) (Sp) .....	1
SPCH 4250 <sup>29</sup> Advanced Internship/Co-op (F,Sp,Su) .....	1-6
SPCH 5000 Studies in Speech Communication (repeatable) (F,Sp) .....	3
SPCH 5280 Communication Education Theory (Sp) .....	3
LING 4100 The Study of Language (F,Sp) .....	3

<sup>29</sup>Internship project and number of credits must be approved by advisor.

## Sample Four-year Plan for Speech Major

A sample semester-by-semester four-year plan for students working toward a Bachelor of Arts or Bachelor of Science degree in Speech can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Speech Communication Minor Programs

### Organizational Communication Minor (15 credits) (2.5 GPA)

As many as 6 credits completed at other colleges or universities may be used to partially satisfy these requirements. For more information, students should contact their advisor. Students must earn an overall GPA of at least 2.5 in all classes applied toward the minor.

#### A. Required Courses (6 credits)

SPCH 1020 (CI) Public Speaking (F,Sp) (3 cr) or	
SPCH 2110 (CI) Interpersonal Communication (F,Sp) (3 cr) .....	3
SPCH 3250 (CI) Organizational Communication (F) .....	3

#### B. Elective Courses (9 credits)

In consultation with a program advisor, select 9 credits from courses having the SPCH prefix. Of these 9 credits, at least 3 credits must be completed in a course offered at the 4000 or 5000 level.

# Department of Languages, Philosophy, and Speech Communication

## Speech Communication Minor—Teaching Emphasis (19 credits) (2.5 GPA)

**Note:** The following requirements *only* specify courses offered by the Department of Languages, Philosophy, and Speech Communication. To be licensed to teach in the Utah public secondary school system, students with a teaching emphasis must also complete an approved teaching major and STEP courses required by the Secondary Education Program. SPCH 5370 and *either* SPCH 3300 or 4300 are part of the STEP requirements. For more information, please contact the Secondary Education Program, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on page 341. Information is also provided on the Web at:

[http://secondaryeducation.usu.edu/cs\\_admission.php](http://secondaryeducation.usu.edu/cs_admission.php)

**Also Note:** SPCH 1020, 2110, and 3000 should be completed prior to enrollment in the 4000- and 5000-level courses. A minimum grade of C- is required in each of these classes.

### Speech Communication Courses (19 credits)

SPCH 1020 (CI) Public Speaking (F,Sp) .....	3
SPCH 2110 (CI) Interpersonal Communication (F,Sp) .....	3
SPCH 2270 Argumentation and Debate (F) .....	3
SPCH 3000 Speech Communication Teaching Practicum (Sp) .....	1
SPCH 5100 (CI) Theories of Speech Communication (Sp).....	3
SPCH 5280 Communication Education Theory (Sp).....	3
SPCH 3330 (DSS) Intercultural Communication (F) (3 cr) or	
SPCH 5090 Small Group Theory (Sp) (3 cr) .....	3

To fulfill the Secondary Teacher Education Program (STEP) requirements, students should complete SPCH 3300, 4300, and 5370.

## Speech Communication Course Descriptions

Speech Communication (SPCH), page 658

## Languages, Philosophy, and Speech Communication Faculty

### Professors

*Bradford "J" Hall*, speech communication  
*Charles W. Johnson*, philosophy of mind, Wittgenstein, logic, philosophical methods  
*John E. Lackstrom*, linguistics, Spanish applied linguistics, TESL  
*Mark D. Larsen*, Latin American literature, computer applications in languages  
*Kent E. Robson*, ethics, philosophy of language, history of philosophy, philosophy of science, philosophy of religion  
*John S. Seiter*, interpersonal communication, intercultural relations, social influence  
*Richard Sherlock*, medical and environmental ethics, ethical theory, ethical issues in genetics, political philosophy, philosophy of religion

### Professors Emeritus

*Lynn R. Eliason*, 19th century Russian and German novels, Russian culture  
*Hans K. Mussler*, German literature, Lessing, enlightenment, translation, teaching methodology  
*Alfred N. Smith, Jr.*, French, foreign language education, cross-cultural studies

### Associate Professors

*María-de Jesús Cordero*, colonial Spanish-American literature  
*Sarah Gordon*, medieval French  
*Charlie Huenemann*, history of modern philosophy, Kant, metaphysics  
*Taira Koybaeva*, Russian, Linguistics, intercultural relationships in business and politics  
*Jennifer A. Peeples*, environmental rhetoric  
*J. P. Spicer-Escalante*, 19th century Latin American literature  
*Maria Luisa Spicer-Escalante*, Hispanic applied linguistics  
*Gordon Steinhoff*, philosophy of science, logic, metaphysics  
*Felix W. Tweraser*, 20th century Austrian literature

### Associate Professors Emeritus

*Jerry L. Benbow*, Peninsular Spanish literature and grammar  
*Lynne H. Goodhart*, 20th century French poetry, women in literature  
*Ilona Jappinen*, German language, literature and culture, Nietzsche expressionism  
*Harold J. Kinzer*, organizational communication  
*Gordon E. Porter*, Spanish, Spanish literature, Portuguese  
*Norman R. Savoie*, contemporary French culture, contemporary French detective fiction  
*Janet C. Stock*, French, business French, 20th century French literature, Proust

### Assistant Professors

*Javier Domínguez-García*, Spanish medieval and golden age  
*Christa Jones*, French, contemporary francophone studies  
*Cacilda Rego*, Portuguese  
*Matthew Sanders*, organizational communication  
*Xenia Srebranski Harwell*, German and Russian literature

### Visiting Assistant Professors

*Harrison Kleiner*, European philosophy  
*Kristi Krumnow*, French

### Assistant Professor Emeritus

*Valentine Suprunowicz*, Russian literature

### Principal Lecturer Emeritus

*Viva L. Lynn*, Spanish literature

### Lecturers

*Gayle Houser*, public speaking and speech communication  
*Karin de Jonge-Kannan*, second language acquisition  
*Annie Kim*, Korean, second language acquisition, Asian culture  
*Kevin L. Krogh*, Spanish  
*Atsuko O. Neely*, Japanese, second language acquisition  
*Jilda Yap*, second language teaching

# Latin American Studies Minor

## Coordination:

**William L. Furlong**, Professor, Department of Political Science,  
bill.furlong@usu.edu

**Bonnie Glass-Coffin**, Professor, Department of Sociology,  
Social Work and Anthropology, bonnie.glasscoffin@usu.edu

**Cacilda Rego**, Assistant Professor of Portuguese, Department of  
Languages, Philosophy, and Speech Communication,  
cacilda.rego@usu.edu

**James Sanders**, Assistant Professor, Department of History,  
james.sanders@usu.edu

The Latin American Studies minor, an interdepartmental program within the College of Humanities, Arts, and Social Sciences, provides students with an interdisciplinary and rigorous introduction to Latin America. The minor complements existing majors through the expansion and development of regional knowledge and expertise. After completing the minor, students will have demonstrated language competence and enhanced political, economic, cultural, and sociological understanding of the countries and peoples of Latin America.

## Admission Requirements

1. USU students in good standing who are enrolled in any major or department and who have a 2.75 minimum GPA qualify for admission to this minor.
2. Transfer students from other institutions need a 2.75 minimum total GPA for admission to this minor.

## Latin American Studies Minor Requirements (18 credits, plus language competency)

### A. Language Requirement

A minimum of *two years* (16 credits or four semesters) of Introductory Spanish (SPAN 1010, 1020, 2010, and 2020) or Introductory Portuguese (PORT 1010, 1020, 2010, and 2020), or the completion of an equivalent competency exam, is required.

### B. Required Course (3 credits)

**LATS 2200** Introduction to Latin America (F) ..... 3

### C. Electives (15 credits)

Students must choose a *minimum of five courses* from the following list. The courses must be chosen from *at least two different disciplines*.<sup>3</sup>

**ANTH 3130 (CI)** Peoples of Latin America ..... 3

**ANTH/SOC 5130/6130** Ethnographic Field School (Su) ..... 6

**GEOG 4200 (CI)** Regional Geography: Latin America (F,Sp,Su) ..... 3

**HIST 3620** History of Colonial Latin America ..... 3

**HIST 3630** History of Modern Latin America ..... 3  
**HIST 3640** History of Social Movements in Latin America ..... 3  
**HIST 3650** Caribbean History ..... 3  
**HIST 3660** History of Mexico ..... 3

**POLS 3270 (DSS)** Latin American Government and Politics (F) ..... 3  
**POLS 4450 (CI)** United States and Latin America (Sp) ..... 3

**PORT 3570 (DHA)**<sup>1</sup> Brazilian Culture and Civilization (F) ..... 3  
**PORT 3630 (DHA)**<sup>1</sup> Survey of Brazilian Literature (Sp) ..... 3  
**PORT 3800**<sup>1</sup> Portuguese III Study Abroad (Su) ..... 3

**SPAN 3510** Business Spanish (F,Sp) ..... 3  
**SPAN 3570 (DHA)** Latin American Culture and Civilization (F,Sp) ..... 3  
**SPAN 3620 (DHA)**<sup>1</sup> Survey of Latin American Literature I (F,Sp) ..... 3  
**SPAN 3630 (DHA)**<sup>1</sup> Survey of Latin American Literature II (F,Sp) ..... 3  
**SPAN 3660**<sup>4</sup> Latin American Literature—Study Abroad (Su) ..... 1-4  
**SPAN 3800**<sup>1</sup> Spanish III Study Abroad (Su) ..... 1-4  
**SPAN 4800**<sup>2,4</sup> Hispanic Culture and Civilization—Study Abroad (Su) 1-4  
**SPAN 4910**<sup>1</sup> Topics of Latin American Literature (F,Sp) ..... 3

### D. Major Courses Limitation

Only *two* courses completed as part of the student's major may be applied toward the Latin American Studies minor.

### E. Restricted Electives (3 credits)

Students may choose one course from the following list to count toward their total elective credits.

**ENGL 3300** Period Studies in American Literature: The Mexican Revolution and its Aftermath in the United States (F,Sp) ..... 3  
**ENGL 5300 (CI)** Literature and Gender: Chicana Literature (F,Sp) ..... 3

**HIST 3670** Slavery in the Atlantic World ..... 3  
**HIST 4630** The History of Mexican Americans ..... 3

**SOC 4730** Women in International Development (Sp) ..... 3

<sup>1</sup>Requires a proficiency in Spanish or Portuguese at the 3000 level or above.

<sup>2</sup>Requires a proficiency in Spanish at the 2000 level or above.

<sup>3</sup>A limit of 6 credits of overlapping courses from a pre-existing major or alternative minor may be counted toward this elective requirement.

<sup>4</sup>SPAN 3660 and 4800 can be counted as electives for the Latin American Studies Minor *only* when they are taken in a Latin American country.

## Additional Information

For additional information about the Latin American Studies minor, see the minor requirement sheet, which can be accessed online at:  
<http://www.usu.edu/majorsheets/>

## Course Description

Latin American Studies (LATS), page 596

# Liberal Arts Major

**Contact and Advising:** College of HASS Advising Center

**Location:** Student Center 302

**Phone:** (435) 797-3883

**FAX:** (435) 797-2096

**E-mail:** susie.parkinson@usu.edu

**Degree Offered:** Bachelor of Arts (BA) in Liberal Arts

The Liberal Arts Major offers a broad and challenging course of study in the humanities, sciences, arts, and social sciences. Through a multi-disciplinary but coherent approach to learning, the program meets the needs of students majoring in professional fields, as well as those desiring a general background for adaptability and mobility in employment. The Liberal Arts Major offers USU students the training required to be competitive and to contribute effectively in the organizations, professions, and communities of the twenty-first century.

This major allows the student to develop an individualized curriculum in consultation with the program advisor (Student Center 302). This major requires a 2.3 overall GPA for admission and a 2.0 USU Cumulative GPA for graduation.

Although the emphasis of this major is in the humanities, arts, and social sciences, the student is encouraged to seek out other educational interests as part of an academic program. The following credit distribution will be typical of most students:

## University Studies (30 credits)

The University Studies Program (which is required for all students seeking a bachelor's degree) consists of two sets of requirements: General Education Requirements and Depth Education Requirements. Included in the General Education Requirements are Competency Requirements, including Communications Literacy, Quantitative Literacy, and Computer and Information Literacy. General Education also includes Breadth Requirements in the areas of American Institutions, Creative Arts, Humanities, Life Sciences, Physical Sciences, and Social Sciences. To complete the Depth Education Requirements, students must complete two Communications Intensive courses, one Quantitative Intensive course, and two Depth courses. For more information about the University Studies Program, as well as lists of courses approved for meeting University Studies Requirements, see pages 67-75 in this catalog. Students should consult with the program advisor to determine which University Studies courses will best meet their learning goals.

## Foreign Language Requirement

A Bachelor of Arts (BA) degree signifies proficiency in one or more foreign languages or American Sign Language. Specifically, the BA requirement may be completed in one of the following ways:

1. Demonstration of proficiency in *one* foreign language by successful completion of one course at the 2020-level or higher (or its equivalent).  
**Or**
2. Demonstration of proficiency in American Sign Language by successful completion of American Sign Language IV (COMD 4920) and Socio-Cultural Aspects of Deafness (COMD 4780), and by passing an exit interview.  
**Or**

3. Demonstration of proficiency in *two* foreign languages by successful completion of the 1020 course level in one language **and** the 2010 course level in the second language (or its equivalent).  
**Or**
4. Completion of an upper-division (3000-level or higher) foreign language grammar or literature course requiring the 2020 course level (or its equivalent) as a prerequisite. Conversation courses *cannot* be considered for satisfying this requirement.

For nonnative English-speaking students *only*, the following options are available:

1. Successful completion of the Intensive English Language Institute (IELI) program for international students.  
**Or**
2. TOEFL, Michigan, or IELI placement scores high enough to meet the University admission criteria.

## Focus of Study

The focus of study for the Liberal Arts major is to help students gain a basic understanding of the development of civilization, including historical and cultural traditions, political institutions and processes, an appreciation of arts and literature, and expanded capacities for critical thought. Four learning goals are identified, each requiring a minimum of 9 credits, for a total of 36 credits.

Students plan a multi-disciplinary academic program providing a focus for study, with emphasis in primarily social sciences, humanities, and arts.

## Pre-professional and Elective Credits

Depending on a student's career objectives, a student may take courses leading to further study in medicine, law, business, or other graduate programs, or continue to study in a number of different disciplines.

## Sample Four-year Plan for Liberal Arts Major

A sample semester-by-semester four-year plan for students working toward a Bachelor of Arts degree in Liberal Arts can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Additional Information

Details of requirements for the Liberal Arts major, as well as a worksheet for students to record their progress, can be found on the major requirement sheet, available from the College of HASS Advising Center, or online at: <http://www.usu.edu/majorsheets/>

# Department of Management

**Interim Department Head:** Alan P. Warnick

**Location:** Business 415

**Phone:** (435) 797-1789

**FAX:** (435) 797-1091

**E-mail:** [suzette.alder@usu.edu](mailto:suzette.alder@usu.edu)

**WWW:** <http://www.huntsman.usu.edu/management/>

**Undergraduate Advisors:**

Lindsey Thurgood, Business 309, (435) 797-2272,  
[lindsey.thurgood@usu.edu](mailto:lindsey.thurgood@usu.edu)

Peggy Buttars, Business 309, (435) 797-2272,  
[peggy.buttars@usu.edu](mailto:peggy.buttars@usu.edu)

**Graduate Program Director:**

Steven H. Hanks, Business 414, (435) 797-2373,  
[steven.hanks@usu.edu](mailto:steven.hanks@usu.edu)

**Graduate Program Advisor:**

Megen Ralphs, Business 419, (435) 797-9159,  
[megen.ralphs@usu.edu](mailto:megen.ralphs@usu.edu)

**Degrees offered:** Bachelor of Science (BS) and Bachelor of Arts (BA) in Marketing, Operations Management, International Business, Business Administration, Entrepreneurship, and Human Resource Management; Master of Science (MS) in Human Resources

The department also participates in the Huntsman School of Business Master of Business Administration (MBA) Degree. A description of the MBA degree and program requirements can be found on pages 194-195. Graduate-level courses offered by the department are included in the plans of study of graduate students in a wide variety of disciplines. Students can specialize in Entrepreneurship or Human Resource Management in the on-campus MBA program.

## Undergraduate Programs

### Objectives

The Department of Management offers programs to prepare students for administrative positions in business, government, and other institutions. Specialized training is provided within specific functional fields of business, as well as training directed at understanding the broader aspect of business as it functions within our economy. Training is specifically provided in six areas: (1) **Marketing**, involving positions in sales, advertising, retailing, distribution, and other similar activities; (2) **Operations Management**, leading to careers related to supply chain management, operations planning and scheduling, project management, quality management, and consulting; (3) **International Business**, preparing leaders versed in business, social science, and cultural dimensions of a global marketplace; (4) **Business Administration**, providing broad cross-disciplinary experience in the core business areas of operations, finance, and marketing; (5) **Entrepreneurship**, focusing on the development of entrepreneurial and leadership capabilities; and (6) **Human Resource Management**, dealing with those processes which provide, develop, and maintain a productive workforce.

### Departmental Honors

See *Honors in Business* description in the Huntsman School of Business section of this catalog (page 124).

## Learning Objectives and Assessment

Assessment information for the Management Department can be found online at:

<http://www.huntsman.usu.edu/management/htm/assessment/>

## Huntsman School of Business Admission Requirements

All students having majors within the Management Department must satisfy the Huntsman School of Business admission requirements, provided on pages 124-125. Academic advising about these requirements is available in the Huntsman School of Business Programs and Advising Center, Business 309.

All students enrolled at USU are required to satisfy the General Education requirements and the University Studies Depth Education requirements of the University, as described on pages 67-75 of this catalog.

## Matriculation Requirement and Transfer Limitation

No more than 15 USU Huntsman School of Business credits (ACCT, BUS, FIN, MGT, MIS), numbered 2000 and above, earned as a nonbusiness major (before acceptance into the Huntsman School) can be applied to a Huntsman School degree. More than 15 business credits can be transferred from other accredited institutions. However, additional USU Huntsman School credits added to previously earned transfer business credits may not exceed a combined total of 15. Furthermore, to earn a bachelor's degree in a Huntsman School major, at least 50 percent of the required Huntsman School credits must be earned from coursework taken from the Utah State University Huntsman School.

## USU Credits and Business Credits

At least 30 of the last 60 semester credits must be taken from Utah State University, at least 20 of which must be completed in upper-division courses, of which at least 10 credits must be completed in courses required by the student's major. At least 50 percent of the Huntsman School of Business credits required for a Huntsman School degree must be taken from the Utah State University Huntsman School or its departments, which include: School of Accountancy, Economics and Finance, Management, and Management Information Systems.

## Huntsman School of Business Core

All majors in the Department of Management must complete the following prerequisite courses and business core courses, in addition to the specific courses listed for the major.

Business majors must take these courses as prerequisite to 3000-, 4000-, and 5000-level courses in the Huntsman School of Business.

### Pre-Business Course Requirements (13 credits)

<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su) .....	3
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su) .....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su) .....	4
<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) (3 cr) <b>or</b>	
<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp) (3 cr) .....	3

# Department of Management

All 3000-, 4000-, and 5000-level courses in the Huntsman School of Business are restricted to students admitted to the Huntsman School or another USU major with an overall GPA of at least 2.67 and completion of at least 40 credits.

## Huntsman School of Business Core (37 credits)

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
ACCT 2020 Survey of Accounting II (F,Sp,Su)	3
BUS 3250 Discussions With Business Leaders (F,Sp)	1
ECN 2010 (BSS) Introduction to Microeconomics (F,Sp,Su)	3
ECN 3400 International Economics for Business (F,Sp,Su)	3
FIN 3400 (QI) Corporate Finance (F,Sp,Su)	3
MGT 2050 Legal and Ethical Environment of Business (F,Sp,Su)	3
MGT 3110 (DSS) Managing Organizations and People (F,Sp,Su)	3
MGT 3500 Fundamentals of Marketing (F,Sp,Su)	3
MGT 3700 Operations Management (F,Sp,Su)	3
MGT 4880 (CI) Business Strategy in an Entrepreneurial Context (F,Sp,Su) (3 cr) or	
MGT 4890 (CI) Business Strategy in a Global Context (F,Sp,Su) (3 cr)	3
MIS 2100 Principles of Management Information Systems (F,Sp,Su)	3
MIS 2200 (CI) Business Communication (F,Sp,Su)	3

## Requirements for Majors

### Marketing (21-22 credits)

Modern marketing consists of a system of activities designed to help the marketer understand and influence buyer and seller behavior. Within the socio-economic and political environment, the marketer must plan, price, promote, and distribute want-satisfying goods and services to society. As prerequisites to MGT 4590, students must complete the following courses: MGT 3500, 4540, and 4550. Before continuing with the following courses, students must receive a grade of B- or better in MGT 3500.

#### Required Courses (15 credits)

MGT 4510 Buyer Behavior (F,Sp)	3
MGT 4530 Marketing Research (F,Sp)	3
MGT 4540 Marketing Institutions (F) (3 cr) or	
MGT 4070 (CI) Retail Management (Sp) (3 cr)	3
MGT 4550 Promotion Management (F,Sp)	3
MGT 4590 Global Marketing Strategy (F,Sp)	3

#### Elective Courses (6-7 credits)

Select one of the following marketing tracks:

##### Track 1: Analysis of Culture (Choose 2 courses)

LING 4100 The Study of Language (F,Sp)	3
LING 4900 Analysis of Cross-Cultural Difference (Sp)	3
PSY 4210 Personality Theory (Sp)	3
PSY 4240 Multicultural Psychology (F)	3
MGT 4630 Human Resource Management (F,Sp)	3
ENVS 3000 Natural Resources Policy and Economics (F)	4
ENVS 3330 Environment and Society (Sp)	3
ENVS 4000 Human Dimensions of Natural Resource Management (F)	3
MIS 4550 (CI) Principles of International Business Communications (Sp)	3

##### Track 2: Research (Choose 2 courses)

ECN 3010 Managerial Economics (F,Sp)	3
ECN 4310 (QI) Mathematical Methods in Economics and Finance I (F)	3
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3
MGT 4790 Supply Chain Management (F)	3

### Track 3: Recreation/Tourism (Choose 2 courses)

ENVS 3300 Fundamentals of Recreation Resources Management (F)	3
ENVS 4130 Recreation Policy and Planning (Sp)	3
ENVS 4500 (CI) Wildland Recreation Behavior (F)	3
PRP 3000 Recreation Programming (F,Sp)	3
PRP 3200 Recreation Event Planning and Management (F,Sp)	3
PRP 3750 Commercial Recreation and Tourism (Sp)	3
PRP 4400 Recreation Facility Design and Management (F)	3

### Operations Management (21 credits)

Operations management involves planning, directing, controlling, and improving the activities related to providing goods and services.

The operations manager is responsible for assuring that customer expectations are met, and even exceeded, with regard to quality, delivery, and price. To execute their responsibilities, operations managers must understand how to convert customer demand into specific material, equipment, and labor resources. In addition, they must work with and develop good suppliers, customer relationships, and internal work activities. Before continuing with the following courses, students must receive a grade of B- or better in MGT 3700.

#### Required Courses (18 credits)

MGT 3080 (QI) Operations Research (F,Sp)	3
MGT 4720 Production Planning and Control (Sp)	3
MGT 4750 Production Simulation (Sp)	3
MGT 4790 Supply Chain Management (F,Sp)	3
MGT 4800 Independent Research and Readings (F,Sp,Su)	3
MGT 5730 Continuous Improvement (F)	3

#### Elective Course (3 credits)

Select one of the following two courses:

ACCT 3310 Strategic Cost Management (F,Sp,Su)	3
MGT 4630 Human Resource Management (F,Sp)	3

### International Business (24 credits)

The international business major develops the skills and knowledge needed to provide leadership in the global marketplace. This requires not only being able to manage customers, products, and processes in global supply chains, but also understanding the social, political, and cultural dimensions of business in an international environment. Before continuing with the required courses, students must receive a grade of B- or better in FIN 3400, and MGT 3500, 3700. For the BA degree in International Business, students must complete 15 credits of required courses, 6 credits of supporting coursework, and one 3-credit nonbusiness elective course (as shown below). In addition to coursework requirements, students are required to demonstrate competence in a second language, and complete an international experience. Competence in a second language can be demonstrated by one of the following: (1) successful completion of a minor or major in a second language; (2) passing 16 semester credits of a second language at an accredited college or university; (3) passing a language challenge competency exam and successfully completing the next higher class; (4) successful completion of the BYU Language Test (minimum of 16 credits); or (5) completion of 16 credits from the Intensive English Language Institute or attainment of a TOEFL score of at least 173 computerized, 500 paper/pencil, or 61 on the iBT.

The international experience can be fulfilled by meeting one of the following requirements:

1. Demonstration of international work experience or completion of an internship. The work experience/internship is either to be completed overseas or to provide substantial and approved international experience. It is to be of no less than nine weeks in duration.

# Department of Management

Or

- Completion of a minimum of one semester of study at an approved overseas institute of higher education or participation in an approved overseas study tour.

## Required Courses (15 credits)

ECN 5150 Comparative Economic Systems (F)	3
FIN 4300 International Finance (F,Sp)	3
MGT 3820 International Management (F,Sp)	3
MGT 4590 Global Marketing Strategy (F,Sp)	3
MGT 4790 Supply Chain Management (F,Sp)	3

## Supporting Coursework (6 credits)

Students must complete 6 credits of coursework from one of the following five supporting areas:

### Eastern Europe<sup>1</sup>

POLS 5120 Economics of Russia and Eastern Europe, 9th Century to 21st Century (F) (3 cr) or	
HIST 3280 East Central Europe Since 1520 (3 cr) or	
HIST 3310 Balkans Since 1389 (3 cr) or	
HIST 3330 The Soviet Union and its Heirs (3 cr)	3
POLS 3220 Russian and East European Government and Politics (F)	3

### Western Europe<sup>1</sup>

HIST 3240 Modern Europe from 1789 to the Present	3
POLS 3210 Western European Government and Politics (F) (3 cr) or	
POLS 4210 European Union Politics (Sp) (3 cr)	3

### Latin America<sup>1</sup>

HIST 3630 History of Modern Latin America	3
POLS 3270 Latin American Government and Politics (F)	3

### Asia<sup>1</sup>

HIST 3460 Comparative Asian History	3
POLS 3250 Chinese Government and Politics (F) (3 cr) or	
POLS 4260 Southeast Asian Government and Politics (Sp) (3 cr)	3

### International Trade<sup>1</sup>

ECN 5400 International Trade Theory (F)	3
POLS 5480 International Trade Policy (Sp)	3

### Electives (select 3 credits)

Students must complete *one* elective, selected from the following:

BUS 4250 Advanced Internship (F,Sp,Su)	1-9
CHIN 3100 (DHA) Readings in Contemporary Chinese Culture (Sp)	3
CHIN 3510 Chinese Business Language (F)	3
FREN 3510 (CI) Business French (F)	3
FREN 3550 (DHA) French Civilization (F)	3
FREN 3570 France Today	3
GERM 3300 (DHA) Contemporary German Speaking Cultures (Sp)	3
GERM 3510 (CI) Business German (Sp)	3
GERM 3550 (DHA) Cultural History of German Speaking Peoples (F)	3
HIST 3410 The Modern Middle East	3
HIST 3510 Africa and the World	3
JAPN 3100 Readings in Contemporary Japanese Culture (F)	3
JAPN 3510 Japanese for the Business Environment (Sp)	3
MIS 4550 (CI) Principles of International Business Communications (Sp)	3
MIS 5700 Internet Management and Electronic Commerce (F,Sp)	3
POLS 3100 Global Issues (F)	3
PORT 3570 (DHA) Brazilian Culture and Civilization (F)	3

RUSS 3300 (DHA) Contemporary Russian Language and Culture	3
RUSS 3510 (CI) Business Russian	3
RUSS 3540 Russian Translation for Science, Business, and Culture	3
SPAN 3510 Business Spanish (F,Sp)	3
SPAN 3550 (DHA) Spanish Culture and Civilization (F,Sp)	3
SPAN 3570 (DHA) Latin American Culture and Civilization (F,Sp)	3
Any class from one of the supporting areas (if not already taken)	3

<sup>1</sup>In the event that a course required for a supporting area is not offered or available, an approved alternative course may be substituted.

## Business Administration (21 credits)

The Business Administration major is a general degree that recognizes that most business students will have multiple business responsibilities throughout their career. This degree provides broad cross-discipline experience in the core business areas of operations, finance, and marketing. Before continuing with the following courses, students must receive a grade of *B-* or better in FIN 3400, and MGT 3500, 3700.

### Required Courses (18 credits)

FIN 4410 Financial Institutions (F,Sp)	3
FIN 4450 Fundamentals of Valuation (F,Sp)	3
MGT 4530 Marketing Research (F,Sp)	3
MGT 4590 Global Marketing Strategy (F,Sp)	3
MGT 4790 Supply Chain Management (F,Sp)	3
MGT 5730 Continuous Improvement (F)	3
Additional approved elective course (4000- or 5000-level)	3

### Entrepreneurship (15 credits)

Entrepreneurship focuses on the development of entrepreneurial and leadership capabilities. These include recognizing viable business opportunities and developing business concepts that allow firms to take advantage of unique competencies and capabilities. In addition, there is substantial emphasis on the acquisition and allocation of resources, as well as on organizing, leading, and empowering people.

MGT 3510 Fundamentals of Entrepreneurship (F,Sp)	3
MGT 3520 Relationship and Organizational Competencies for Entrepreneurs (F,Sp)	3
MGT 3710 Developing Team and Interpersonal Skills (F,Sp)	3
MGT 3820 International Management (F,Sp)	3
MGT 4510 Senior Seminar in Entrepreneurship (F)	3

Students completing the Entrepreneurship major requirements must take **MGT 4880** as their senior capstone course in the Business Core requirements. Students should also note that **MGT 3510 and 3520** must be taken prior to **MGT 4510**.

### Human Resource Management (15 credits)

Human Resource Management deals with those processes which provide, develop, and maintain a productive workforce. Subject areas include recruiting employees, determining what tasks need to be performed, placing the right person in the right position, determining fair benefits and compensation, evaluating performance, determining current and future employment needs, training and development, labor-management relations, and following legal/ethical practices in employment.

### Required Courses (9 credits)

MGT 3710 Developing Team and Interpersonal Skills (F,Sp)	3
MGT 3820 International Management (F,Sp)	3
MGT 4630 Human Resource Management (F,Sp)	3



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## Elective Courses (select 6 credits)

Students must complete at least **two** of the following:

<b>ANTH 3200 (DSS/CI)</b> Perspectives on Race (Sp) .....	3
<b>MGT 3810 (DSS)</b> Employment Law and Policy Development (F,Sp) .....	3
<b>MIS 4350</b> Introduction to Performance Improvement Projects (Sp) .....	3
<b>PHIL 3520 (DHA)</b> Business Ethics .....	3
<b>PUBH 3310</b> Occupational Health and Safety (F) .....	3
<b>SOC 3500</b> Social Psychology (F,Sp) .....	3
<b>SPCH 3250 (CI)</b> Organizational Communication (F) (3 cr) <b>or</b>	
<b>SPCH 3330 (DSS)</b> Intercultural Communication (F) (3 cr) <b>or</b>	
<b>SPCH 3600</b> Communication and Conflict (F) (3 cr) .....	3

## Elective Course Requirements

Because the University requires a minimum of 120 credits for a bachelor's degree, students will need to take some elective credits. These credits may be chosen from any course (1000-level or above) offered by the University. If a student wants to complete a minor or a dual major in another department, the use of elective credits should be planned carefully with an advisor in the other department.

If a Huntsman School of Business student elects to take a minor, he or she is encouraged to select one from outside the Huntsman School.

## Business (General)

A general business major is administered by the Huntsman School of Business (see pages 125-126). For further information, contact the Huntsman School of Business Programs and Advising Center, Business 309, (435) 797-2272.

## Four-Year Degree Plans (8 Semesters)

Four-year degree plans for majors in the Management Department can be found at: <http://www.usu.edu/degreplans/>

## Requirements for Minors

Minors in Marketing, Operations Management, International Business, Management, and Human Resource Management are available, as outlined below. Any deviation from the programs as outlined must be submitted in writing, with justification for the changes, to the department head for approval. A minimum 2.50 GPA in the minor courses is required. Students having majors within the Huntsman School of Business are eligible to earn a minor in Marketing, Operations Management, International Business, Management, or Human Resource Management. Students would be expected to satisfy all course prerequisites as well, with a GPA of at least 2.50.

## Minor in Marketing

### Required Courses (10 credits)

<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su) .....	3
<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su) (B- or better grade required) .....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su) .....	4

### Electives (6 credits)

Select two of the following courses:

<b>MGT 4510</b> Buyer Behavior (F,Sp) .....	3
<b>MGT 4530</b> Marketing Research (F,Sp) .....	3
<b>MGT 4540</b> Marketing Institutions (F) .....	3
<b>MGT 4550</b> Promotion Management (F,Sp) .....	3

## Minor in Operations Management

### Required Courses (9 credits)

<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su) .....	3
<b>MGT 3700</b> Operations Management (F,Sp,Su) (B- or better grade required) .....	3
<b>MGT 4720</b> Production Planning and Control (Sp) .....	3

### Electives (6 credits)

Select two of the following courses:

<b>MGT 3080 (QI)</b> Operations Research (F,Sp) .....	3
<b>MGT 4750</b> Production Simulation (Sp) .....	3
<b>MGT 4790</b> Supply Chain Management (F,Sp) .....	3
<b>MGT 5730</b> Continuous Improvement (F) .....	3

A grade point average of at least 2.50 over the minor courses is required.

## Minor in International Business

### Required Courses (12 credits)

Select four of the following courses:

<b>ECN 5150 (DSS)<sup>5</sup></b> Comparative Economic Systems (F) .....	3
<b>FIN 4300<sup>2</sup></b> International Finance (F,Sp) .....	3
<b>MGT 3820 (DSS)</b> International Management (F,Sp) .....	3
<b>MGT 4590<sup>3</sup></b> Global Marketing Strategy (F,Sp) .....	3
<b>MGT 4790<sup>4</sup></b> Supply Chain Management (F,Sp) .....	3

Students must also complete *one* of sections A, B, C, or D below:

### A. Electives (6 credits)

Students who choose this option must complete 6 credits from *one* of the following supporting areas:

#### Eastern Europe<sup>6</sup>

<b>POLS 5120</b> Economics of Russia and Eastern Europe, 9th Century to 21st Century (F) (3 cr) <b>or</b>	
<b>HIST 3280</b> East Central Europe Since 1520 (3 cr) <b>or</b>	
<b>HIST 3310</b> Balkans Since 1389 (3 cr) <b>or</b>	
<b>HIST 3330</b> The Soviet Union and its Heirs (3 cr) .....	3
<b>POLS 3220 (DSS)</b> Russian and East European Government and Politics (F) .....	3
<b>RUSS 3300 (DHA)</b> Contemporary Russian Language and Culture .....	3

#### Western Europe<sup>6</sup>

<b>HIST 3240</b> Modern Europe from 1789 to the Present .....	3
<b>POLS 3210 (DSS)</b> Western European Government and Politics (F) (3 cr) <b>or</b>	
<b>POLS 4210</b> European Union Politics (Sp) (3 cr) .....	3
<b>FREN 3570</b> France Today (3 cr) <b>or</b>	
<b>GERM 3300 (DHA)</b> Contemporary German Speaking Cultures (Sp) (3 cr) <b>or</b>	
<b>SPAN 3550 (DHA)</b> Spanish Culture and Civilization (F,Sp) (3 cr) .....	3

#### Latin America<sup>6</sup>

<b>HIST 3630</b> History of Modern Latin America .....	3
<b>POLS 3270 (DSS)</b> Latin American Government and Politics (F) .....	3
<b>SPAN 3570 (DHA)</b> Latin American Culture and Civilization (F,Sp) .....	3

#### Asia<sup>6</sup>

<b>HIST 3460</b> Comparative Asian History .....	3
<b>POLS 3250 (DSS)</b> Chinese Government and Politics (F) (3 cr) <b>or</b>	
<b>POLS 4260</b> Southeast Asian Government and Politics (Sp) (3 cr) .....	3
<b>CHIN 3100 (DHA)</b> Readings in Contemporary Chinese Culture (Sp) (3 cr) <b>or</b>	
<b>JAPN 3100</b> Readings in Contemporary Japanese Culture (F) (3 cr) .....	3

# Department of Management

## International Trade<sup>6</sup>

<b>ECN 5400</b> International Trade Theory (F) .....	3
<b>POLS 3100</b> Global Issues (F) .....	3
<b>POLS 5480</b> International Trade Policy (Sp) .....	3

## B. Second Language Competence

Students selecting this option must demonstrate competence in a second language by one of the following five methods:

1. A minor or major in a second language
2. Completion of 16 semester credits of a second language, earned at an accredited institution
3. Passing a language challenge competency exam and successful completion of the next higher class
4. Successful completion of the BYU Language Test (minimum of 16 credits)
5. Completion of 16 credits from the Intensive English Language Institute *or* a TOEFL score of at least 173 computerized, 500 paper/pencil, or 61 on the iBT

## C. International Work Experience or Internship

For this option, work experience or an internship must *either* be completed overseas *or* must provide substantial and approved international experience. This work experience or internship must be at *least nine weeks* in duration.

## D. Study Overseas

Students selecting this option must *either* spend a minimum of one semester studying at an approved overseas institution of higher education *or* must participate in an approved overseas study tour.

<sup>6</sup>Prerequisite: Grade of B- or better in FIN 3400.

<sup>6</sup>Prerequisites: Grade of B- or better in MGT 3500; MGT 4540, 4550.

<sup>6</sup>Prerequisite: Grade of B- or better in MGT 3700.

<sup>6</sup>Prerequisite: ECN 2010.

<sup>6</sup>In the event a course required for a supporting area is not offered or available, an approved alternative class may be substituted.

## Minor in Management

This minor is for students who expect to work in an organization where they will assume supervisory or management responsibilities. The Management minor consists of a minimum of 12 credits.

### Required:

<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su).....	3
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### Select three courses from the following:

<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su) .....	3
<b>MGT 3510</b> Fundamentals of Entrepreneurship (F,Sp).....	3
<b>MGT 3520</b> Relationship and Organizational Competencies for Entrepreneurs (F,Sp) .....	3
<b>MGT 3710</b> Developing Team and Interpersonal Skills (F,Sp).....	3
<b>MGT 3810 (DSS)</b> Employment Law and Policy Development (Prerequisite: MGT 2050) (F,Sp) .....	3
<b>MGT 3820 (DSS)</b> International Management (F,Sp) .....	3
<b>MGT 4520</b> New Venture Planning (Prerequisites: MGT 3510, 3520) (F).....	3
<b>MGT 4630</b> Human Resource Management (F,Sp).....	3
<b>MIS 4350</b> Introduction to Performance Improvement Projects (Sp).....	3
<b>PHIL 3520 (DHA)</b> Business Ethics.....	3

## Minor in Human Resource Management

This minor is for students who want to work in any of the human resource functions of an organization. The Human Resource Management minor consists of a minimum of 12 credits.

### Required:

<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su).....	3
<b>MGT 4630</b> Human Resource Management (F,Sp).....	3

### Select two courses from the following:

<b>ANTH 3200 (DSS/CI)</b> Perspectives on Race (Sp) .....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su) .....	3
<b>MGT 3710</b> Developing Team and Interpersonal Skills (F,Sp).....	3
<b>MGT 3810 (DSS)</b> Employment Law and Policy Development (Prerequisite: MGT 2050) (F,Sp) .....	3
<b>MGT 3820 (DSS)</b> International Management (F,Sp) .....	3
<b>MIS 4350</b> Introduction to Performance Improvement Projects (Sp).....	3
<b>PHIL 3520 (DHA)</b> Business Ethics.....	3
<b>PUBH 3310</b> Occupational Health and Safety (F) .....	3
<b>SOC 3500</b> Social Psychology (F,Sp).....	3
<b>SPCH 3250 (CI)</b> Organizational Communication (F) (3 cr) <b>or</b> <b>SPCH 3330 (DSS)</b> Intercultural Communication (F) (3 cr) <b>or</b> <b>SPCH 3600</b> Communication and Conflict (F) (3 cr).....	3

**Note:** An overall GPA of 2.67 and admission into a degree-seeking major are required for enrollment in 3000- or 4000-level courses in the Department of Management and Human Resources.

## Minor in Business

A Business Minor is administered by the Huntsman School of Business. For further information, students should contact the Huntsman School of Business Programs and Advising Center, Business 309, (435) 797-2272.

## Graduation Requirements

To be recommended by the department for graduation, majors in the Department of Management must have a grade point average of at least 2.50 in their upper-division Huntsman School of Business core and major requirement courses, as well as an overall GPA of 2.50. This includes transfer credits. At least fifty percent of the business credits required for a business degree must be taken on the Utah State University campus or at a designated residence center.

## Financial Assistance

The Department of Management and the Huntsman School of Business award scholarships in addition to those available through the University Financial Aid Office. Information and application forms are available from the Huntsman School of Business Programs and Advising Center, Business 309.

## Student Organizations

The department sponsors two student organizations. Membership in the organizations is open to all students, both undergraduate and graduate, who meet the membership requirements.

**Collegiate Entrepreneurs' Association (CEO)** is the premier global entrepreneurship network serving more than 500 colleges and universities.

# Department of Management

**Society for Human Resource Management (SHRM)** is the professional Human Resource Management organization co-sponsored by the Bridgerland Chapter of SHRM.

## Additional Information

A major requirement sheet, which includes further information about career opportunities and course requirements for the majors and minors within the Management Department, can be found online at: <http://www.usu.edu/majorsheets/>

Further information about undergraduate programs in the Huntsman School of Business can be obtained from the Programs and Advising Center, Business 309, or found on the Web at: <http://www.huntsman.usu.edu/advising/>

## Graduate Programs

### Master of Science in Human Resources (MS HR)

#### Objectives

The MS in Human Resources degree prepares students for professional careers in the field of Human Resource Management. The program is competency based and prepares students to take a strategic role, assisting organizations in attracting, retaining, and developing human talent at all levels. Required subject areas include team and interpersonal effectiveness, talent acquisition and retention, total rewards and employee performance, training and organization development, employee relations and the labor movement, employment law, career and professional development, human capital management, human resource policy and strategy, and applied human resource research. Students are also required to demonstrate business acumen and complete an internship as part of the program.

#### Admission Requirements

See Admission Procedures on pages 36-37. Students from any accredited undergraduate major are invited to apply. Students are required to submit scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Applicants are expected to have strong written and oral communication skills.

Students are expected to be admitted to the program as matriculated students before taking coursework leading to the degree.

#### Degree Requirements

Students are held responsible for meeting requirements as outlined below. It is the student's responsibility to be aware of all requirements and initiate the resolution of apparent inconsistencies.

The typical degree option is Plan C, which includes coursework to meet the degree requirements.

The MS in Human Resources degree requires a minimum of 36 to 46.5 credits, depending upon the undergraduate preparation of the student. Students entering the program without an undergraduate business degree will be required to complete a 10.5 credit sequence of courses to develop their foundation in business acumen as part of their program of study. This regimen is comprised of the following courses: ECN 6050, ACCT 6010, MGT 6075, 6410, 6510. Coursework beyond the Business Core includes MGT 6310, 6330, 6550, 6620, 6630, 6650, 6670, 6680, 6690, 6760; BUS 6250; and one 3-credit elective approved by the steering committee. Students may substitute

MGT 6900 for BUS 6250 (Graduate Internship) on approval of the MS in Human Resources steering committee. Students with an undergraduate degree from an AACSB-International accredited business school will not be required to take the business core. Students completing the program are strongly encouraged to take the Human Resource Certification Institute (HRCI) exam, leading to certification upon completion of the HRCI experience requirement.

Additional information about the MS in Human Resources degree may be obtained by contacting the Department of Management.

## Financial Assistance and Assistantships

A limited number of graduate assistantships, scholarships, and other departmental awards are provided to outstanding students on a competitive basis. Acceptance to the program does not guarantee financial assistance. Application forms are available online through the School of Graduate Studies. More information can be found at: <http://www.usu.edu/graduateschool/financial/assistantships.cfm> The deadline for financial aid assistance is March 15.

## Master of Business Administration (MBA)

The department also participates with other departments in the Huntsman School of Business in offering the Master of Business Administration (MBA) Degree. A description of the MBA degree and program requirements can be found on pages 194-195 of this catalog.

## Management Faculty

#### Professors

*Douglas D. Anderson*, strategy, leadership, and change

*Kenneth R. Bartkus*, promotion management

*Ronda R. Callister*, management, organizational behavior, international management

*Peter M. Ellis*, production and operations research

*Cathy L. Hartman*, consumer behavior and environmental sustainability

*Vijay R. Kannan*, supply chain and quality management, cellular manufacturing

*Glenn M. McEvoy*, human resources, organizational behavior, management

*C. R. Michael Parent*, marketing research and strategy

*David B. Stephens*, business strategy and labor relations

#### Professors Emeritus

*Vernon M. Buehler*

*Howard M. Carlisle*

*John R. Cragun*

*Gary B. Hansen*

*Allen D. Kartchner*

*Eugene C. Kartchner*

*Leon R. McCarrey*

*Paul A. Randle*

*Y. Krishna Shetty*

#### Associate Professors

*J. Brian Atwater*, "theory of constraints," quality management, lean manufacturing

*Steven H. Hanks*, business strategy, management, and entrepreneurship

# Department of Management

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*Edwin R. Stafford*, marketing management, strategy, environmental sustainability

## **Adjunct Associate Professor**

*Bradley A. Winn*, organizational leadership

## **Associate Professors Emeritus**

*David R. Daines*

*Ross E. Robson*

## **Assistant Professors**

*Carrie A. Belsito*, strategic human resource management and ethics

*Alison Cook*, organizational behavior, human resource management

*Daniel V. Holland*, entrepreneurship

*Haiyan Hu*, retailing and consumer behavior, international retailing, visual merchandising and promotion

*Konrad S. Lee*, employment law, business law

*Christopher R. Reutzel*, strategic management

*Brenda C. Sun*, strategic and international management

## **Clinical Assistant Professors**

*Randall L. Cook*, operations management and finance

*Stacey B. Hills*, marketing research, strategy, and product management

## **Senior Lecturers**

*David G. Herrmann*, management and entrepreneurship

*Janet P. Lyons*, operations and marketing

## **Principal Lecturer**

*Alan P. Warnick*, human resource management

## **Lecturers**

*Daniel D. Allen*, entrepreneurship

*Chester F. Brough*, business law

*David R. Woolstenhulme*, entrepreneurship

## **Course Descriptions**

Management (MGT), pages 603-607

# Department of Management Information Systems

**Department Head:** John D. Johnson  
**Location:** Business 711  
**Phone:** (435) 797-2342  
**FAX:** (435) 797-2351  
**E-mail:** john.johnson@usu.edu  
**WWW:** <http://www.huntsman.usu.edu/mis/>

**Undergraduate Advisor:**  
Peggy Buttars, Business 309, (435) 797-2272,  
peggy.buttars@usu.edu

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), and Master of Science (MS) in Management Information Systems

**Graduate specializations:** *Management Information Systems*  
*MS—Management Information Systems, Training and Development*

## Undergraduate Programs

### Objectives

The Management Information Systems major is designed to prepare individuals for positions as managers in business information systems, including database administrators, worldwide web designers, electronic commerce developers, systems analysts, applications programmers, IS security managers, and systems trainers.

### Departmental Honors

See *Honors in Business* description in the Huntsman School of Business section of this catalog (page 124).

### Learning Objectives and Assessment

Assessment information for the Management Information Systems Department can be found online.

### Requirements

#### Jon M. Huntsman School of Business Requirements

All bachelor's degree students majoring in Management Information Systems must satisfy the Huntsman School of Business entrance requirements provided on pages 124-125. Academic advising about these requirements is provided by the Huntsman School of Business Programs and Advising Center, Business 309. Management Information Systems majors must also follow Huntsman School prebusiness course requirements for admission to a major, detailed on page 125.

#### Matriculation Requirement and Transfer Limitation

No more than 15 USU Huntsman School of Business credits (ACCT, BUS, FIN, MGT, MIS), numbered 2000 and above, earned as a nonbusiness major (before acceptance into the Huntsman School) can be applied to a Huntsman School degree. No more than 15 business credits can be transferred from other accredited institutions. However, additional USU Huntsman School credits added to previously earned transfer business credits may not exceed a combined total of 15. Furthermore, to earn a bachelor's degree in a Huntsman School major, at least 50 percent of the required Huntsman School credits must be earned from coursework taken from the Utah State University Huntsman School.

### USU Credits and Business Credits

At least 30 of the last 60 semester credits must be taken from Utah State University, at least 20 of which must be completed in upper-division courses, of which at least 10 credits must be completed in courses required by the student's major. At least 50 percent of the Huntsman School of Business credits required for a Huntsman School degree must be taken from the Utah State University Huntsman School or its departments, which include: School of Accountancy, Economics and Finance, Management, and Management Information Systems.

### Requirements for Bachelor's Degree in Management Information Systems

To earn a bachelor's degree in Management Information Systems, a student must complete the USU requirements for a bachelor's degree and the following categories of coursework in the Huntsman School of Business: Pre-Business, Huntsman School of Business Core, MIS Department Core, and four MIS elective courses (12 credits).

#### Pre-Business Course Requirements (13 credits)

<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su).....	3
<b>STAT 2300 (QL)</b> Business Statistics (F,Sp,Su).....	4
<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) (3 cr) or	
<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp) (3 cr).....	3

#### Huntsman School of Business Core (37 credits)

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su).....	3
<b>BUS 3250</b> Discussions With Business Leaders (F,Sp).....	1
<b>ECN 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>ECN 3400</b> International Economics for Business (F,Sp,Su).....	3
<b>FIN 3400 (QI)</b> Corporate Finance (F,Sp,Su).....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su).....	3
<b>MGT 3110</b> Managing Organizations and People (F,Sp,Su).....	3
<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su).....	3
<b>MGT 3700</b> Operations Management (F,Sp,Su).....	3
<b>MGT 4880 (CI)</b> Business Strategy in an Entrepreneurial Context (F,Sp,Su) (3 cr) or	
<b>MGT 4890 (CI)</b> Business Strategy in a Global Context (F,Sp,Su) (3 cr).....	3
<b>MIS 2100</b> Principles of Management Information Systems (F,Sp,Su).....	3
<b>MIS 2200 (CI)</b> Business Communication (F,Sp,Su).....	3

#### MIS Department Core Requirements (10 credits)

<b>MIS 3330<sup>1</sup></b> Database Management (F,Sp).....	3
<b>MIS 3800<sup>1</sup></b> Information Technology Hardware and System Software (F,Sp).....	3
<b>MIS 5900<sup>2</sup></b> Systems Design and Implementation (F,Sp).....	3
<b>MIS 5910<sup>2</sup></b> Systems Design Laboratory (must be taken concurrently with MIS 5900) (F,Sp).....	1

#### Programming Requirement (3-4 credits)

Students must complete <i>either</i> MIS 3500 <i>or</i> both CS 1400 and 1405.	
<b>MIS 3500</b> Introduction to Business Applications Programming (F,Sp).....	3

Or

<b>CS 1400</b> Introduction to Computer Science—CS1 (F,Sp,Su) (3 cr) and	
<b>CS 1405</b> Introduction to Computer Science—CS1 Lab (take concurrently with CS 1400) (F,Sp,Su) (1 cr).....	4

# Department of Management Information Systems

## Elective Courses (12 credits)

Students must select four elective courses from the following list:

<b>MIS 3450</b> Designing Graphical User Interfaces for Electronic Commerce (F) .....	3
<b>MIS 4330</b> <sup>2</sup> Database Implementation (F,Sp) .....	3
<b>MIS 4350</b> Introduction to Performance Improvement Projects (Sp).....	3
<b>MIS 4800</b> <sup>1</sup> Security of Business Information Systems (Sp).....	3
<b>MIS 5050</b> <sup>3</sup> Advanced Web-Based Management Information Systems Development (F) .....	3
<b>MIS 5150</b> Special Topics: Emerging Technologies in Management Information Systems (F) .....	3
<b>MIS 5300</b> Advanced Data Communications (F) .....	3
<b>MIS 5350</b> Quantitative Financial Modeling and Applications (Sp).....	3
<b>MIS 5650</b> <sup>3</sup> Advanced Website Development (Sp) .....	3
<b>MIS 5700 (DSS)</b> <sup>4</sup> Internet Management and Electronic Commerce (Sp) .....	3

## Additional Electives

Students may complete *no more than one* of the following courses:

<b>BUS 4250</b> Advanced Internship (F,Sp,Su) .....	1-9
<b>MIS 5950</b> Independent Readings (F,Sp,Su).....	1-5

## Four-Year Degree Plan (8 Semesters)

A four-year degree plan for the Management Information Systems major can be found at: <http://www.usu.edu/degreplans/>

## Management Information Systems Minor (15-16 credits)

A minimum 2.50 GPA is required in all courses counted toward the minor.

## Required Courses (6-7 credits)

<b>MIS 3330</b> <sup>1</sup> Database Management (F,Sp).....	3
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## Complete either MIS 3500 or CS 1400 and 1405 (3-4 credits)

<b>MIS 3500</b> Introduction to Business Applications Programming (F,Sp) .....	3
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Or

<b>CS 1400</b> Introduction to Computer Science—CS1 (F,Sp,Su) (3 cr) and	
<b>CS 1405</b> Introduction to Computer Science—CS1 Lab (take concurrently with CS 1400) (F,Sp,Su) (1 cr).....	4

## Elective Courses (9-10 credits)

Choose three of the following courses:

<b>ACCT 4500</b> Accounting Information Systems (F,Sp).....	3
<b>MIS 3450</b> Designing Graphical User Interfaces for Electronic Commerce (F) .....	3
<b>MIS 3800</b> <sup>1</sup> Information Technology Hardware and System Software (F,Sp).....	3
<b>MIS 4330</b> <sup>2</sup> Database Implementation (F,Sp) .....	3
<b>MIS 4350</b> Introduction to Performance Improvement Projects (Sp).....	3
<b>MIS 4800</b> <sup>1</sup> Security of Business Information Systems (Sp).....	3
<b>MIS 5050</b> <sup>3</sup> Advanced Web-Based Management Information Systems Development (F).....	3
<b>MIS 5150</b> Special Topics: Emerging Technologies in Management Information Systems (F) .....	3
<b>MIS 5300</b> Advanced Data Communications (F) .....	3
<b>MIS 5350</b> Quantitative Financial Modeling and Applications (Sp).....	3
<b>MIS 5650</b> <sup>3</sup> Advanced Website Development (Sp) .....	3
<b>MIS 5700 (DSS)</b> <sup>4</sup> Internet Management and Electronic Commerce (Sp) .....	3
<b>MIS 5900</b> <sup>2</sup> Systems Design and Implementation (F,Sp) (3 cr) and	
<b>MIS 5910</b> <sup>2</sup> Systems Design Laboratory (F,Sp) (1 cr).....	4

<sup>1</sup>MIS 2100 is a prerequisite for these courses.

<sup>2</sup>MIS 3330 is a prerequisite for these courses.

<sup>3</sup>MIS 3330 and 3500 are prerequisites for these courses.

<sup>4</sup>Passing scores on the Computer and Information Literacy (CIL) exams are prerequisites for this course.

## Student Organizations

The Department of Management Information Systems sponsors a student organization that provides unique experiences to complement and enrich formal coursework. Leadership development and human relations skills are among the personal attributes enhanced by involvement in the various organization's various activities.

## Association for Computing Machinery (ACM)

ACM, a professional society for the information systems industry, sponsors a student chapter at USU. The goals of ACM are to: (1) provide leadership experiences for undergraduate and graduate management information systems majors; (2) help student members plan their careers and find employment by introducing them to practicing systems professionals; and (3) foster a professional attitude among management information systems majors so that they will contribute to their field. More information is available at: <http://huntsman.usu.edu/acm/>

## Additional Information

For more information about requirements for the majors and minors within the Management Information Systems Department, see the major requirement sheets, available from the department, or online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### Master of Science

Students applying for admission to the Master of Science program in Management Information Systems must take the GMAT or GRE test. A score at the 40th percentile or better on the GMAT or GRE is required for admission. Undergraduate GPA should be 3.2 or above. Meeting minimum requirements does not guarantee admission.

The MS requires a minimum of 33 credits. A minimum of 24 credits of academic work must be in classes numbered 6000 and above. Twelve or more credits should be in the area of specialization. Students with bachelor's degrees outside of business may be required to complete additional coursework.

Students in the master's program pursue the *Plan C* option, where a research paper is completed in a special research class. Those who wish to pursue the *Plan A* thesis option must have permission from their committee to do so.

All MS degrees in the MIS Department require the following core: MIS 6440 and 6810.

The specialization in **Management Information Systems (MIS)** is for students who wish to work as systems analysts, application programmers, network managers, information managers, information center managers, and trainers in management information systems.

# Department of Management Information Systems

Students are expected to have a background in management information systems. Required courses are MIS 6120, 6200, 6330, and 6700, in addition to the departmental core. Students who choose the *Plan A* option must complete 6 credits of MIS 6970. Students may take credits in Accounting, Computer Science, Economics and Finance, Instructional Technology and Learning Sciences, Management Information Systems, or other approved electives to complete the 12 credits of electives required.

The specialization in **Training and Development** is designed for those who wish to work in training and development in business and industry. Required courses for the Training and Development specialization are MIS 6250, 6350, and 6450, in addition to the departmental core. Students must complete 15 credits of electives chosen from the following list: MIS 6120, 6200, 6330, 6510, 6700, 6800, or others with committee approval.

For a current checklist of requirements, students should contact the departmental graduate advisor.

The USU MS in Management Information Systems is the only master's program in Management Information Systems in the State of Utah. Graduates are placed in the West and throughout the nation.

## Additional Information

Specific details about each of the foregoing degree programs are outlined in policy and procedure documents available through the department. All requirements are subject to change; check with the department for current requirements.

## Research

Faculty in the Department of Management Information Systems are active in research and scholarly endeavors. Current and published research topics include business communication, international communication, neural networks, genetic algorithms, data mining, and management information systems as related to business and industry, curriculum for business schools, business reengineering, electronic commerce, group decision support systems, microcomputer applications, use of microcomputers in various subjects including accounting and business communications, cooperative education, and other areas related to management information systems.

## Financial Assistance and Assistantships

Funds for scholarships are provided through the School of Graduate Studies and administered in the department. Those interested in scholarships should contact the graduate director or the department head.

Each year several high-quality graduate teaching assistants are needed. Those who are interested in teaching assistantships must apply through the department head. They must have had teaching experience or be willing to take teaching methods classes, as well as the School of Graduate Studies-sponsored teaching assistant workshop, prior to receiving an assistantship.

## Career Opportunities

Management Information Systems is one of the fastest-growing fields in business and industry. Follow-up studies show that information systems positions pay excellent salaries, and the placement rate of students is almost 100 percent.

## Management Information Systems Faculty

### Professors

*John D. Johnson*, management information systems, electronic commerce, neural networks, genetic algorithms communication, data management, computer security  
*David H. Olsen*, management information systems  
*David J. Paper*, management information systems

### Professors Emeritus

*Dennis J. LaBonty*  
*H. Robert Stocker*  
*William A. Stull*  
*John F. Vinsonhaler*

### Associate Professors

*Katherine M. Chudoba*, management information systems  
*Jeffrey J. Johnson*, management information systems  
*Yong Seog Kim*, management information systems and data mining  
*Robert J. Mills*, management information systems

### Assistant Professors

*Kelly Fadel*, management information systems  
*Karina Hauser*, lean manufacturing, artificial intelligence, and systems analysis and design  
*Zsolt Ugray*, management information systems, electrical commerce, and optimization

### Principal Lecturers

*Susan M. Jones*, management information systems, business communication, and security management  
*Marianna P. Larsen*, business communication and international business communication  
*Craig J. Peterson*, management information systems, electronic commerce management, information technology, and web design  
*Dana H. Swensen*, business communication

### Senior Lecturer and Executive in Residence

*Ralph B. "Bernie" Lantz*, computer technology, network security, management information systems, computer literacy, software development, and programming languages

### Lecturer

*Janet Bringham*, microcomputer applications and business communication

## Course Descriptions

Management Information Systems (MIS), pages 607-609

# Department of Mathematics and Statistics

**Department Head:** D. Richard Cutler

**Location:** Lund Hall 211

**Phone:** (435) 797-0244

**FAX:** (435) 797-1822

**E-mail:** mathstat@cc.usu.edu

**WWW:** <http://www.math.usu.edu/>

**Assistant Department Head:**

Eric R. Rowley, Lund Hall 211B, (435) 797-2808,  
eric.rowley@usu.edu

**Undergraduate Program Director:**

Daniel C. Coster, Lund Hall 310, (435) 797-2815,  
dan.coster@usu.edu

**Graduate Program Director:**

James A. Powell, Lund Hall 304, (435) 797-1953,  
jim.powell@usu.edu

**Mathematics Education Program Director:**

James S. Cangelosi, Lund Hall 325C, (435) 797-1415,  
jim.cangelosi@usu.edu

**Actuarial Science Program Coordinator:**

Daniel C. Coster, Lund Hall 310, (435) 797-2815,  
dan.coster@usu.edu

**Undergraduate Advising:**

Linda Skabelund, Lund Hall 201, (435) 797-0268,  
linda.skabelund@usu.edu

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), and Master of Science (MS) in Mathematics; BS and BA in Mathematics Education; BS in Composite Mathematics-Statistics Education; BS in Composite Mathematics/Statistics; Master of Mathematics (MMath); BS, BA, and MS in Statistics; MS in Industrial Mathematics; Doctor of Philosophy (PhD) in Mathematical Sciences

**Graduate specializations:** *PhD in Mathematical Sciences*—College Teaching, Interdisciplinary Studies, Pure and Applied Mathematics, and Statistics

## Undergraduate Programs

### Objectives

The Department of Mathematics and Statistics offers a variety of programs and courses designed to prepare students for careers in teaching and for positions as mathematicians and statisticians in industry and government. The department also provides service courses for students in many other disciplines and contributes to the University Studies program by providing Quantitative Literacy and Quantitative Intensive classes.

### Placement of New Students

Current mathematics ACT/SAT scores, Math Placement Test scores, and Advanced Placement (AP) calculus and statistics scores are used for placement in 1000-level and 2000-level mathematics and statistics courses. *A current score is defined as a score from an exam taken within the Math Prerequisite Acceptability Time Limit (MPATL).*

Prerequisites for MATH 1030, 1050, 1060, 1100, 1210, 2020, and STAT 1040, 2300 *must* be completed **on or after** (not before) the following dates, in order to fall within the MPATL for the listed semester: **fall semester**—August 15 of the previous year; **spring semester**—January 1 of the previous year; **summer semester**—June 1 of the previous year.

Students who are registering for a math class at USU for the first time who have a math ACT score of less than 23 or a math SAT score of less than 540 (whether current or not) are required to take the Math Placement Test administered by the Department of Mathematics and Statistics. A student's score on the Math Placement Test will be used to determine his or her placement in appropriate mathematics or statistics course.

Students who are registering for a math class for the first time who have a current math ACT score of at least 23 or a current math SAT score of at least 540 do not need to take the Math Placement Test. However, for each of the courses listed below, **one of the following prerequisites, achieved within the MPATL**, is required for enrollment.

**MATH 1010**

Math ACT test score of 23 or higher  
Math SAT test score of 540 or higher  
Grade of C- or better in MATH 0900  
Satisfactory score on Math Placement Exam

**MATH 1030**

Math ACT test score of 23 or higher  
Math SAT test score of 540 or higher  
Grade of C or better in MATH 1010  
Satisfactory score on Math Placement Exam

**MATH 1050**

Math ACT test score of 23 or higher  
Math SAT test score of 540 or higher  
AP Calculus AB test score of 3 or higher  
Grade of C or better in MATH 1010  
Satisfactory score on Math Placement Exam

**MATH 1060**

Math ACT test score of 23 or higher  
Math SAT test score of 540 or higher  
AP Calculus AB test score of 3 or higher  
Grade of C or better in MATH 1010 or 1050  
Satisfactory score on Math Placement Exam

**MATH 1100**

Math ACT test score of 25 or higher  
Math SAT test score of 580 or higher  
Grade of C- or better in MATH 1050  
Satisfactory score on Math Placement Exam

**MATH 1210**

Math ACT test score of 27 or higher  
Math SAT test score of 620 or higher  
AP Calculus AB test score of 3 or higher  
Grade of C- or better in MATH 1050 and 1060  
Satisfactory score on Math Placement Exam



# Department of Mathematics and Statistics

## MATH 2020

Math ACT test score of 25 or higher  
 Math SAT test score of 580 or higher  
 Grade of C- or better in MATH 1050  
 Satisfactory score on Math Placement Exam

## STAT 1040

Math ACT test score of 23 or higher  
 Math SAT test score of 540 or higher  
 Grade of C or better in MATH 1010  
 Satisfactory score on Math Placement Exam

Entering students with current passing scores on AP calculus or statistics exams will be awarded credits as shown below:

AP Test	Score	Credits	USU Credit Awarded
Calculus AB	3	6	3 (QL) credits + 3 elective credits
	4-5	6	MATH 1210 (QL) (4) + 2 elective credits
Calculus BC	3-4	6	MATH 1210 (QL) (4) + 2 elective credits
	5	8	MATH 1210 (QL) (4) + MATH 1220 (QL) (4)
Statistics	3-5	3	STAT 2000 (QI) (3)

Even if not required, students may opt to take the Math Placement Test through the Department of Mathematics and Statistics, strictly for advising purposes.

The calculus courses MATH 1210, 1220, and 2210 are designed for students majoring in mathematics, the sciences, and engineering. MATH 1100 (Calculus Techniques) is designed primarily for students majoring in business. All students in calculus classes need strong backgrounds in the material covered in MATH 1010 and MATH 1050. In addition, the MATH 1210, 1220, 2210 sequence requires a sound understanding of trigonometry (MATH 1060).

Students with outstanding mathematics records in high school and transfer students with some experience in calculus may wish to consult with a departmental advisor prior to registration.

## Departmental Admission Requirements

1. New freshmen admitted to USU in good standing qualify for admission to the major.
2. Transfer students from other institutions need a 2.2 transfer GPA, and students transferring from other USU majors need a 2.0 total GPA for admission to this major in good standing.
3. Students may be admitted to the Mathematics Education major by satisfying either of the above conditions. However, in order to be admitted to the Secondary Teacher Education Program (STEP), and to graduate from the Mathematics Education major (and minor), students must have a cumulative GPA of at least 3.0 in the equivalent of MATH 1210, 1220, and 2210, and an overall GPA of at least 2.75.

## University Requirements

All students in the Department of Mathematics and Statistics must satisfy the requirements of USU's University Studies program, described on pages 67-75 of this catalog.

## College of Science Requirements

Every bachelor's degree candidate in the College of Science must complete the following coursework or its equivalent:

### 1. One year of calculus:

**MATH 1210 (QL)** Calculus I (F,Sp,Su) (4 cr) **and**  
**MATH 1220 (QL)** Calculus II (F,Sp,Su) (4 cr) ..... 8  
 In some degrees or emphases within degrees, the second semester of calculus may be replaced by STAT 3000. The substitution will be for specific degree programs, not by student choice.

2. One of the following year-long sequences. The chosen sequence must be *outside the student's major department*.

**BIOL 1610** Biology I (F) (4 cr) **and**  
**BIOL 1620 (BLS)** Biology II (Sp) (4 cr) ..... 8  
**Or**  
**CHEM 1210** Principles of Chemistry I (F,Sp) (4 cr) **and**  
**CHEM 1220 (BPS)** Principles of Chemistry II (F,Sp,Su) (4 cr) ..... 8  
**Or**  
**GEO 1110 (BPS)** The Dynamic Earth: Physical Geology (F,Sp) (4 cr) **and**  
**GEO 3200 (DSC)** The Earth Through Time (Sp) (4 cr) ..... 8  
**Or**  
**PHYS 2110** The Physics of Living Systems I (4 cr) **and**  
**PHYS 2120 (BPS)** The Physics of Living Systems II (4 cr) ..... 8  
**Or**  
**PHYS 2210 (QI)** General Physics—Science and Engineering I (4 cr)  
**PHYS 2220 (BPS/QI)** General Physics—Science and Engineering II (4 cr) ..... 8

## Bachelor of Arts (BA) Degree

For this degree, students must complete the major requirements for the corresponding BS degree, plus the equivalent of two years of training in a foreign language. The Languages, Philosophy, and Speech Communication Department is responsible for approving the foreign language coursework for this degree.

## Major Requirements

Major and minor requirements in the Department of Mathematics and Statistics vary from time to time. Exact requirements in effect at any given time may be found in the USU online *General Catalog*. All grades for MATH and STAT courses applied toward a departmental major or minor must be C- or better. Major and minor requirements in effect at the beginning of Fall Semester 2009 are given below.

### Mathematics Major (53 credits)

#### A. Required Courses (44 credits)

**MATH 1210 (QL)** Calculus I (F,Sp,Su) ..... 4  
**MATH 1220 (QL)** Calculus II (F,Sp,Su) ..... 4  
**MATH 2210 (QI)** Multivariable Calculus (F,Sp,Su) ..... 3  
**MATH 2270 (QI)** Linear Algebra (F) ..... 3  
**MATH 2280 (QI)** Ordinary Differential Equations (Sp) ..... 3  
**MATH 3310** Discrete Mathematics (F,Sp,Su) ..... 3  
**MATH 4200 (CI)** Foundations of Analysis (F,Sp) ..... 3  
**MATH 4310 (CI)** Introduction to Algebraic Structures (F,Sp) ..... 3  
**MATH 5210** Introduction to Analysis I (F) ..... 3  
**MATH 5220** Introduction to Analysis II (Sp) ..... 3  
**MATH 5270** Complex Variables (Sp) ..... 3  
**MATH 5310** Introduction to Modern Algebra (Sp) ..... 3  
**MATH 5340** Theory of Linear Algebra (Sp) ..... 3  
**MATH 5710** Introduction to Probability (F,Sp) ..... 3

# Department of Mathematics and Statistics

## B. Elective Courses (9 credits)

Select at least three courses (9 credits) from the following:

<b>MATH 5110</b> Differential Geometry (Alt F).....	3
<b>MATH 5410</b> Methods of Applied Mathematics (F).....	3
<b>MATH 5420</b> Partial Differential Equations (Sp).....	3
<b>MATH 5460</b> Introduction to the Theory and Application of Nonlinear Dynamical Systems (Sp).....	3
<b>MATH 5510</b> Introduction to Topology (Alt F).....	3
<b>MATH 5610</b> Computational Linear Algebra and Solution of Systems of Equations (F).....	3
<b>MATH 5620</b> Numerical Solution of Differential Equations (Sp).....	3
<b>MATH 5720</b> Introduction to Mathematical Statistics (Sp).....	3

## Mathematics Education Major with a Teaching Minor

(73 credits, plus the number of credits required  
by the teaching minor)

### A. Mathematics and Statistics Courses (39 credits)

<b>STAT 1040 (QL)</b> Introduction to Statistics (F,Sp,Su).....	3
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 2210 (QI)</b> Multivariable Calculus (F,Sp,Su).....	3
<b>MATH 2250 (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su).....	4
<b>MATH 3110</b> Modern Geometry (Sp).....	3
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3
<b>MATH 4200 (CI)</b> Foundations of Analysis (F,Sp).....	3
<b>MATH 4310 (CI)</b> Introduction to Algebraic Structures (F,Sp).....	3
<b>MATH 4400</b> History of Mathematics and Number Theory (Sp).....	3
<b>MATH 5010</b> Capstone Mathematics, Statistics, and Technology for Teachers (F,Sp).....	3
<b>MATH 5710</b> Introduction to Probability (F,Sp).....	3

### B. Teaching Minor Content Courses (number of credits vary by minor)

#### C. Pedagogy Courses (22 credits<sup>1</sup>)

<b>SCED 3100</b> Motivation and Classroom Management (F,Sp).....	3
<b>SCED 3210 (CI/DSS)</b> Educational and Multicultural Foundations (F,Sp).....	3
<b>SPED 4000</b> Education of Exceptional Individuals (F,Sp,Su).....	2
<b>SCED 4200 (CI)</b> Reading, Writing, and Technology (F,Sp).....	3
<b>SCED 4210</b> Cognition and Evaluation of Student Learning (F,Sp).....	3
<b>MATH 4300</b> School Laboratory for Mathematics Teachers Level II (F,Sp).....	1
<b>MATH 4500</b> Methods of Secondary School Mathematics Teaching (F,Sp).....	3
Teaching Methods in Minor course <sup>1</sup> .....	3
Clinical Experience course <sup>2</sup> .....	1

#### D. Student Teaching Semester (12 credits)

<b>SCED 5500</b> Student Teaching Seminar (F,Sp).....	2
<b>SCED 5630</b> Student Teaching in Secondary Schools (F,Sp).....	10

**Note:** Acceptance to teacher education is required prior to enrolling in SCED 3100, 3210, 4200, or 4210. This acceptance requires an overall GPA of at least 2.75, successful completion of a writing competency test, and passing a criminal background check.

**Note:** All USU teacher education candidates will be required to take and pass the content exam approved by the Utah State Office of Education in their major content area prior to student teaching.

<sup>1</sup>Students with a science teaching minor are required to take two science teaching methods courses (i.e., SCED 3400 and 4400), thus raising the total for pedagogy courses to 25 credits.

<sup>2</sup>The prefix for this course, numbered 3300, depends on the teaching minor.

## Composite Mathematics-Statistics Education Major (79-81 credits)

### A. Mathematics and Statistics Courses (45-47 credits)

<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) (3 cr) <b>or</b> <b>STAT 2000 (QI)</b> Statistical Methods (F,Sp) (3 cr).....	3
<b>MATH 2210 (QI)</b> Multivariable Calculus (F,Sp,Su).....	3
<b>MATH 2250 (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su).....	4
<b>OR</b> (MATH 2250; <b>or</b> MATH 2270 and 2280)	
<b>MATH 2270 (QI)</b> Linear Algebra (F) (3 cr) <b>and</b> <b>MATH 2280 (QI)</b> Ordinary Differential Equations (Sp) (3 cr).....	6
<b>STAT 5100 (QI/CI)</b> Linear Regression and Time Series (F).....	3
<b>MATH 3110</b> Modern Geometry (Sp).....	3
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3
<b>MATH 4200 (CI)</b> Foundations of Analysis (F,Sp).....	3
<b>MATH 4310 (CI)</b> Introduction to Algebraic Structures (F,Sp).....	3
<b>MATH 4400</b> History of Mathematics and Number Theory (Sp).....	3
<b>MATH 5010</b> Capstone Mathematics, Statistics, and Technology for Teachers (F,Sp).....	3
<b>MATH 5710</b> Introduction to Probability (F,Sp).....	3
<b>MATH 5720</b> Introduction to Mathematical Statistics (Sp) (3 cr) <b>or</b> 5000-level course with STAT prefix (other than STAT 5100) (3 cr).....	3

### B. Pedagogy Courses (22 credits)

<b>SCED 3100</b> Motivation and Classroom Management (F,Sp).....	3
<b>SCED 3210 (CI/DSS)</b> Educational and Multicultural Foundations (F,Sp).....	3
<b>SPED 4000</b> Education of Exceptional Individuals (F,Sp,Su).....	2
<b>SCED 4200 (CI)</b> Reading, Writing, and Technology (F,Sp).....	3
<b>SCED 4210</b> Cognition and Evaluation of Student Learning (F,Sp).....	3
<b>MATH 3300</b> School Laboratory for Mathematics Teachers Level I (F,Sp).....	1
<b>MATH 4300</b> School Laboratory for Mathematics Teachers Level II (F,Sp).....	1
<b>MATH 4500</b> Methods of Secondary School Mathematics Teaching (F,Sp).....	3
<b>STAT 4500</b> Methods of Teaching Statistics in Secondary and Middle School (F,Sp).....	3

### C. Student Teaching Semester (12 credits)

<b>SCED 5500</b> Student Teaching Seminar (F,Sp).....	2
<b>SCED 5630</b> Student Teaching in Secondary Schools (F,Sp).....	10

**Note:** Acceptance to teacher education is required prior to enrolling in SCED 3100, 3210, 4200, or 4210. This acceptance requires an overall GPA of at least 2.75, successful completion of a writing competency test, and passing a criminal background check.

**Note:** All USU teacher education candidates will be required to take and pass the content exam approved by the Utah State Office of Education in their major content area prior to student teaching.

# Department of Mathematics and Statistics

## Applied Mathematics Option (68 credits)

The Applied Mathematics Option is available in the Mathematics Major.

### A. Required Mathematics Courses (41 credits)

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 2210 (QI) Multivariable Calculus (F,Sp,Su)	3
MATH 2270 (QI) Linear Algebra (F)	3
MATH 2280 (QI) Ordinary Differential Equations (Sp)	3
MATH 4200 (CI) Foundations of Analysis (F,Sp)	3
MATH 5210 Introduction to Analysis I (F)	3
MATH 5220 Introduction to Analysis II (Sp)	3
MATH 5270 Complex Variables (Sp)	3
MATH 5410 Methods of Applied Mathematics (F)	3
MATH 5420 Partial Differential Equations (Sp)	3
MATH 5710 Introduction to Probability (F,Sp)	3
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3

### B. Required Physics and Computer Science Courses (12 credits)

CS 1400 Introduction to Computer Science—CS 1 (F,Sp,Su)	3
CS 1405 Introduction to Computer Science—CS 1 Lab (F,Sp,Su)	1
PHYS 2110 The Physics of Living Systems I	4
PHYS 2120 (BPS) The Physics of Living Systems II	4

### C. Elective Courses (6 credits)

Select two courses (6 credits) from the following:

MATH 5610 Computational Linear Algebra and Solution of Systems of Equations (F)	3
MATH 5620 Numerical Solution of Differential Equations (Sp)	3
MATH 5640 Optimization (Sp)	3

### D. Additional Elective Courses (9 credits)

Select three courses (9 credits) from STAT courses numbered 5000 and above; or from MATH courses numbered 5000 and above, excluding courses listed above and excluding MATH 5570 and 5580 (Actuarial Math I and II) and MATH 5010.

## Statistics Major (47 credits)

### A. Required Courses (35 credits)

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 2210 (QI) Multivariable Calculus (F,Sp,Su)	3
MATH 2270 (QI) Linear Algebra (F)	3
MATH 4200 (CI) Foundations of Analysis (F,Sp)	3
MATH 5710 Introduction to Probability (F,Sp)	3
MATH 5720 Introduction to Mathematical Statistics (Sp)	3
CS 1400 Introduction to Computer Science—CS 1 (F,Sp,Su)	3
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su) (3 cr) or	3
STAT 2000 (QI) Statistical Methods (F,Sp) (3 cr)	3
STAT 5100 (QI/CI) Linear Regression and Time Series (F)	3
STAT 5200 Design of Experiments (Sp)	3

### B. Elective Courses (12 credits)

Select four courses (12 credits) in statistics numbered above 5000.

One of the three elective classes may be selected from:

MATH 5570 Actuarial Math I (F)	3
MATH 5610 Computational Linear Algebra and Solution of Systems of Equations (F)	3
MATH 5760 Stochastic Processes (F)	3

## Emphasis Requirements

### Computational Mathematics Emphasis (60 credits)

The Computational Mathematics Emphasis is available in the Mathematics Major.

#### A. Required Mathematics Courses (35 credits)

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 2210 (QI) Multivariable Calculus (F,Sp,Su)	3
MATH 2270 (QI) Linear Algebra (F)	3
MATH 2280 (QI) Ordinary Differential Equations (Sp)	3
MATH 3310 Discrete Mathematics (F,Sp,Su)	3
MATH 4200 (CI) Foundations of Analysis (F,Sp)	3
MATH 5210 Introduction to Analysis I (F)	3
MATH 5610 Computational Linear Algebra and Solution of Systems of Equations (F)	3
MATH 5620 Numerical Solution of Differential Equations (Sp)	3
MATH 5710 Introduction to Probability (F,Sp)	3

#### B. Required Computer Science Courses (13 credits)

CS 1400 Introduction to Computer Science—CS 1 (F,Sp,Su)	3
CS 1405 Introduction to Computer Science—CS 1 Lab (F,Sp,Su)	1
CS 1410 (QI) Introduction to Computer Science—CS 2 (F,Sp,Su)	3
CS 2420 (QI) Algorithms and Data Structures—CS 3 (F,Sp,Su)	3
CS 2450 (CI) Introduction to Software Engineering I (F,Sp)	3

#### C. Mathematics Elective Courses (6 credits)

Select two courses (6 credits) in mathematics numbered above 5010, excluding MATH 5570 (Actuarial Math I) and 5580 (Actuarial Math II).

#### D. Computer Science Elective Courses (6 credits)

Select at least two courses (6 credits) in computer science numbered above 4000.

**Note:** Students who complete the Computer Science coursework with a GPA of at least 2.5 automatically earn a minor in Computer Science.

### Actuarial Science Emphasis (59 credits)

The Actuarial Science Emphasis is available in *either* the Mathematics Major or the Statistics Major.

#### A. Mathematics and Statistics Courses (for Mathematics Majors) (44 credits)

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 2210 (QI) Multivariable Calculus (F,Sp,Su)	3
MATH 2270 (QI) Linear Algebra (F)	3
MATH 2280 (QI) Ordinary Differential Equations (Sp)	3
MATH 4200 (CI) Foundations of Analysis (F,Sp)	3
MATH 4310 (CI) Introduction to Algebraic Structures (F,Sp)	3
MATH 5210 Introduction to Analysis I (F)	3
MATH 5570 Actuarial Math I (F)	3
MATH 5580 (CI) Actuarial Math II (Sp)	3
MATH 5710 Introduction to Probability (F,Sp)	3
MATH 5720 Introduction to Mathematical Statistics (Sp)	3
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su) (3 cr) or	3
STAT 2000 (QI) Statistical Methods (F,Sp) (3 cr)	3
STAT 5100 (QI/CI) Linear Regression and Time Series (F)	3

# Department of Mathematics and Statistics

## B. Mathematics and Statistics Courses (for Statistics Majors) (44 credits)

Statistics Majors must complete all of the courses listed above in **Section A**, except for the following two courses:

<b>MATH 4310 (CI)</b> Introduction to Algebraic Structures (F,Sp).....	3
<b>MATH 5210</b> Introduction to Analysis I (F).....	3

In addition, students must complete the following:

<b>STAT 5200</b> Design of Experiments (Sp).....	3
Elective STAT course numbered above 5000.....	3

## C. Required Accounting, Economics, Finance, and Management Courses (15 credits)

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su).....	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>ECN/APEC 2010 (BSS)</b> Introduction to Microeconomics (F,Sp,Su).....	3
<b>FIN 3400 (QI)</b> Corporate Finance (F,Sp,Su).....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su).....	3

**Note:** Admission to the Actuarial Science Emphasis requires explicit departmental approval.

## Composite Major in Mathematics/Statistics (59 credits)

### A. Required Courses (44 credits)

<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 2210 (QI)</b> Multivariable Calculus (F,Sp,Su).....	3
<b>MATH 2270 (QI)</b> Linear Algebra (F).....	3
<b>MATH 2280 (QI)</b> Ordinary Differential Equations (Sp).....	3
<b>MATH 4200 (CI)</b> Foundations of Analysis (F,Sp).....	3
<b>MATH 4310 (CI)</b> Introduction to Algebraic Structures (F,Sp).....	3
<b>MATH 5210</b> Introduction to Analysis I (F).....	3
<b>MATH 5710</b> Introduction to Probability (F,Sp).....	3
<b>MATH 5720</b> Introduction to Mathematical Statistics (Sp).....	3
<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) (3 cr) or <b>STAT 2000 (QI)</b> Statistical Methods (F,Sp) (3 cr).....	3
<b>STAT 5100 (QI/CI)</b> Linear Regression and Time Series (F).....	3
<b>STAT 5200</b> Design of Experiments (Sp).....	3

### B. Elective Mathematics Courses (6 credits)

Select at least two courses (6 credits) in mathematics numbered above 5000.

### C. Elective Statistics Courses (9 credits)

Select at least three courses (9 credits) in statistics numbered above 5000. Either MATH 5760 (Stochastic Processes) or MATH 5570 (Actuarial Math I) may substitute for one of the statistics elective courses.

## Suggested Four-year Plans

Suggested semester-by-semester four-year plans for students working toward a Bachelor of Science or Bachelor of Arts degree within the Department of Mathematics and Statistics can be found at:

<http://www.usu.edu/degreepans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Minor Requirements

### Mathematics Minor (23 credits)

#### A. Required Courses (17 credits)

<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 2210 (QI)</b> Multivariable Calculus (F,Sp,Su).....	3
<b>MATH 2270 (QI)</b> Linear Algebra (F).....	3
<b>MATH 2280 (QI)</b> Ordinary Differential Equations (Sp).....	3

#### B. Elective Courses (6 credits)

Select at least two additional courses (6 credits) in mathematics numbered above 4000, **excluding** the following courses: MATH 4300, 4400, 4500, 5570, and 5580.

### Statistics Minor (15 credits)

#### A. Required Courses (9 credits)

<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) (3 cr) or <b>STAT 2000 (QI)</b> Statistical Methods (F,Sp) (3 cr).....	3
<b>STAT 5100 (QI/CI)</b> Linear Regression and Time Series (F).....	3
<b>STAT 5200</b> Design of Experiments (Sp).....	3

#### B. Elective Courses (6 credits)

Select two additional courses (6 credits) from statistics courses numbered above 5000, or from the following courses:

<b>MATH 5710</b> Introduction to Probability (F,Sp).....	3
<b>MATH 5720</b> Introduction to Mathematical Statistics (Sp).....	3
<b>MATH 5760</b> Stochastic Processes (F).....	3

### Mathematics Education Minor (42 credits)

<b>STAT 1040 (QL)</b> Introduction to Statistics (F,Sp,Su).....	3
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>MATH 2210 (QI)</b> Multivariable Calculus (F,Sp,Su).....	3
<b>MATH 2250 (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su).....	4
<b>MATH 3110</b> Modern Geometry (Sp).....	3
<b>MATH 3310</b> Discrete Mathematics (F,Sp,Su).....	3
<b>MATH 4200 (CI)</b> Foundations of Analysis (F,Sp).....	3
<b>MATH 4310 (CI)</b> Introduction to Algebraic Structures (F,Sp).....	3
<b>MATH 4400</b> History of Mathematics and Number Theory (Sp).....	3
<b>MATH 4500</b> Methods of Secondary School Mathematics Teaching (F,Sp).....	3
<b>MATH 5010</b> Capstone Mathematics, Statistics, and Technology for Teachers (F,Sp).....	3
<b>MATH 5710</b> Introduction to Probability (F,Sp).....	3

Completion of the Secondary Teacher Education Program (STEP) for the student's Secondary Education major is also required, as well as MATH 4500, and **either** MATH 3300 or 4300. Admission to the STEP requires a GPA of at least 3.00 in the equivalent of MATH 1210, 1220, and 2210, and an overall GPA of at least 2.75. Graduation from this minor also requires an overall GPA of at least 2.75. No more than three repeats in all required courses may be used in GPA computations. The STEP is normally completed during the last three semesters of study, and consequently nearly all the mathematics classes in the Mathematics Education Minor must be completed before beginning the STEP.

**Note:** Acceptance to teacher education is required prior to enrolling in SCED 3100, 3210, 4200, or 4210. This acceptance requires an overall GPA of at least 2.75, successful completion of a writing competency test, and passing a criminal background check.

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## Biomathematics Minor (36-40 credits)

### A. Required Courses (28 credits)

BIOL 1610 Biology I (F).....	4
BIOL 1620 (BLS) Biology II (Sp).....	4
MATH 1210 (QL) Calculus I (F,Sp,Su).....	4
MATH 1220 (QL) Calculus II (F,Sp,Su).....	4
MATH 2270 (QI) Linear Algebra (F).....	3
MATH 2280 (QI) Ordinary Differential Equations (Sp).....	3
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su).....	3
MATH/BIOL 4230 (QI) Applied Mathematics in Biology (Sp).....	3

### B. Elective Courses (8-12 credits)

Biology majors must take one course from the biology electives (listed below), and two courses from the mathematics and statistics electives (listed below). Mathematics and Statistics majors must take two courses from the biology electives, and one course from the mathematics and statistics electives. All other majors must take two courses from each set of electives.

#### Biology Electives

BIOL 3220 (QI) Field Ecology (F).....	2
BIOL 5020 (QI) Modeling Biological Systems (F).....	3
BIOL 5380 Evolutionary Genetics (F).....	4
BIOL 5600 Comparative Animal Physiology (Sp).....	3
BIOL 5620 Medical Physiology (F).....	3
CLIM 5500 Land-Atmosphere Interactions (Sp odd).....	3
PUBH 5330 (QI) Industrial Hygiene Chemical Hazard Control (F).....	3
WILD 3810 Plant and Animal Populations (Sp).....	3

#### Mathematics and Statistics Electives

MATH 5410 Methods of Applied Mathematics (F).....	3
MATH 5420 Partial Differential Equations (Sp).....	3
MATH 5460 Introduction to the Theory and Application of Nonlinear Dynamical Systems (Sp).....	3
MATH 5610 Computational Linear Algebra and Solution of Systems of Equations (F).....	3
MATH 5620 Numerical Solution of Differential Equations (Sp).....	3
MATH 5710 Introduction to Probability (F,Sp).....	3
STAT 5100 (CI/QI) Linear Regression and Time Series (F).....	3
STAT 5120 Categorical Data Analysis (F).....	3
STAT 5200 Design of Experiments (Sp).....	3
STAT 5600 (CI) Applied Multivariable Statistics (Sp).....	3

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

Students who enter the University with AP credit in Mathematics and/or Statistics, and about 30 additional AP or CLEP credits, may be able to complete both a BS and an MS degree within five years or less. Interested students should consult with a departmental undergraduate advisor.

For detailed information about requirements for majors and minors within the Mathematics and Statistics Department, see the major requirement sheet, which is available from the department, or online at: <http://www.usu.edu/majorsheets/>

## Financial Support

The department offers several one-, two-, and four-year scholarships to qualified students who enroll as full-time Mathematics, Mathematics Education, or Statistics majors. The winner of the Hunsaker Scholarship receives a cash award each semester for two years. This award is given in addition to any four-year scholarship or tuition waiver for which the student is eligible. During the final two years, the recipient is expected to work as a grader for the department. The department also offers other scholarships (Elich, Ellis, van Vliet, and departmental). The amount of these scholarships varies from year to year. The Ellis Scholarship is awarded to a junior or senior Mathematics Education major, and the recipient is selected by the department. To apply for any of these scholarships (except for the Ellis Scholarship, for which there is no application) fill out the scholarship application form located at <http://www.math.usu.edu/PDF/scholarshipappl.pdf>, and send a statement of qualifications, including high school transcripts and SAT or ACT scores, and three letters of recommendation to:

Scholarship Committee  
Department of Mathematics and Statistics  
Utah State University  
3900 Old Main Hill  
Logan UT 84322-3900

Applications must be received by April 1.

## Learning Objectives

All students having majors within the Department of Mathematics and Statistics are expected to achieve competency in: (1) pre-calculus algebra; (2) calculus of one and several variables; (3) ordinary differential equations; (4) linear algebra/matrices, eigenvalues/eigenvectors, determinant, rank; and (5) analysis (introduction to formal proofs/analysis theory).

Students enrolled in specific departmental majors should also have competence in additional areas pertaining to their major. These areas are listed in the following paragraphs.

### Mathematics Major

(1) algebraic structures; (2) analysis/advanced calculus; (3) complex variables; (4) topology; (5) algebraic theory; and (6) partial differential equations.

### Statistics Major

(1) theory of probability and statistics; (2) linear regression/time series; (3) experiment design; and (4) one or more of sampling, categorical analysis, multivariate analysis, quality control.

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## Mathematics Education Major (including Composite Mathematics-Statistics Education)

(1) algebraic structures; (2) probability; (3) history of mathematics; (4) methods for secondary school teaching of mathematics and/or statistics; and (5) in-service teaching experiences.

## Other Majors and Emphases (e.g., Computational Mathematics Emphasis, Actuarial Science Emphasis, etc.)

Replace general competencies in traditional areas (i.e., algebra, topology, analysis) with specific topics related to the specialized emphasis. For example, students in the **Computational Mathematics Emphasis** need the ability to write computer code to solve linear, nonlinear, stochastic, and (partial and ordinary) differential equations; and students in the **Actuarial Science Emphasis** need two semesters of actuarial mathematics.

## Assessment

### Assessment of General Education Courses (MATH 1050 and STAT 1040)

Beginning with Spring Semester 2004, the department has conducted an annual assessment of student performance in primary General Education courses (including MATH 1050 and STAT 1040). The performance of approximately 100 randomly selected students from each of MATH 1050 and STAT 1040 was evaluated by topic area on the common finals of these courses. Summary results will be available soon. The process was repeated for Spring Semester 2005. Together, these two years of data provide a baseline against which future groups of students will be compared. Weaknesses in topic learning will then be identified, and the Undergraduate Committee and course supervisors will provide feedback to instructors in an effort to bring overall student performance to target levels.

### Assessment of Core Courses (MATH 1210, 1220, 2210, 2250, and STAT 1040, 2000, 3000)

Core content of these courses changes infrequently and is primarily addressed through the selection of textbooks at three-year to five-year intervals. Primary assessment of these courses is through semester evaluations and final examination scores and course grade profiles. Competency in these areas is essential for any student majoring in mathematics or statistics.

### Assessment of Upper-division Major Courses

These courses are re-evaluated by subcommittees of the Undergraduate Committee in terms of: level and appropriateness of content relative to learning objectives, textbook selection, final examinations, course grades, and student evaluations. At two-year to five-year intervals, courses are redesigned if the subject matter develops beyond traditional norms, or if market demand indicates that an under-utilized course should be replaced by a course having greater demand (e.g., development of a new cryptography course).

## Undergraduate Research Opportunities

Students interested in undergraduate research opportunities in the Department of Mathematics and Statistics at Utah State University should begin by contacting the department head and undergraduate research liaison, D. Richard Cutler, (435) 797-0244, richard.cutler@usu.edu.

Several departmental faculty members have engaged in successful undergraduate research projects. These faculty members, along with their research areas, include: James Powell (mathematical modeling of pine beetle infestations), Ian Anderson (differential geometry applications to theoretical and applied physics), and Richard Cutler (analysis of epidemiological and environmental data). In general, undergraduate research offers students an excellent opportunity to explore mathematical and statistical theory and practice under the guidance of an experienced researcher, to focus their own course selection on particular career paths and research areas (including graduate school), to co-author professional publications, and to actively make presentations at conferences or local seminars.

## Graduate Programs

### Admission Requirements

See the general admission requirements for graduate programs at Utah State University on pages 36-37 of this catalog. In general, students wishing to pursue graduate studies in mathematics or statistics should have a bachelor's degree in mathematics, statistics, or a closely related field, with extensive coursework in one of the departmental disciplines.

Students entering the Master of Mathematics (MMath) program must either possess a valid secondary school teaching license or be concurrently enrolled in a secondary school teacher licensure program.

### Degree Programs

#### Master of Science (MS) in Mathematics

This program prepares students to work as mathematicians in government, business, and industry. This degree may also be a "stepping stone" for students who ultimately wish to pursue a doctorate in mathematics or a closely related subject.

#### Master of Science (MS) in Statistics

This program is primarily designed to prepare students for careers in business, industry, and federal, state, and local government. Students pursuing graduate degrees in other disciplines, such as biology, natural resources, engineering, business, economics, epidemiology, and the social sciences, may elect to earn an MS in statistics concurrent with their other degree programs. For most students, the MS in statistics will prove sufficient for career preparation. However, some graduates may ultimately pursue a doctorate in statistics, biostatistics, or a closely related discipline.

#### Master of Science (MS) in Industrial Mathematics

The Industrial Mathematics master's degree is designed to broaden the learning experiences and job opportunities for master's students in mathematics. The program of study incorporates fundamental applied mathematics and interdisciplinary coursework in support of an industrial internship experience.

#### Master of Mathematics (MMath)

This program is designed specifically for secondary school teachers of mathematics. The purpose of this degree is to provide students with a broad background in mathematics.

# Department of Mathematics and Statistics

## Doctor of Philosophy (PhD) in Mathematical Sciences

This is a terminal degree for mathematics and statistics researchers in academe, government, and industry, and for prospective college teachers.

## Specializations for PhD in Mathematical Sciences

The **College Teaching Specialization** is designed to prepare students to teach undergraduate mathematics in two- and four-year colleges and in universities. This program is less specialized than the other two options. Students in the College Teaching specialization receive broad training in pure and applied mathematics. The dissertation for this specialization includes exposition of important mathematical theories and their historical relationships in an area of mathematics of the student's choosing.

The **Interdisciplinary Studies Specialization** offers students the opportunity to receive advanced training in mathematics and/or statistics in the context of another field of inquiry, such as biology, ecology, business, economics, engineering, or education. Students in this specialization will usually take about two thirds of their coursework in the Department of Mathematics and Statistics, and the remaining third in the other discipline. The student's dissertation committee will choose two members from outside the Department of Mathematics and Statistics. The dissertation itself will generally entail the development of advanced mathematical or statistical methods to solve problems in the other subject area.

The **Pure and Applied Mathematics Specialization** is a traditional doctoral program in mathematics, offering broad training in the foundations of modern mathematics together with specialized training in an area of mathematical research. The dissertation represents a significant contribution to mathematics research in the chosen area of specialization.

The **Statistics Specialization** offers broad training in theoretical and applied statistics for students seeking careers in academia, industry, or government. The dissertation represents a significant contribution to statistical research.

## Course Requirements

Departmental requirements change from time to time. Check with the Department of Mathematics and Statistics for the list of requirements currently in effect. The requirements listed below are in effect for Fall Semester 2005.

### Master of Science in Mathematics

This degree requires 30 credits of approved coursework at or above the 5000 level. At least 18 of these credits must be at the 6000 level or above, excluding MATH 6990 and 7990 (Continuing Graduate Advisement) and MATH 7910 (College Teaching Internship). Generally, most of the coursework will be in mathematics, but the student's supervisory committee may approve courses in statistics, physics, engineering, or any other discipline, if it seems such coursework is appropriate for the student's program of study.

The MS in mathematics has three options. The Plan A or the thesis option requires taking 6 credits of MATH 6970 (Thesis and Research) and working with a faculty member on a substantial research project. The research must be presented in a thesis, which must be approved

by the student's supervisory committee and the dean of the School of Graduate Studies. An oral defense of the thesis must be arranged through the School of Graduate Studies.

The Plan B or project option requires taking 3 credits of MATH 6970 and working with a faculty member on a smaller research project. A written report of the research must be approved by the student's supervisory committee. An oral defense of the report must be scheduled through the School of Graduate Studies.

The third option of the MS in Mathematics requires only coursework, and is called the Plan C option. This option is *only* for students simultaneously working on degrees in other departments.

All students in the MS program in Mathematics must pass a written qualifying examination covering the introductory analysis and advanced calculus material presented in MATH 4200, 5210, and 5220. Students may take this exam before beginning formal coursework in the MS program, and must take the exam at the end of the first full year of matriculation. The exam is typically given twice a year, in May and September. Matriculated students who fail on their first try must pass the exam at the next scheduled opportunity. A detailed exam syllabus is contained in the *Graduate Handbook*, available from the department.

### Master of Science in Statistics

This degree requires 30 credits of approved coursework at or above the 5000 level. At least 18 credits must be at the 6000 level or above, excluding STAT 6990 and STAT 7990 (Continuing Graduate Advisement). All students must take STAT 6710 and 6720 (Mathematical Statistics I and II). Generally, most of the coursework will be in statistics, but the student's supervisory committee may approve courses in mathematics, biology, economics, or any other discipline if it deems such coursework to be appropriate for the student's program of study.

The MS in Statistics has Plan A (thesis), Plan B (report), and Plan C (coursework only) options. The Plan A and Plan B options require students to work with a faculty member on a research project, taking 6 or 3 credits of MATH 6970, respectively, and presenting the results of the research in a written report. For both the Plan A and Plan B options, the report must be approved by the student's supervisory committee. A Plan A report (thesis) must also be approved by the dean of the School of Graduate Studies. Both Plan A and Plan B reports require an oral defense that must be scheduled through the School of Graduate Studies.

The Plan C option of the MS program in Statistics is *only* for students simultaneously working on a degree in another department. Students in this option must pass both MATH 5710 and 5720, or both STAT 6710 and 6720 with a grade of B+ or better.

### Master of Science in Industrial Mathematics

This degree requires 36 credits of coursework at or above the 5000 level. At least 15 of these credits must be completed in MATH courses at the 6000 level or above. Additionally, students must complete a total of 9 credits outside of Mathematics which complement their internship and final project. A maximum of 3 of these credits may be taken at the 5000-level (i.e., one 3-credit course in another department). See the departmental website or the *Graduate Handbook* for more detailed information about coursework requirements.

Students in the MS program in Industrial Mathematics are required to pass the Advanced Calculus examination (see the Master of Science in Mathematics examination requirements), or the Statistics qualifying

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examination (see the Master of Science in Statistics examination requirements), or an examination based on material presented in four core courses chosen by the student during the first year. The exam, which can be taken before or at the beginning of the student's second year in the program, is usually given in May or September. Students are also required to complete a final project based on work done during an internship, either with a company or possibly with another department on campus. The project will include a technical write-up suitable to the industry/field, and presentation to the involved faculty and students in the program. This follows the Plan B option listed for the Master of Science in Mathematics degree.

The Departmental Graduate Committee supervises all MS and MMath students until a supervisory committee for the student is established and approved. Prior to advancement to candidacy, students in Plan A and Plan B options for the MS degree in mathematics and statistics must pass an examination in English writing. This exam is administered by the Department of Mathematics and Statistics.

## Master of Mathematics

This program requires at least 36 credits approved by the Graduate Committee within the Department of Mathematics and Statistics. At least 21 of these credits must come from mathematics classes numbered above 5000, and the remaining credits must be chosen from approved courses offered within the Emma Eccles Jones College of Education and Human Services. The GPA for the 36 credits and for the 21 math credits must be at least 3.0.

All students in the Master of Mathematics program must pass a qualifying exam. Students have the choice of taking their exam in Advanced Calculus, Applied Mathematics, or a synthesis of Mathematical Content and Pedagogy.

## PhD in Mathematical Sciences

All four specializations require a course of study of 60 credits beyond a master's degree or 90 credits beyond a bachelor's degree. In almost all cases, a student who applies to the PhD program who does not already have a master's degree will first be directed to the MS programs in mathematics and statistics. Satisfactory performance in one of these programs can lead to admission to the PhD program in mathematical sciences.

The core requirements for the PhD degree in Mathematical Sciences that are common to all four specializations include the following:

1. Passing a standard written qualifying examination appropriate for the specialization.
2. Passing a comprehensive examination that is constructed specifically for the student by his or her supervisory committee. The form of the examination may be written or oral, or may include a combination of written and oral components. The length and content of the exam are determined by the student's supervisory committee.
3. Successfully complete a test of technical English writing skills. Usually the student's dissertation proposal will serve this purpose.
4. Complete a dissertation.
5. Successfully defend the dissertation in a final oral examination.

After completing items 1-3, a PhD student may be advanced to candidacy.

Requirements that are specific to the specialization of the PhD in Mathematical Sciences are listed below. In all cases, it is assumed that the student already has a master's degree in mathematics or statistics.

The **College Teaching Specialization** requires at least 60 credits in mathematics courses numbered 6000 or higher, excluding MATH 7990 and MATH 6990, of which *no more than 20* can be completed in MATH 7970 (Dissertation Research). At least 6 credits should be selected from classes and seminars at the 7000 level, and 6 credits of MATH 7910 (College Teaching Internship) are also required. Students in this specialization take a qualifying examination in Real Analysis. The student's dissertation in this specialization may take several forms, including a traditional, publishable contribution to some area of mathematics; a significant contribution in the area of mathematics education; or an exposition of important mathematical theories and their historic relationships in an area of the student's choosing.

The **Interdisciplinary Studies Specialization** requires at least 60 credits numbered 6000 or higher, excluding MATH 7990, STAT 7990, MATH 6990, and STAT 6990. *No more than 30* of the credits may be completed in MATH 7970 or STAT 7970 (Dissertation Research). At least 20 of the credits should be in mathematics and/or statistics, of which at least 6 should be in seminars and classes at the 7000 level. An additional 10 credits in the student's chosen interdisciplinary area are also required. Students in this specialization may take a qualifying examination in Real Analysis or in Probability and Mathematical Statistics, depending on whether the majority of their coursework is in mathematics or in statistics. The student's PhD supervisory committee should include two persons in the student's selected interdisciplinary area, and the comprehensive examination should have a significant interdisciplinary component. The dissertation for a student in this specialization should involve the development and application of intermathematical or statistical methods to solve problems in the chosen interdisciplinary area, and should be publishable in journals in that area.

The **Pure and Applied Mathematics Specialization** requires at least 60 credits in mathematics numbered 6000 or higher, excluding MATH 6990 and 7990. At least 6 credits must be selected from seminars or classes numbered 7000 or higher, and *no more than 30* of the credits can be completed in MATH 7970 (Dissertation Research). The qualifying examination for this option is in Real Analysis. The dissertation should be a publishable, significant contribution to research in an area of mathematics.

The **Statistics Specialization** requires at least 60 credits in statistics at the 6000 and 7000 level, excluding STAT 6990 and 7990. With the permission of the student's supervisory committee, some of these credits may be in mathematics or in another discipline. At least 6 credits must be selected from seminars and classes numbered 7000 and higher, and a *maximum* of 30 credits may be completed in STAT 7970 (Dissertation Research). Students in this specialization take a qualifying examination in Probability and Mathematical Statistics. The dissertation constitutes a publishable, significant contribution to research in statistics.

## Research

Mathematics research opportunities within the department are many and varied, and students are urged to contact faculty about mutual interests at as early a stage as feasible. The interdisciplinary option permits and encourages study with a broad spectrum of outstanding nationally recognized University research programs.



# Department of Mathematics and Statistics

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## Financial Assistance

Graduate students in the PhD program, the MMath program, and the Plan A and B options of the MS programs are eligible for teaching assistantships in the department. Duties of graduate teaching assistants may include full responsibility as instructors for introductory mathematics or statistics courses, leading recitations, and (in rare situations) tutoring and paper grading. Stipends are competitive and may include health insurance benefits. All graduate student stipends described here carry with them a waiver of all nonresident tuition. PhD students with stipends also receive a waiver of resident tuition. The department is also allocated a small number of resident tuition waivers for MS students each year. The department is able to support most PhD students and some MS students with summer teaching assignments. Mathematics and Statistics faculty members who have research grants may choose to partially or fully support students they are advising.

## Mathematics and Statistics Faculty

### Professors

*Ian M. Anderson*, differential geometry, global analysis  
*LeRoy B. Beasley*, matrix theory, linear algebra, combinatorics  
*James S. Cangelosi*, mathematics education, psychometrics  
*Lawrence O. Cannon*, topology, mathematics education  
*Adele Cutler*, statistical computing  
*D. Richard Cutler*, environmental statistics, epidemiology  
*E. Robert Heal*, analysis, statistics, mathematics education  
*Piotr Kokoszka*, probability and time series analysis  
*James A. Powell*, applied mathematics, mathematical biology  
*Russell C. Thompson*, differential equations  
*Zhi-Qiang Wang*, nonlinear differential equations, nonlinear analysis  
*Stanley C. Williams*, measure theory, modern analysis

### Professors Emeritus

*Ronald V. Canfield*, multivariate and industrial statistics  
*Chris S. Coray*, numerical analysis  
*Duane Loveland*, geometric topology, continuum theory  
*Jerry Ridenhour*, differential equations  
*Donald V. Sisson*, statistical methods, experimental design

### Associate Professors

*Christopher D. Corcoran*, computational biostatistics  
*Daniel C. Coster*, experimental design, linear models  
*Mark E. Fels*, differential geometry  
*Joseph V. Koebbe*, numerical analysis, applied mathematics  
*Juergen Symanzik*, computational and graphical statistics  
*Kathryn Turner*, numerical analysis, optimization, linear algebra  
*Dariusz M. Wilczynski*, geometric and algebraic topology

### Associate Professors Emeritus

*Wayne R. Rich*, mathematics education  
*E. Eugene Underwood*, matrix theory, linear algebra

### Assistant Professors

*David E. Brown*, discrete mathematics, graph theory  
*Nathan Geer*, low-dimensional topology, quantum and super algebras  
*Mevin B. Hooten*, Bayesian methods; hierarchical models; ecological and environmental statistics; spatial, temporal, and spatio-temporal statistics  
*Peg Howland*, numerical linear algebra  
*Brynja R. Kohler*, mathematics education, mathematical biology  
*Nghiem V. Nguyen*, partial differential equations, nonlinear evolution problems, fluid mechanics, nonlinear waves  
*Kady Schneider*, mathematics education, statistics  
*John R. Stevens*, bioinformatics, applied statistics, meta-analysis

### Principal Lecturers

*David D. Bregenzler*, mathematics, statistics  
*Eric R. Rowley*, mathematics, mathematics education

### Lecturers

*Bryan Bornholdt*, mathematics, mathematics education  
*Claudia Mora Bornholdt*, mathematics, mathematics education

## Course Descriptions

Mathematics (MATH), pages 600-603

Statistics (STAT), pages 663-665

# Department of Mechanical and Aerospace Engineering

**Department Head:** Byard D. Wood

**Location:** Engineering 419

**Phone:** (435) 797-2867

**FAX:** (435) 797-2417

**Undergraduate/Graduate E-mail:** bogden@engineering.usu.edu

**WWW:** <http://www.mae.usu.edu/>

## **Undergraduate Advising:**

Engineering Advising Center, Engineering 314A, (435) 797-2705,  
joan.smith@usu.edu

**Degrees offered:** Bachelor of Science (BS), Master of Engineering (ME), Master of Science (MS), and Doctor of Philosophy (PhD) in Mechanical Engineering

**Undergraduate Emphases:** *Mechanical Engineering*—Aerospace Engineering, Computational Engineering, Manufacturing Engineering

**Graduate specializations:** Aerospace Engineering, Manufacturing Engineering, Mechanical Engineering

**Graduate Areas of Interest:** Advanced Additive Manufacturing; Aeronautics; Astrodynamics and Orbital Mechanics; Bioengineering; Cluster Supercomputers; Composite Materials; Computational and Experimental Fluid Mechanics; Heat and Mass Transfer; Micromachining; Soil/Structure Interfaces; Spacecraft and Optical Systems Control; Solar Energy Systems; Spacecraft Guidance, Navigation, and Control Systems; Welding and Materials Joining

## **Undergraduate Programs**

### **Mission**

The Department of Mechanical and Aerospace Engineering provides graduates with a foundation of knowledge and experience upon which to build successful careers in mechanical, manufacturing, or aerospace engineering, or other fields where a strong engineering background is required or desirable. Undergraduate programs emphasize mechanical engineering fundamentals and computer-based problem solving, while teaching students to learn, synthesize, and communicate engineering information. Graduate programs emphasize fundamental and applied research, providing students with enhanced preparation for engineering practice, research, and education. Students, faculty, and staff are committed to excellence in learning, discovery, and engagement in an environment that fosters diversity and mutual respect.

### **Undergraduate Program Educational Objectives (Mechanical Engineering)**

1. Graduates will succeed in entry-level engineering positions with mechanical, manufacturing, or aerospace firms in regional, national, or international industries, as well as with government agencies.
2. Graduates will succeed in the pursuit of advanced degrees in engineering or other fields where a solid foundation in mathematics, science, and engineering fundamentals is required.

3. Graduates will be able to synthesize mathematics, science, engineering fundamentals, and laboratory and work-based experiences to formulate and solve engineering problems in both thermal and mechanical systems areas.
4. Graduates will have proficiency in computer-based engineering, including modern numerical methods, software design and development, and the use of computational tools.
5. Graduates will be prepared to communicate and work effectively on team-based engineering projects.
6. Graduates will recognize the importance of, and have the skills for, continued independent learning.

### **Undergraduate Program Outcomes (Mechanical Engineering)**

Program outcomes are statements describing the units of knowledge or skill students are expected to acquire from the program to prepare them to achieve the program educational objectives. These are typically demonstrated by the student and measured by the program at the time of graduation.

The ABET 2008-2009 Criteria for Accrediting Engineering Programs states that each student graduating with a BS degree within the MAE program is expected to have:

- (a) an ability to apply knowledge of mathematics, science, and engineering.
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data.
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- (d) an ability to function on multi-disciplinary teams.
- (e) an ability to identify, formulate, and solve engineering problems.
- (f) an understanding of professional and ethical responsibility.
- (g) an ability to communicate effectively.
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- (i) a recognition of the need for, and an ability to engage in, lifelong learning.
- (j) a knowledge of contemporary issues.
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- (l) an ability to work professionally in both thermal and mechanical system areas, including the design and realization of such systems.

# Department of Mechanical and Aerospace Engineering

## Assessment and Quality Improvement

The MAE faculty and staff are committed to excellence and to continuous quality improvement. A responsive assessment and feedback process involving major constituencies, including faculty, students, alumni, and industrial employers of students and graduates, is in place and ongoing.

## Options for Undergraduate Study

The **Mechanical Engineering** BS degree provides the broadest background of any discipline in the field of engineering. Mechanical Engineering graduates are prepared to pursue careers in such widely diverse industries as aerospace, agricultural equipment, automotive, biotechnical, chemical processing, composite materials, computer equipment, defense, electrical utilities, food processing, industrial equipment, manufacturing, materials processing, nuclear, petroleum, robotics, and solar energy. Most Mechanical Engineering graduates are prepared for graduate studies and enhanced career prospects in engineering or other areas, such as consulting, law, medicine, business management, or teaching. In addition, students who are preparing to apply for admission to medical school will find that Mechanical Engineering provides an excellent foundation for the increasingly technology-oriented field of medicine.

The **Aerospace Engineering** emphasis within the Mechanical Engineering BS degree serves to focus mechanical engineering fundamentals on the mechanics and dynamics of both flight within the atmosphere and space flight. Included within its scope are studies in aerodynamics, aircraft flight dynamics and control, aircraft design, spacecraft orbital mechanics, spacecraft attitude motion and control, and space systems design. Graduates who complete the aerospace engineering emphasis are prepared to pursue careers in aircraft design and development, aircraft flight testing, spacecraft and space systems design, and spacecraft trajectory design and analysis. As fully qualified Mechanical Engineers, graduates with the aerospace engineering emphasis are also well-prepared to pursue graduate studies or careers in the industries listed above under Mechanical Engineering.

The **Manufacturing Engineering** emphasis within the Mechanical Engineering BS degree prepares students to be proficient in the fundamentals of engineering, as well as in materials and manufacturing processes; process, assembly, and product engineering; manufacturing competitiveness; manufacturing systems design; lean manufacturing; and laboratory experience. Graduates will understand the behavior and properties of materials as they are altered and influenced by processing in manufacturing; the design of products and the equipment, tooling, and environment necessary for their manufacture; the creation of competitive advantage through manufacturing planning, strategy, and control; the analysis, synthesis, and control of manufacturing operations using statistical and calculus based methods; and how to measure manufacturing process variables and make technical inferences about the process. Graduates will have the necessary background to pass the Certified Manufacturing Technologist and Certified Manufacturing Engineer exams. Graduates who complete the Manufacturing Engineering emphasis are prepared to pursue graduate studies or careers in any industry that manufactures a product. For example, the aerospace, automotive, electronics, machine tool, petroleum, and electronics industries all employ manufacturing engineers as product designers, process designers and managers, maintenance engineers, and quality control engineers.

The **Computational Engineering** emphasis within the Mechanical Engineering BS degree prepares students to be proficient in the theory and fundamentals of engineering, as well as in advanced simulation techniques and numerical methods. Computational engineering encompasses the design, development, and application of computational systems for the solution of physical problems in engineering and science. These computational systems include not only the algorithms and software required for the solution of mathematical equations describing physical processes, but also the means and methods of visualizing, analyzing, and interpreting computed results and other physical data. Computational engineering focuses on developing the student's readiness in solving problems of complex systems in engineering and technology by means of computational modeling, analysis, and simulations. Students graduating with this emphasis will also earn a minor in mathematics. Students who complete the computational engineering emphasis will be prepared to pursue careers in all fields of mechanical engineering, including design, simulation, and modeling, and will also be well-prepared to pursue graduate studies.

The first two years of the MAE curriculum are structured to concentrate on the fundamentals of mathematics, chemistry, physics, computer science, and basic engineering science. During the second two years, students apply these fundamentals to more concentrated courses in the essentials of mechanical, aerospace, computational, and/or manufacturing engineering. Laboratory activities and computer usage are integrated throughout the curriculum to give students opportunities for hands-on exposure to modern computer hardware and software, as well as other modern hardware and laboratory facilities. Engineering design activities begin during the first two years and progress in depth as the student's proficiency increases. The engineering design experience culminates in a capstone senior design course, integrating the engineering coursework into a focused, realistic design project.

The Mechanical Engineering degree is accredited by the Engineering Accreditation Commission of ABET. The Aerospace Engineering emphasis, Computational Engineering emphasis, and Manufacturing Engineering emphasis are included within the Mechanical Engineering degree.

## Admission and Graduation Requirements

Freshman and transfer students must satisfy the admission policies and entrance requirements of both the University and the College of Engineering. Each new student will be assigned an advisor, who will help plan an educational program fulfilling the student's professional goals. Placement of incoming students will depend on high school and/or prior college coursework. Those who complete a portion of the University Studies requirements by examination (CLEP) and/or by advanced placement (AP) credit may complete the requirements for a Bachelor of Science degree in less than four years.

## Curriculum

At the beginning of each school year, each student should obtain a detailed, four-year requirement sheet. This sheet, which lists semester requirements for each of the four curricula (mechanical, computational, manufacturing, and aerospace), may be obtained from the departmental office. All students in the department follow the preprofessional engineering curriculum for the freshman and sophomore years. Prior to the junior year, the student must apply for admission to the professional program and, in consultation with the faculty mentor, select an area of emphasis. Students who are unable to take courses during the semester indicated on the curriculum requirement sheet may develop alternative schedules, consistent with prerequisites and the timing of course offerings.

# Department of Mechanical and Aerospace Engineering

## GPA Requirement

A 2.3 GPA in all technical courses is the minimum standard which preprofessional students must attain in order to be considered for admission to any MAE professional program.

## Course Requirements

The specific course requirements for the MAE preprofessional program and the MAE professional programs are quite extensive and may occasionally change. For these reasons, the complete requirements are not listed here. For more information, contact the department or send an Internet e-mail request to [joan.smith@usu.edu](mailto:joan.smith@usu.edu).

A passing grade on the **Fundamentals of Engineering Exam**, the first step in becoming a licensed professional engineer, is required for graduation. Past experience has shown that the USU Mechanical and Aerospace Engineering students are well-prepared for this locally administered, national exam.

For additional information on academic requirements, see the College of Engineering (pages 130-134) and the Undergraduate Graduation Requirements (pages 76-79) sections of this catalog.

## Pre-professional Program

The curriculum for the first two years is common for Aerospace, Computational, Mechanical, and Manufacturing students.

## Required Coursework (126 credits)

### Freshman Year (32 credits)

#### Fall Semester (15 credits)

MATH 1210 (QL) <sup>2</sup> Calculus I.....	4
CHEM 1210 <sup>2</sup> Principles of Chemistry I.....	4
CHEM 1215 <sup>2</sup> Chemical Principles Laboratory I.....	1
University Studies Breadth courses.....	6

#### Spring Semester (17 credits)

MATH 1220 (QL) <sup>2</sup> Calculus II.....	4
PHYS 2200 <sup>2</sup> Elements of Mechanics.....	2
MAE 1200 <sup>2</sup> Engineering Graphics.....	2
MAE 2650 <sup>2</sup> Manufacturing Processes.....	3
University Studies Breadth courses.....	6

### Sophomore Year (31 credits)

#### Fall Semester (16 credits)

MATH 2210 (QI) <sup>2</sup> Multivariable Calculus.....	3
ENGR 2010 <sup>2</sup> Engineering Mechanics Statics.....	2
ETE 2210 <sup>2</sup> Electrical Engineering for Nonmajors.....	4
ENGL 2010 (CL2) <sup>2</sup> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
PHYS 2220 (BPS/QI) <sup>2</sup> General Physics—Science and Engineering II.4	4

#### Spring Semester (15 credits)

MATH 2250 (QI) <sup>2</sup> Linear Algebra and Differential Equations.....	4
MAE 2300 <sup>2</sup> Thermodynamics I.....	3
ENGR 2030 <sup>2</sup> Engineering Mechanics Dynamics.....	3
ENGR 2140 <sup>2</sup> Strength of Materials.....	2
MAE 2160 <sup>2</sup> Material Science.....	3

## Professional Program in Mechanical Engineering

### Junior Year (31 credits)

#### Fall Semester (17 credits)

MAE 2200 Engineering Numerical Methods I.....	2
MAE 3040 Mechanics of Solids.....	3
MAE 3320 Advanced Dynamics.....	3
MAE 3400 Thermodynamics II.....	3
MAE 3420 Fluid Mechanics.....	3
MATH 4700 Engineering Mathematics and Statistics.....	3

### Spring Semester (14 credits)

MAE 2450 Engineering Numerical Methods II.....	3
MAE 3340 Instrumentation and Measurements.....	3
MAE 3440 (QI) Heat and Mass Transfer.....	3
MAE 3800 Design I.....	2
MAE 4300 Machine Design.....	3

### Senior Year (31-32 credits)

#### Fall Semester (16-17 credits)

MAE 4400 (CI) Fluids/Thermal Laboratory.....	2
MAE 4800 (CI) Design II.....	3
MAE 5300 Vibrations.....	3
Technical Elective course <sup>1</sup> .....	3
University Studies Depth Humanities and Creative Arts (DHA) course.....	2-3
University Studies Breadth course.....	3

#### Spring Semester (15 credits)

Technical Elective courses <sup>1</sup> .....	12
University Studies Depth Social Sciences (DSS) course.....	3

<sup>1</sup>Students must select 15 credits of technical elective courses from the list of approved MAE Technical Elective Courses shown below.

<sup>2</sup>These courses are required for admission to the Professional Engineering Program (PEP).

**Caution: Even though MAE 2200 and 2450 are lower-division courses and are sometimes taken by sophomores, they are not required for admission to the Professional Program. Hence, they are subject to the Professional Program "one repeat allowed" rule.**

**Note:** Elective courses, once selected and undertaken by a student, become part of the required program for that student.

The selection of elective courses needs to be given careful consideration. The preparation for a career in the broad field of mechanical and aerospace engineering and the selection of classes by real interest is more important than the maximization of the undergraduate grade point average.

## MAE Technical Elective Courses

MAE/CEE 5020 Finite Element Methods in Solid Mechanics I (F).....	3
MAE/CEE 5060 Mechanics of Composite Materials I (Sp).....	3
MAE 5310 Dynamic Systems and Controls (F).....	3
MAE 5410 Design and Optimization of Thermal Systems (F).....	3
MAE 5420 Compressible Fluid Flow (F).....	3
MAE 5440 Computational Fluid Dynamics (Sp).....	3
MAE 5500 Aerodynamics (F).....	3
MAE 5510 Dynamics of Atmospheric Flight (Sp).....	3
MAE 5520 Elements of Space Flight (F).....	3
MAE 5530/ECE 5240 Space System Design (Sp).....	3
MAE 5540 Propulsion Systems (Sp).....	3
MAE 5560 Dynamics of Space Flight (F).....	3
MAE 5580 Aircraft Design (F).....	3
MAE 5600 Reliability and Quality of Engineering Systems (F).....	3
MAE 5640 Design for Manufacturability (F).....	3
MAE 5650 Nontraditional and Additive Manufacturing Processes (Sp).....	3
MAE 5670 Fracture Mechanics (F).....	3
MAE 5900 Cooperative Practice (F,Sp).....	3
MAE 5930 ST: Kinematics (F).....	3
MAE 5930 ST: Nano Fabrication (Sp).....	3
ECE 3710 Microcomputer Hardware and Software (F,Sp).....	4
ECE 5230 Spacecraft Systems Engineering (F).....	3
ECE 5310 Control Systems (F).....	3
ECE 5320 Mechatronics (Sp).....	4
ENGR 5500 High Performance Computing for Engineers (F).....	3
MGT 5730 Continuous Improvement (F).....	3

# Department of Mechanical and Aerospace Engineering

Students may choose *one* of their technical electives from the following courses:

<b>MATH 5270</b> Complex Variables (Sp).....	3
<b>MATH 5410</b> Methods of Applied Mathematics (F).....	3
<b>MATH 5420</b> Partial Differential Equations (Sp).....	3
<b>MATH 5620</b> Numerical Solution of Differential Equations (Sp).....	3
<b>MATH 5640</b> Optimization (Sp).....	3
<b>STAT 5200</b> Design of Experiments (Sp).....	3
<b>STAT 5300 (QI)</b> Statistical Process Control.....	3

Special Problems courses under MAE 5930 may be used as technical electives with prior approval.

## Professional Program in Aerospace Engineering Emphasis

In addition to completing the pre-professional program, students who choose to graduate with the Aerospace Engineering emphasis must complete the following courses as their elective selection.

### Junior Year (31 credits)

#### Fall Semester (17 credits)

<b>MAE 2200</b> Engineering Numerical Methods I.....	2
<b>MAE 3040</b> Mechanics of Solids.....	3
<b>MAE 3320</b> Advanced Dynamics.....	3
<b>MAE 3400</b> Thermodynamics II.....	3
<b>MAE 3420</b> Fluid Mechanics.....	3
<b>MATH 4700</b> Engineering Mathematics and Statistics.....	3

#### Spring Semester (14 credits)

<b>MAE 2450</b> Engineering Numerical Methods II.....	3
<b>MAE 3340</b> Instrumentation and Measurements.....	3
<b>MAE 3440 (QI)</b> Heat and Mass Transfer.....	3
<b>MAE 3800</b> Design I.....	2
<b>MAE 4300</b> Machine Design.....	3

### Senior Year (31-32 credits)

#### Fall Semester (17 credits)

<b>MAE 4400 (CI)</b> Fluids/Thermal Laboratory.....	2
<b>MAE 5300</b> Vibrations.....	3
Aerospace Technical course <sup>3</sup> .....	3
Aerospace Technical course <sup>3</sup> .....	3
Aerospace Technical course <sup>3</sup> .....	3
University Studies Breadth course.....	3

#### Spring Semester (14-15 credits)

<b>MAE 4800 (CI)</b> Design II.....	3
Aerospace Technical courses <sup>3</sup> .....	6
University Studies Depth Humanities and Creative Arts (DHA) and Depth Social Sciences (DSS) courses.....	5-6

<sup>3</sup>During their senior year, Aerospace Engineering Emphasis students must take a minimum of 9 credits (3 classes) from Group 1 and a total of 15 credits (5 classes) from Group 1 or Group 1 and Group 2 combined. **Group 1:** MAE 5420, 5500, 5510, 5520, 5530, 5540, 5560, 5580; **Group 2:** MAE 5020, 5060, 5310, 5440. This provides greater flexibility for students who want a more specific focus.

## Professional Program in Manufacturing Engineering Emphasis

In addition to completing the pre-professional program, students who choose to graduate with the Manufacturing Engineering emphasis must complete the following courses as their elective selection.

### Junior Year (31 credits)

#### Fall Semester (17 credits)

<b>MAE 2200</b> Engineering Numerical Methods I.....	2
<b>MAE 3040</b> Mechanics of Solids.....	3
<b>MAE 3320</b> Advanced Dynamics.....	3
<b>MAE 3400</b> Thermodynamics II.....	3

<b>MAE 3420</b> Fluid Mechanics.....	3
<b>MATH 4700</b> Engineering Mathematics and Statistics.....	3

### Spring Semester (14 credits)

<b>MAE 2450</b> Engineering Numerical Methods II.....	3
<b>MAE 3340</b> Instrumentation and Measurements.....	3
<b>MAE 3440 (QI)</b> Heat and Mass Transfer.....	3
<b>MAE 3800</b> Design I.....	2
<b>MAE 4300</b> Machine Design.....	3

### Senior Year (31-32 credits)

<b>MAE 4400 (CI)</b> Fluids/Thermal Laboratory.....	2
<b>MAE 4800 (CI)</b> Design II.....	3
<b>MAE 5300</b> Vibrations.....	3
Manufacturing Technical Elective courses.....	15
University Studies Breadth course.....	3
University Studies Depth Humanities and Creative Arts (DHA) and Depth Social Sciences (DSS) courses.....	5-6

### Manufacturing Engineering Approved Technical Elective Courses

Students must choose five courses from the following list:

<b>MAE/CEE 5020</b> Finite Element Methods in Solid Mechanics I (F).....	3
<b>MAE 5310</b> Dynamic Systems and Controls.....	3
<b>MAE 5600</b> Reliability and Quality of Engineering Systems (F).....	3
<b>MAE 5640</b> Design for Manufacturability (F).....	3
<b>MAE 5650</b> Nontraditional and Additive Manufacturing Processes (Sp).....	3
<b>MAE 5670</b> Fracture Mechanics (F).....	3
<b>STAT 5200</b> Design of Experiments (Sp).....	3
<b>MGT 5730</b> Continuous Improvement (F).....	3

## Professional Program in Computational Engineering Emphasis

In addition to completing the pre-professional program, students who choose to graduate with the Computational Engineering emphasis must complete the following courses as their elective selection.

### Junior Year (31 credits)

#### Fall Semester (17 credits)

<b>MAE 2200</b> Engineering Numerical Methods I.....	2
<b>MAE 3040</b> Mechanics of Solids.....	3
<b>MAE 3320</b> Advanced Dynamics.....	3
<b>MAE 3400</b> Thermodynamics II.....	3
<b>MAE 3420</b> Fluid Mechanics.....	3
<b>MATH 4700</b> Engineering Mathematics and Statistics.....	3

#### Spring Semester (14 credits)

<b>MAE 2450</b> Engineering Numerical Methods II.....	3
<b>MAE 3340</b> Instrumentation and Measurements.....	3
<b>MAE 3440 (QI)</b> Heat and Mass Transfer.....	3
<b>MAE 3800</b> Design I.....	2
<b>MAE 4300</b> Machine Design.....	3

### Senior Year (34-35 credits)

#### Fall Semester (17 credits)

<b>MAE 4400 (CI)</b> Fluids/Thermal Laboratory.....	2
<b>MAE/CEE 5020</b> Finite Element Methods in Solid Mechanics I.....	3
<b>MAE 5300</b> Vibrations.....	3
<b>ENGR 5500</b> High Performance Computing for Engineers.....	3
University Studies Breadth course.....	3
University Studies Depth Social Sciences (DSS) course.....	3

# Department of Mechanical and Aerospace Engineering

## Spring Semester (17-18 credits)

<b>MAE 4800 (CI) Design II</b> .....	3
<b>MAE 5440</b> Computational Fluid Dynamics .....	3
<b>MATH 5620<sup>4</sup></b> Numerical Solutions of Differential Equations .....	3
MAE Technical Elective course .....	3
University Studies Breadth course .....	3
University Studies Depth Humanities and Creative Arts (DHA) course .....	2-3

<sup>4</sup>MATH 5620 fulfills the requirement for a Math Minor.

## Financial Support

Scholarships, assistantships, grants-in-aid, and work-study programs are available to undergraduate students through the University. In addition, the MAE department employs undergraduates to assist in engineering research and development. Aerodynamics, design of instrumentation and payloads for the upper atmosphere and space, buried structures, and manufacturing processes and controls are some of the research programs that involve undergraduate students. Cooperative education and industrial employment opportunities for students are coordinated by the University Placement Office.

## Concurrent BS/Master's Program

The concurrent BS/Master's program allows engineering students to begin taking graduate-level classes during their senior year. This permits them to complete requirements for *both* the BS degree *and* the master's degree concurrently during two years. Students in this program have a greater selection of graduate courses, since many graduate courses are taught during alternate years. Both the BS and the master's degree can generally be earned with 150 total credits, although students should note that a Plan C MS requires 3 extra credits. In order to qualify for the concurrent program, students must have a 3.4 GPA for the 60 credits completed at the end of their junior year. Finally, students with a master's degree can expect a much higher starting salary following graduation. (For more information, see *College of Engineering* section of this catalog, pages 133-134.)

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students can also work with faculty on research-type projects, adding to their educational experience. These projects provide another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

Students may also earn an Undergraduate Research Scholar designation on their transcripts. See page 109 for more information about the Undergraduate Research Program.

## Additional Information

For more information about Bachelor of Science requirements and the sequence in which courses should be taken, see major requirement sheet, available from the Mechanical and Aerospace Engineering Department, or online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admission Requirements

All students intending to pursue graduate studies at Utah State University must complete and return an *Application for Admission* to the School of Graduate Studies. In addition to the general graduate admission requirements listed on pages 36-37, the department requires all graduate applicants to have a bachelor's degree from an accredited institution in Mechanical Engineering, Aerospace Engineering, Manufacturing Engineering, or a closely related engineering discipline. A minimum GPA of 3.0 for MS applicants and 3.3 for PhD applicants is required for the last 60 semester or 90 quarter credits earned. All MAE graduate students are expected to be well-acquainted with either the FORTRAN or C programming language. Those students who do not have a BS degree in an appropriate engineering discipline may be admitted with nonmatriculated status and required to complete some remedial requirements. Applicants are also required to submit evidence of potential graduate-level success through GRE scores in the verbal and quantitative categories.

### Specializations

The Department of Mechanical and Aerospace Engineering offers ME, MS, and PhD degrees in Mechanical Engineering, with specializations in Aerospace Engineering, Manufacturing Engineering, and Mechanical Engineering.

**Aerospace Engineering** addresses atmospheric and space flight. Included are such disciplines as computational fluid dynamics, experimental fluid mechanics, aerodynamics, aircraft flight dynamics, aircraft design, spacecraft orbital mechanics, spacecraft attitude motion and control, aircraft and spacecraft propulsion systems, space system design, thermal management of space deployed systems, and the space environment. Mechanical Engineering graduates choosing the aerospace engineering specialization may pursue careers in such areas as aircraft design and development, aircraft flight testing, spacecraft and space systems design, and spacecraft trajectory design and analysis, as well as the broader, traditional mechanical engineering fields.

**Manufacturing Engineering** concentrates on the theory of manufacturing systems, including manufacturing processes, the design of manufacturing systems, product design, productivity, quality, and life cycle analysis. Principal areas of emphasis include manufacturing automation, machining theory, mold flow analysis, and materials joining, as well as flexible manufacturing systems and computer-integrated manufacturing. Manufacturing engineers are prepared to pursue product and process design careers in virtually all manufacturing industries, including electronics, food processing, and petroleum industries.

**Mechanical Engineering** deals with the creation of the mechanical systems and machines that serve society. Areas of emphasis include solid mechanics, thermal/fluids, and dynamics and control. The **solid mechanics** emphasis is concerned with the mechanics of displacement and stress analysis combined with material science

# Department of Mechanical and Aerospace Engineering

for selection of an optimum design. Students learn to use the finite element method as well as classical methods for the determination of stresses, strains, and displacements. Included are studies of elasticity, plasticity, and failure in traditional metals and high-tech composite materials. The **thermal/fluids** emphasis is concerned with the transport of mass, momentum, and energy in solids, liquids, and gasses. Included within its scope are the fundamental studies of thermodynamics, heat transfer, and fluid mechanics. The **dynamics and control** emphasis is concerned with describing and controlling the motion of mechanical systems. Included within its scope are the fundamental studies of dynamics, kinematics, vibrations, control theory, hydraulics and pneumatics, electromechanical systems, and machine design. Graduates who select the broad mechanical engineering specialization are prepared to pursue careers in such widely diverse disciplines as aerospace, automotive, building, chemical, defense, electronics, environmental engineering, food processing, heating and air conditioning, heavy equipment, machine tools, manufacturing, nuclear, petroleum, public utilities, and solar energy.

## Degree Programs

The **Plan A MS Degree** requires 12 credits of 6000-level (or above) engineering coursework, exclusive of MAE 6930, 6950, 6970, and 6990; a minimum of 3 credits of 5000-level (or above) coursework in approved mathematics; and 12 credits selected from any one of five declared areas of emphasis. A minimum of 30 credits is required beyond the BS, including a 6-credit thesis (MAE 6970). The thesis must meet School of Graduate Studies requirements.

The **Plan B MS Degree** requires 12 credits of 6000-level (or above) engineering coursework, exclusive of MAE 6930, 6950, 6970, and 6990; a minimum of 3 credits of 5000-level (or above) coursework in approved mathematics; and 12 credits selected from any one of five declared areas of emphasis. A minimum of 30 credits is required beyond the BS, which includes a 3-credit report (MAE 6950) written to thesis standards.

The **Plan C MS Degree** requires 6 credits of graduate-level coursework in Mechanical Engineering fundamentals; 18 credits of 6000-level (or above) engineering coursework, exclusive of MAE 6930, 6950, 6970, and 6990; a minimum of 3 credits of 5000-level (or above) coursework in approved mathematics; and either 15 credits selected from any one of five declared areas of emphasis, or 18 credits selected from any two of the areas. A minimum of 33 credits is required beyond the BS, which may not include a thesis (MAE 6970), but may include up to 3 credits of Design Project (MAE 6950). MAE 6950 requires a report written to thesis standards. Students are not required to defend the report. However, the report must be approved by the major professor.

The **Master of Engineering Degree** requires 15 credits of 6000-level (or above) engineering coursework exclusive of MAE 6930, 6950, 6970, 6990, 7930, 7970, and 7990; a minimum of 3 credits of 5000-level (or above) coursework in approved mathematics; and either 15 credits selected from Group A or at least 9 credits from Group A and the remainder chosen from Group B. (Contact Bonnie Ogden at [bogden@engineering.usu.edu](mailto:bogden@engineering.usu.edu) for requirement details.) A minimum of 30 credits is required beyond the BS, which may not include a thesis (MAE 6970), but may include up to three credits of Design Project (MAE 6950). MAE 6950 requires a report written to thesis standards. Students are not required to defend the report. However, the report must be approved by the major professor.

The **PhD Degree beyond a BS degree** requires 24 credits of 6000-level (or above) MAE coursework, exclusive of MAE 6930, 6950, 6970, 6990, 7930, 7970, and 7990; and a minimum of 6 credits

of 5000-level (or above) coursework in approved mathematics. A minimum of 90 credits is required beyond the BS, including a dissertation (MAE 7970). The dissertation must meet School of Graduate Studies requirements and be at least 24 credits, but no more than 39 credits. A Qualifying Exam is required and must be passed before completing 18 credits at the PhD level. A paper must be submitted for publication in a refereed journal prior to scheduling the final defense. The paper must be related to the dissertation and have the student as first author.

The **PhD Degree beyond an MS degree** requires 12 credits of 6000-level (or above) MAE coursework, exclusive of MAE 6930, 6950, 6970, 6990, 7930, 7970, and 7990; and a minimum of 3 credits of 5000-level (or above) coursework in approved mathematics. A minimum of 60 credits is required beyond the MS, including a dissertation (MAE 7970). The dissertation must meet School of Graduate Studies requirements and be at least 24 credits, but no more than 39 credits. A Qualifying Exam is required and must be passed before completing 18 credits at the PhD level. A paper must be submitted for publication in a refereed journal prior to scheduling the final defense. The paper must be related to the dissertation and have the student as first author.

## GPA Requirement

A 3.0 GPA is the minimum acceptable for an ME or MS degree from USU. A PhD degree from USU requires a minimum GPA of 3.3.

## Course Requirements

The specific course requirements for the ME, MS, and PhD degrees offered through the department may occasionally change. For this reason, prospective students are advised to seek current details concerning graduate degree requirements and program coursework by contacting the department or sending an Internet e-mail request to: Bonnie Ogden at [bogden@engineering.usu.edu](mailto:bogden@engineering.usu.edu).

## Research

The Department of Mechanical and Aerospace Engineering is conducting research in all three of the areas of specialization listed above. Departmental research projects are funded by both government agencies and private industry. Current research topics include analytical and experimental structural dynamics, computational and experimental fluid dynamics, aerodynamics, plastics and composite materials, numerical modeling and design of composite structures, buried structures, thermodynamics, heat transfer, cryogenics, intelligent control systems, manufacturing automation, spacecraft control, design and analysis of space systems, orbital mechanics, remote sensing, robotics, design theory and methodology, and production modeling and simulation.

## Financial Assistance

A number of teaching and research assistantships are available to graduate students through the department, and are awarded on a competitive basis each year. In addition, scholarships covering the nonresident portion of tuition are available each semester, on a competitive basis, to nonresident students who hold a graduate assistantship paying at least \$350 per month. Students interested in working part time as teaching or research assistants should apply to the department by March 1 for the coming academic year.

Acceptance to pursue graduate studies in the Department of Mechanical and Aerospace Engineering does not imply a commitment to any type of financial aid. All awards for financial aid are made on a

# Department of Mechanical and Aerospace Engineering

competitive basis after applicants are admitted to graduate school. All students who receive any type of financial support from the University or who are supplied University space for study or research must carry a minimum of 9 credits of approved coursework for an MS or ME degree and a minimum of 9 credits of approved coursework for a PhD degree each semester while receiving such support.

## Mechanical and Aerospace Engineering Faculty

### Professors

*Christine E. Hailey*, engineering education, thermal/fluid sciences  
*Warren F. Phillips*, aerodynamics, flight mechanics  
*Robert E. Spall*, thermal/fluids, CFD, computational  
*Byard D. Wood*, solar energy for heating and cooling, heat and mass transfer

### Adjunct Professors

*Dell K. Allen*, manufacturing  
*Charles M. Swenson*, space science and engineering

### Trustee Professor Emeritus

*J. Clair Batty*, thermal science, cryogenics, space systems

### Professors Emeritus

*P. Thomas Blotter*, structural dynamics  
*Ralph H. Haycock*, mechanics, manufacturing  
*Russell M. Holdredge*, heat transfer, fluid mechanics  
*Alma P. Moser*, engineering mechanics, piping systems  
*Carl D. Spear*, material science  
*Edward W. Vendell, Jr.*, cryogenics, heat transfer, thermal systems design

### Associate Professors

*Heng Ban*, thermofluids, thermophysical properties, microfluidics, energy and environment  
*Steven L. Folkman*, applied mechanics, structural dynamics, space structures, buried pipe systems  
*Thomas H. Fronk*, mechanics of composites and materials

*R. Rees Fullmer*, manufacturing, controls, robotics, dynamics, spacecraft

*Leijun Li*, manufacturing, materials joining

*Barton L. Smith*, thermal/fluids, experimental fluid mechanics

*Brent E. Stucker*, advanced manufacturing and materials

*Wenbin Yu*, advanced structures, solid mechanics, computational solid mechanics (FEM)

### Research Associate Professor

*Thomas Hauser*, computational fluid dynamics, thermal/fluids, numerical methods, high-performance computing

### Adjunct Associate Professors

*Ning Fang*, manufacturing

*Robert T. Pack*, remote sensing, optoelectronics, lidar sensor systems

### Assistant Professors

*David K. Geller*, spacecraft guidance and navigation

*Dhirenda V. Kubair*, solid mechanics, Computational Dynamic Fracture Mechanics (CDFM)

*Leila J. Ladani*, solid mechanics, fracture mechanics, materials

*Stephen A. Whitmore*, high-speed aerodynamics, astrodynamics

*Yibin (Anna) Xue*, solid mechanics, fatigue and fracture, design and optimizations

### Adjunct Assistant Professors

*Scott M. Jensen*, thermal management of space systems

*Angela Minichiello*, heat transfer, thermodynamics

*Steven R. Wassom*, spacecraft instrumentation design

### Adjunct Research Assistant Professor

*Randy J. Jost*, electromagnetic fields, solid state, microwaves

### Lecturers

*Peter G. Brunson*, solid modeling and computer graphics

*John Devitry*, solid modeling, computer graphics

## Course Descriptions

Mechanical and Aerospace Engineering (MAE), pages 597-600



# Department of Military Science

**Department Head:** Major Paul J. Faletto

**Location:** Military Science 104

**Phone:** (435) 797-7058

**FAX:** (435) 797-3330

**E-mail:** armyrotc@usu.edu

**WWW:** <http://www.usu.edu/armyrotc/>

## Undergraduate Programs

### Objectives

Military Science (Army ROTC) focuses on leadership development. Students pursue the major of their choice while studying Military Science, and graduate with the ability to function effectively as leaders. Upon completion of Army ROTC and graduation from college, students become commissioned officers in the active Army, Army Reserve, or National Guard.

Instructors, textbooks, uniforms, and equipment are provided at no cost to the student or the University. All contracted students receive between \$300-500 per month (up to 10 months per academic year). Army ROTC also covers the cost of tuition and fees for Army ROTC scholarship students and provides a \$600-per-semester book allowance.

### The Margin of Difference

Army ROTC cadets learn to be leaders and receive hands-on experience in managing physical, financial, and human resources. They develop self-confidence and superior decision-making skills. Employers value these leadership qualities and recognize associated potential.

### Four-Year Program

The traditional Army ROTC program covers four years consistent with normal undergraduate progression (freshman-senior). The four-year program is divided into two parts: the **basic course** and the **advanced course**. The **basic course** is usually taken during the first two years of college. It covers subjects such as mountaineering, land navigation, wilderness survival, leadership development, small unit tactics, weapons marksmanship, and military history. This program is designed for high-performing students who wish to try Military Science without obligation, while enhancing their leadership skills and self-confidence. Upon successful completion of the basic course, students are eligible to enter the advanced course.

**Advanced course** requirements are normally completed during the junior and senior years. The advanced course further develops and refines leadership competencies, and qualifies the student for a commission in the United States Army. Advanced course students receive a \$450-500 per month tax-free subsistence allowance (up to 10 months per year), and attend a paid five-week National Leadership Development and Assessment Course between their junior and senior years.

### Two-Year Program

This is a special program for junior and community college transfer students or for students who did not take Army ROTC during their first two years of college. To enter the two-year program, a student must have completed Basic Training in a military service or participate in five weeks of basic leadership instruction. This instruction usually takes place between the sophomore and junior year. Students are paid for

attending this instruction, have the opportunity to compete for two-year scholarships, and may receive academic credit. Students who qualify for the two-year program are enrolled directly in the advanced course.

### Course Requirements for Military Science Programs

#### Basic Course Requirements (11 credits)

<b>MSL 1010</b> Leadership and Personal Development.....	2
<b>MSL 1020</b> Foundation in Leadership .....	2
<b>MSL 2010</b> Innovative Tactical Leadership.....	2
<b>MSL 2020</b> Leadership in Changing Environments.....	2
<b>MSL 2110 (BSS)</b> Foundations of Leadership.....	3

#### Advanced Course Requirements (15 credits)

<b>MSL 3010</b> Adaptive Team Leadership.....	3
<b>MSL 3020</b> Leadership Under Fire .....	3
<b>MSL 4010</b> Developing Adaptive Leaders .....	3
<b>MSL 4020</b> Leadership in a Complex World.....	3
<b>MSL 4610</b> Military History Seminar (3 cr) <b>or</b>	
<b>HIST 4810</b> American Military History (3 cr) .....	3

### Scholarships

Army ROTC provides numerous scholarship opportunities. High school seniors may qualify for the **four-year Army ROTC scholarship**. College students may qualify for three- or two-year scholarships. These scholarships pay the cost of tuition and fees, a flat rate for textbooks and classroom supplies, and a monthly cash stipend between \$3,000-5,000 per year. The **Green to Gold scholarship** allows soldiers serving on active duty to leave the Army early and attend college/ROTC full time while receiving scholarship benefits. Other scholarship opportunities include: **room and book grants** and the **Western Undergraduate Exchange (WUE)** program. Call or visit the Department of Military Science for details.

### Placement Credit For Veterans

Veterans may qualify for advanced course placement based on prior military experience. They can take full advantage of veteran's benefits and receive stipend payments from Army ROTC concurrently.

### Simultaneous Membership Program (SMP)

This program is available to advanced course cadets who wish to serve in the Army Reserve or National Guard while attending college and pursuing a commission through Army ROTC. SMP students are eligible to receive reserve drill pay, tuition assistance up to \$4,500 per year, other monetary incentives, and \$450-500 per month tax-free subsistence allowance (up to 10 months per academic year) from Army ROTC. Call or visit the Department of Military Science for details.

### Leave of Absence

If students (including scholarship recipients) wish to take a leave of absence to serve a mission for their church, they can do so conveniently between their freshman and sophomore years.

### Commission Requirements

In order to qualify for a commission as a Second Lieutenant in the United States Army, each student must:

# Department of Military Science

1. Complete all required Military Science instruction while attending college as a full-time student, and obtain a baccalaureate or higher degree prior to age 31 (age waiver can be granted for prior military service or other extenuating circumstances).
2. Meet medical and physical fitness standards.
3. Be a U.S. citizen.
4. Successfully complete the advanced summer camp.
5. Be recommended by the Professor of Military Science.

## Service Obligation

There is no military service obligation for basic course students, unless they have received an Army ROTC scholarship. Advanced course (contracted) and scholarship students incur an obligation to serve in the active Army, Army Reserve, or National Guard.

## Minor in Military Science

### Grade Requirements

Students must obtain a grade of C or better in all courses used toward the minor, as well as maintain a cumulative GPA of 2.5 for these courses.

### Credit Requirements

A minimum of 21 credits must be earned in Military Science and related courses, as follows:

### Course Requirements for Military Science Minor (21 credits)

MSL 3010 Adaptive Team Leadership.....	3
MSL 3020 Leadership Under Fire .....	3
MSL 4010 Developing Adaptive Leaders .....	3
MSL 4020 Leadership in a Complex World .....	3
HIST 4810 American Military History (3 cr) or	
MSL 4610 Military History Seminar (3 cr).....	3
Electives (must be approved by department head).....	6

### Elective Course Offerings

MSL 2110 (BSS) Foundations of Leadership.....	3
MSL 2400 Physical Readiness (repeatable; take 1 credit per semester) .....	1
MSL 2420 Ranger Preparation.....	2
MSL 2430 Air Assault .....	2
MSL 2440 Airborne Operations .....	2
MSL 2510 Leader's Training Course.....	1-6
MSL 3110 Staff Organization and Operations.....	1-3
MSL 3210 Independent Study.....	1-3
MSL 4110 Advanced Staff Operations .....	1-3
MSL 4400 Advanced Physical Readiness.....	1
MSL 4510 ROTC Leader Development and Assessment Course ...	1-10
MSL 4520 Cadet Troop Leadership Training.....	2
MSL 4610 Military History Seminar .....	1-3

## Additional Information

For more detailed information about course requirements for Military Science programs, as well as information about career opportunities, see the major requirement sheet, which is available from the Military Science Department, or online at:  
<http://www.usu.edu/majorsheets/>

## Military Science Faculty

### Professor

*Major Paul J. Faletto*

### Assistant Professors

*Major Jeffrey A. Bruce*

*Captain Michael Rhinehart*

*Lt. Colonel Greg Stuart*

### Instructor

*Sergeant First Class LaWrell D. Cook*

## Course Descriptions

Military Science Leadership (MSL), pages 609-610

# Department of Music

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**Department Head:** Craig D. Jessop

**Location:** Fine Arts 107

**Phone:** (435) 797-3000

**FAX:** (435) 797-1862

**E-mail:** music@usu.edu

**WWW:** http://music.usu.edu/

**Assistant Department Heads:**

Gary Amano, Fine Arts 201, (435) 797-3028,  
gary.amano@usu.edu

Cindy J. Dewey, Fine Arts 208B, (435) 797-3055,  
cindy.dewey@usu.edu

Nicholas E. Morrison, Fine Arts 103, (435) 797-3506,  
nicholas.morrison@usu.edu

**Undergraduate Advisors:**

**Music Education/Choral:**

R. Cory Evans, Fine Arts 215, (435) 797-3035,  
cory.evans@usu.edu

**Music Therapy:**

Maureen Hearn, Fine Arts 220B, (435) 797-3009,  
maureen.hearn@usu.edu

Music Therapy Office, Fine Arts 219, (435) 797-3030

**Guitar:**

Michael K. Christiansen, Fine Arts 124, (435) 797-3011,  
michael.christiansen@usu.edu

**High Brass/Director of Education:**

Thomas Rohrer, Fine Arts 106, (435) 797-3004,  
thomas.rohrer@usu.edu

**Low Brass:**

Todd L. Fallis, Fine Arts 120, (435) 797-3005, todd.fallis@usu.edu

**Piano:**

Gary Amano, Fine Arts 201, (435) 797-3028,  
gary.amano@usu.edu

R. Dennis Hirst, Fine Arts 101, (435) 797-3257,  
dennis.hirst@usu.edu

**Strings:**

Sergio Bernal, Fine Arts 218B, (435) 797-0487,  
sergio.bernal@usu.edu

**Violin:**

William Fedkenheuer, Fine Arts 206, (435) 797-7130,  
the2feds@aol.com

Rebecca J. McFaul, Fine Arts 104C, (435) 797-3597,  
rebeccamcfaul@mac.com

**Viola:**

Russell Fallstad, Fine Arts 208, (435) 797-3092,  
russellfallstad@msn.com

**Cello/String Bass:**

Anne Francis, University Reserve 21, (435) 797-3086,  
anne@fzystreetquartet.com

**Clarinet/Oboe:**

Nicholas E. Morrison, Fine Arts 103, (435) 797-3506,  
nicholas.morrison@usu.edu

**Flute and Elementary School Music Teaching Minor:**

Leslie Timmons, Fine Arts 105, (435) 797-3699,  
leslie.timmons@usu.edu

**Saxophone:**

Jon Gudmundson, Fine Arts 212, (435) 797-3003,  
jon.gudmundson@usu.edu

**Bassoon:**

R. Dennis Hirst, Fine Arts 203, (435) 797-3257,  
dennis.hirst@usu.edu

**Voice:**

Cindy J. Dewey, Fine Arts 208B, (435) 797-3055,  
cindy.dewey@usu.edu

**Scoring and Arranging/Conducting:**

Mark A. Emile, Fine Arts 122, (435) 797-3051, mark.emile@usu.edu

**Music History:**

Christopher Scheer, Fine Arts 204, (435) 797-3000,  
christopher.scheer@usu.edu

**Basic Music Minor/Graduation Clearance:**

Marilyn Kraft, Fine Arts 102, (435) 797-3632, marilyn.kraft@usu.edu

**Degrees offered:** Bachelor of Music (BM) in Music; Bachelor of Science (BS) and Bachelor of Arts (BA) in Music Therapy; Master of Music (MM) in Music

**Undergraduate emphases:** *BM degree in Music*—Music Education (Band), Music Education (Orchestra), Music Education (Choral), Music Education (General); Piano Performance, String Performance, Vocal Performance, Wind/Brass/Percussion Performance, Guitar Performance; Piano Pedagogy

**Graduate specialization:** *MM degree in Music*—Piano Performance and Pedagogy

## Undergraduate Programs

### Objectives

The Department of Music provides instruction in music by: (1) offering service courses which contribute to the Liberal Arts major in the College of Humanities, Arts and Social Sciences and the College of Science, and to the University Studies Program of the University; (2) offering specific sequences of courses leading to professional preparation in music education, music therapy, and performance/pedagogy; and (3) providing public musical service to the University and the community.

The specific objectives of the programs in music for the music major are fourfold: (1) to prepare licensed music teachers to serve effectively in elementary and secondary schools; (2) to prepare musically talented students for careers as professional performers and/or studio teachers;

(3) to prepare board-certified music therapists to serve in educational and therapeutic settings; and (4) to prepare music students for graduate study in their areas of specialization.

## Requirements

### Admission Requirements

Admission requirements for the Department of Music include those described for the University in this catalog (see pages 30-35). In addition, transfer students must have a minimum 3.00 GPA in music courses and a minimum 2.75 GPA overall. All students interested in majoring in Music or Music Therapy will be given pre-music major status until they have completed the required audition/interview process, as verified by their area advisor through the *Change of Major Form*. It is strongly recommended that prospective majors complete their audition/interview during the department's scholarship auditions in February preceding matriculation at USU. To schedule an audition/interview, contact the department at (435) 797-3015.

Prospective majors in Music Therapy should complete the audition/interview prior to May 1 of the year of admission.

### GPA Requirement

Students majoring in music, music education, or music therapy must maintain a minimum GPA of 3.00 in music courses and a minimum 2.75 GPA overall. All core curriculum classes must be completed with a C- or higher in order to progress to the next courses in sequence. A student receiving a grade lower than C- is placed on probation, and may repeat the course once to raise the grade to C- or higher. If the grade received on the repeat is lower than C-, the student is no longer a music, music education, or music therapy major.

### Music Core Curriculum Requirements (29-34 credits)

All majors in the department must complete the music core curriculum. Although it is possible to complete the degree if these courses are begun after the first year of study, the department strongly recommends that students begin the core curriculum during the first year, completing the courses in the following recommended sequence.

#### Freshman Year

##### Fall Semester

MUSC 1110 Music Theory I.....	3
MUSC 1130 Aural Skills I.....	1
MUSC 1170 <sup>1</sup> Keyboard Harmony I.....	(1)

##### Spring Semester

MUSC 1120 Music Theory II.....	3
MUSC 1140 Aural Skills II.....	1
MUSC 1180 <sup>1</sup> Keyboard Harmony II.....	(1)

#### Sophomore Year

##### Fall Semester

MUSC 2110 Music Theory III.....	3
MUSC 2130 Aural Skills III.....	1

##### Spring Semester

MUSC 2140 <sup>2</sup> Aural Skills IV.....	(1)
MUSC 3110 Music History I: Origins through Baroque.....	3
MUSC 3140 Musical Form and Analysis.....	3

#### Junior Year

##### Fall Semester

MUSC 2350 Conducting.....	2
MUSC 3120 Music History II: Classical and Romantic Periods.....	3

##### Spring Semester

MUSC 2120 Music Theory IV.....	3
MUSC 3180 <sup>3</sup> Scoring and Arranging.....	(2)
MUSC 3190 (CI) Music History III: Music of the Twentieth Century.....	3

Students should note that MUSC 2350 and 3180 may be taken during different semesters, if necessary. Also, since MUSC 2140 is *not required* for all music areas, students should contact their advisor to determine whether or not they should enroll in this course. Additional requirements for specific emphasis areas are available from the Music Department Student Services Office, Fine Arts 102.

<sup>1</sup>MUSC 1170 and 1180 are *not required* for the Music Education (General) Emphasis, nor for the Guitar Performance Emphasis.

<sup>2</sup>MUSC 2140 is *not required* for the Composite Major in Music Education, nor for the Guitar Performance Emphasis or the Wind/Brass/Percussion Performance Emphasis.

<sup>3</sup>MUSC 3180 is *not required* for the Vocal Performance Emphasis.

### Bachelor of Music Degree Composite Major in Music Education

**Music majors must maintain a minimum GPA of 3.0 in Music courses.** A grade of C- or better must be earned in all core and emphasis classes. A 2.75 cumulative GPA is required for graduation. Additional requirements, such as piano proficiency, concert attendance, etc., are stipulated in the Department of Music's *Student Handbook*.

#### Emphasis Area

Students must select one area of emphasis and complete the required coursework for that emphasis. The student's transcript will show the area of emphasis selected by the student from those listed below. Please note that all music majors are required to participate in major departmental ensemble organizations each semester. The student and an advisor will determine the organizations in which the student will participate.

#### Music Education (Band) (44-49 credits)

MUSC 1500 String Techniques I (F,Sp).....	1
MUSC 1600 Voice Techniques (F,Sp).....	1
MUSC 1800 Percussion Techniques (F).....	1
MUSC 2600 Women's Choir (F,Sp) (1 cr) <b>or</b>	
MUSC 4600 University Chorale (F,Sp) (1 cr).....	1
MUSC 2700 Woodwind Techniques I: Flute, Clarinet (F).....	1
MUSC 2710 Woodwind Techniques II: Saxophone, Oboe, Bassoon (Sp).....	1
MUSC 2720 Marching Band (4 semesters) (2 cr, repeatable) (F).....	8
MUSC 2800 Brass Techniques I: Trumpet, French Horn (F).....	1
MUSC 2810 Brass Techniques II: Trombone, Tuba, Euphonium (Sp) ..	1
MUSC 3100 Motivation and Classroom Management Strategies in Secondary Classroom Music (Sp).....	3
MUSC 3220 Choral Methods and Materials (F).....	2
MUSC 3240 Instrumental Methods and Materials (Sp).....	2
MUSC 3790 Symphonic Band (F,Sp) (1 cr, repeatable) <b>or</b>	
MUSC 4700 Wind Orchestra (F,Sp) (1 cr, repeatable).....	7
MUSC 3900 Jazz Improvisation (F,Sp).....	2
MUSC 4240 Advanced Conducting (F).....	2
MUSC 4920 Individual Recital (F,Sp,Su).....	1-6

Small Ensembles (2 credits)

Select 2 credits from the following:

MUSC 2740 Recorder Techniques (Sp).....	1
MUSC 3700 Woodwind Ensemble (F,Sp).....	1-2
MUSC 3780 Flute Ensemble (F).....	1

# Department of Music

<b>MUSC 3800</b> Trombone Ensemble (F,Sp) .....	1
<b>MUSC 3850</b> Brass Ensemble (F,Sp) .....	1
<b>MUSC 3870</b> Percussion Ensemble (F,Sp).....	1

## Individual Instruction (7 credits)

Students should complete 7 credits from the following on their major instrument.

<b>MUSC 3710</b> Individual Flute Instr for Music Majors (F,Sp,Su) .....	1-2
<b>MUSC 3720</b> Individual Oboe Instr for Music Majors (F,Sp,Su).....	1-2
<b>MUSC 3730</b> Individual Clarinet Instr for Music Majors (F,Sp,Su) .....	1-2
<b>MUSC 3740</b> Individual Bassoon Instr for Music Majors (F,Sp,Su) .....	1-2
<b>MUSC 3750</b> Individual Saxophone Instr for Music Majors (F,Sp,Su) .....	1-2
<b>MUSC 3810</b> Individual Trumpet Instr for Music Majors (F,Sp).....	1-2
<b>MUSC 3820</b> Individual Trombone Instr for Music Majors (F,Sp).....	1-2
<b>MUSC 3830</b> Individual French Horn Instr for Music Majors (F,Sp).....	1-2
<b>MUSC 3840</b> Individual Tuba/Euphonium Instr for Music Majors (F,Sp).....	1-2
<b>MUSC 3860</b> Individual Percussion Instr for Music Majors (F,Sp,Su).....	1-2

## Music Education (Orchestra) (39-45 credits)

<b>MUSC 1500</b> String Techniques I (F,Sp).....	1
<b>MUSC 1600</b> Voice Techniques (F,Sp) .....	1
<b>MUSC 1800</b> Percussion Techniques (F) .....	1
<b>MUSC 2140</b> Aural Skills IV (Sp) .....	1
<b>MUSC 2600</b> Women's Choir (F,Sp) (1 cr) <b>or</b>	
<b>MUSC 4600</b> University Chorale (F,Sp) (1 cr).....	1
<b>MUSC 2700</b> Woodwind Techniques I: Flute, Clarinet (F) .....	1
<b>MUSC 2800</b> Brass Techniques I: Trumpet, French Horn (F).....	1
<b>MUSC 3100</b> Motivation and Classroom Management Strategies in Secondary Classroom Music (Sp).....	3
<b>MUSC 3220</b> Choral Methods and Materials (F) .....	2
<b>MUSC 3240</b> Instrumental Methods and Materials (Sp).....	2
<b>MUSC 3500</b> Symphony Orchestra (F,Sp).....	7
<b>MUSC 3510</b> Orchestra Literature (Sp) .....	2
<b>MUSC 3520</b> String Pedagogy and Solo Literature (F,Sp) .....	2
<b>MUSC 4240</b> Advanced Conducting (F) .....	2
<b>MUSC 4500</b> String Ensemble (F,Sp).....	4
<b>MUSC 4920</b> Individual Recital (F,Sp,Su).....	1-6

## Individual String Instruction (8 credits)

Select 8 credits from the following:

<b>MUSC 4510</b> Individual Violin Instr for Music Majors (F,Sp,Su).....	1-2
<b>MUSC 4520</b> Individual Viola Instr for Music Majors (F,Sp,Su) .....	1-2
<b>MUSC 4530</b> Individual Cello Instr for Music Majors (F,Sp,Su) .....	1-2
<b>MUSC 4540</b> Individual String Bass Instr for Music Majors (F,Sp,Su) .....	1-2

## Music Education (Choral) (34-39 credits)

<b>MUSC 1500</b> String Techniques I (F,Sp).....	1
<b>MUSC 1800</b> Percussion Techniques (F) .....	1
<b>MUSC 2140</b> Aural Skills IV (Sp) .....	1
<b>MUSC 2490</b> Individual Piano Instruction (Second Instrument) for Music Majors (F,Sp,Su) .....	3
<b>MUSC 2600</b> Women's Choir (F,Sp) (1 cr, repeatable) <b>or</b>	
<b>MUSC 4600</b> University Chorale (F,Sp) (1 cr, repeatable) <b>or</b>	
<b>MUSC 4650</b> Chamber Singers (F,Sp) (1 cr, repeatable).....	7
<b>MUSC 2700</b> Woodwind Techniques I: Flute, Clarinet (F) .....	1
<b>MUSC 2800</b> Brass Techniques I: Trumpet, French Horn (F) (1 cr) <b>or</b>	
<b>MUSC 2810</b> Brass Techniques II: Trombone, Tuba, Euphonium (Sp) (1 cr).....	1
<b>MUSC 3100</b> Motivation and Classroom Management Strategies in Secondary Classroom Music (Sp).....	3
<b>MUSC 3220</b> Choral Methods and Materials (F) .....	2
<b>MUSC 3230</b> Choral Literature (Sp) .....	2
<b>MUSC 3240</b> Instrumental Methods and Materials (Sp).....	2
<b>MUSC 3630</b> Vocal Pedagogy I (F) .....	2

<b>MUSC 3670</b> Individual Vocal Instruction for Music Majors (F,Sp,Su)....	7
<b>MUSC 4920</b> Individual Recital (F,Sp,Su).....	1-6

## Music Education (General) (36 credits)

### Piano or Keyboard Harmony Instruction .....

Choose one of the following three options:

**MUSC 1150** Beginning Group Piano (Sp) (1 cr) **and**

**MUSC 1160** Intermediate Group Piano (Sp) (1 cr) .....

**Or**

**MUSC 1170** Keyboard Harmony I (F) (1 cr) **and**

**MUSC 1180** Keyboard Harmony II (Sp) (1 cr) .....

**Or**

**MUSC 2490** Individual Piano Instruction (Second Instrument)

for Music Majors (F,Sp,Su) (1 cr, repeatable).....

<b>MUSC 1500</b> String Techniques I (F,Sp).....	1
<b>MUSC 1600</b> Voice Techniques (F,Sp) .....	1
<b>MUSC 1800</b> Percussion Techniques (F) .....	1
<b>MUSC 2550</b> Guitar Styles (Blues/Bluegrass) (F) .....	2
<b>MUSC 2560</b> Guitar Styles (Jazz/Classical) (Sp) .....	2
<b>MUSC 2570</b> Fingerboard Theory I (F).....	2
<b>MUSC 2580</b> Fingerboard Theory II (Sp).....	2
<b>MUSC 2600</b> Women's Choir (F,Sp) (1 cr) <b>or</b>	
<b>MUSC 4600</b> University Chorale (F,Sp) (1 cr).....	1
<b>MUSC 2700</b> Woodwind Techniques I: Flute, Clarinet (F) .....	1
<b>MUSC 3100</b> Motivation and Classroom Management Strategies in Secondary Classroom Music (Sp).....	3
<b>MUSC 3220</b> Choral Methods and Materials (F) .....	2
<b>MUSC 3240</b> Instrumental Methods and Materials (Sp).....	2
<b>MUSC 3550</b> Individual Guitar Instruction for Music Majors (F,Sp,Su)....	6
<b>MUSC 3570</b> Guitar Pedagogy I (F) .....	2
<b>MUSC 3580</b> Guitar Pedagogy II (Sp) .....	2
<b>MUSC 3590</b> Electric Guitar Ensemble (F,Sp) (1 cr, repeatable) <b>or</b>	
<b>MUSC 4550</b> Acoustic Guitar Ensemble (F,Sp) (1 cr, repeatable).....	4

## Secondary Teacher Education Program (STEP) (25 credits)

Admission to the STEP curriculum requires action by the Office of the Associate Dean for Teacher Education, Graduation, and Educator Licensing, as well as the department where the major work is being offered. Students **are not** generally permitted to enroll in the following STEP courses unless they have been admitted to the STEP.

### Level 1 Courses (6 credits)

<b>SCED 3210 (CI/DSS)</b> Educational and Multicultural Foundations (F,Sp).....	3
<b>SCED 3300</b> Clinical Experience I (F,Sp) (Arranged) .....	1
<b>SPED 4000</b> Education of Exceptional Individuals (F,Sp,Su) (may be taken anytime).....	2

### Level 2 Courses (7 credits)

<b>SCED 4200 (CI)</b> Reading, Writing, and Technology (F,Sp) .....	3
<b>SCED 4210</b> Cognition and Evaluation of Student Learning (F,Sp) .....	3
<b>SCED 4300</b> Clinical Experience II (F,Sp) (Arranged).....	1

### Level 3 Courses (12 credits)

<b>SCED 5500</b> Student Teaching Seminar (2 weeks) (F,Sp) .....	2
<b>SCED 5630</b> Student Teaching in Secondary Schools (13 weeks, full-time) (F,Sp).....	10

## Dual Licensure (Recommended)

Students receiving licensure in secondary music education are encouraged to qualify for teaching music (vocal and/or instrumental) in the elementary schools. In addition to the graduation and licensure requirements for the BM Degree in Music Education, the following courses are required.

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<b>PSY 1100</b> Developmental Psychology: Infancy and Childhood (F,Sp) (3 cr) <b>or</b>	
<b>FCHD 1500 (BSS)<sup>4</sup></b> Human Development Across the Lifespan (F,Sp) (3 cr) .....	3
Level 1 Orff-Schulwerk Teacher Training (Su) <sup>5</sup> .....	4

<sup>4</sup>Will fulfill the University Studies Breadth Social Sciences (BSS) requirement.

<sup>5</sup>The Orff-Schulwerk teacher training course, taught as a workshop through the Music Department, is offered *only* during summer semester. The prefix and course number for this course varies; see Music Department for further information. Prior to taking this course, students should complete MUSC 1110, 1130, and 3260.

## Bachelor of Music Degree (Performance Emphases) (2.75 cumulative GPA; 3.00 GPA in Music courses)

The Bachelor of Music Degree with one of the performance emphases requires completion of University Studies Requirements, Core Requirements, and Emphasis Area Requirements. A grade of C- or better must be earned in all core and emphasis classes.

### Music Core Curriculum Requirements (29-34 credits)

All of the Music Core Curriculum courses (shown on page 379) are required, with the following exceptions:

MUSC 1170, 1180, and 2140 are *not required* for the Guitar Performance Emphasis.

MUSC 2140 is *not required* for the Wind/Brass/Percussion Performance Emphasis.

MUSC 3180 is *not required* for the Vocal Performance Emphasis.

### Emphasis Area

Students must select one area of emphasis and complete the required coursework for that emphasis. The student's transcript will show the area of emphasis selected by the student from those listed below. Please note that all music majors are required to participate in major departmental ensemble organizations each semester. The student and an advisor will determine the organizations in which the student will participate.

### Piano Performance (63-66 credits)

<b>MUSC 1420</b> Pedagogy Practicum (F,Sp) .....	9
<b>MUSC 1430</b> Piano Pedagogy I (F) .....	3
<b>MUSC 1440</b> Piano Pedagogy II (Sp) .....	3
<b>MUSC 2420</b> Piano Literature I (F) .....	3
<b>MUSC 2430</b> Piano Literature II (Sp) .....	3
<b>MUSC 2440</b> Piano Literature III (F) .....	3
<b>MUSC 2450</b> Piano Literature IV (Sp) .....	3
<b>MUSC 3400</b> Individual Piano Instruction for Music Majors (F,Sp,Su) .....	12
<b>MUSC 3410</b> Ensemble and Accompanying (Piano) (F,Sp) .....	6
<b>MUSC 3420</b> Keyboard Skills I (F) .....	3
<b>MUSC 3430</b> Keyboard Skills II (Sp) .....	3
<b>MUSC 4210</b> Advanced Music Form and Analysis (F) .....	3
<b>MUSC 4410</b> Advanced Piano Pedagogy I (F) .....	3
<b>MUSC 4420</b> Advanced Piano Pedagogy II (Sp) .....	3
<b>MUSC 4920</b> Individual Recital (F,Sp,Su) .....	3-6

### String Performance (53 credits)

<b>MUSC 2490</b> Individual Piano Instruction (Second Instrument) for Music Majors (F,Sp,Su) .....	2
<b>MUSC 3500</b> Symphony Orchestra (F,Sp) .....	8
<b>MUSC 3520</b> String Pedagogy and Solo Literature (F,Sp) .....	2
<b>MUSC 4210</b> Advanced Music Form and Analysis (F) .....	3

<b>MUSC 4500</b> String Ensemble (F,Sp) .....	8
<b>MUSC 4920</b> Individual Recital (Junior) (F,Sp,Su) .....	2
<b>MUSC 4920</b> Individual Recital (Senior) (F,Sp,Su) .....	2
<b>MUSC 4930</b> Readings and Conference (F,Sp,Su) .....	4
Music Electives .....	6

### Individual String Instruction<sup>6</sup> (16 credits)

Students must complete credits from *one* of the following:

<b>MUSC 4510</b> Individual Violin Instr for Music Majors (F,Sp,Su) .....	2
<b>MUSC 4520</b> Individual Viola Instr for Music Majors (F,Sp,Su) .....	2
<b>MUSC 4530</b> Individual Cello Instr for Music Majors (F,Sp,Su) .....	2
<b>MUSC 4540</b> Individual String Bass Instr for Music Majors (F,Sp,Su) .....	2

### Vocal Performance (58-64 credits)

<b>MUSC 1610</b> Introduction to Musical Theatre (Sp) (2 cr) <b>or</b>	
<b>MUSC 1620</b> Introduction to Opera (F) (2 cr) .....	2
<b>MUSC 2490</b> Individual Piano Instruction (Second Instrument) for Music Majors (F,Sp,Su) .....	0-6
<b>MUSC 2660</b> Italian Diction for Singers (Sp) .....	2
<b>MUSC 2670</b> German Diction for Singers (F) .....	2
<b>MUSC 2680</b> French Diction for Singers (Sp) .....	2
<b>MUSC 3600</b> Opera Theatre Production (F,Sp) .....	6
<b>MUSC 3610</b> Vocal Repertory I (F) .....	2
<b>MUSC 3620 (CI)</b> Vocal Repertory II (Sp) .....	2
<b>MUSC 3630</b> Vocal Pedagogy I (F) .....	2
<b>MUSC 3640</b> Vocal Pedagogy II (Sp) .....	2
<b>MUSC 3670</b> Individual Vocal Instruction for Music Majors (F,Sp,Su) .....	16
<b>MUSC 4920</b> Individual Recital (F,Sp,Su) .....	4
Major Performance Group (MUSC 4600, 4650, 2610, <b>or</b> 2600) .....	8
Italian or German or French (2 semesters) .....	8

All students selecting the Vocal Performance Emphasis must complete performance level 5 in piano or MUSC 2490 until level requirement is met.

### Wind/Brass/Percussion Performance (48-56 credits)

#### Individual Instruction<sup>6</sup> (12 credits)

Students must complete 12 credits from *one* of the following three groups of courses in their area (Individual Woodwind Instruction **or** Individual Brass Instruction **or** Individual Percussion Instruction).

#### Individual Woodwind Instruction

<b>MUSC 3710</b> Individual Flute Instr for Music Majors (F,Sp,Su) .....	1-2
<b>MUSC 3720</b> Individual Oboe Instr for Music Majors (F,Sp,Su) .....	1-2
<b>MUSC 3730</b> Individual Clarinet Instr for Music Majors (F,Sp,Su) .....	1-2
<b>MUSC 3740</b> Individual Bassoon Instr for Music Majors (F,Sp,Su) .....	1-2
<b>MUSC 3750</b> Individual Saxophone Instr for Music Majors (F,Sp,Su) .....	1-2

#### Individual Brass Instruction

<b>MUSC 3810</b> Individual Trumpet Instr for Music Majors (F,Sp) .....	1-2
<b>MUSC 3820</b> Individual Trombone Instr for Music Majors (F,Sp) .....	1-2
<b>MUSC 3830</b> Individual French Horn Instr for Music Majors (F,Sp) .....	1-2
<b>MUSC 3840</b> Individual Tuba/Euphonium Instr for Music Majors (F,Sp) .....	1-2

#### Individual Percussion Instruction

<b>MUSC 3860</b> Individual Percussion Instr for Music Majors (F,Sp,Su) .....	1-2
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### Large Ensembles<sup>7</sup> (8 credits)

Select 8 credits from the following:

<b>MUSC 3500</b> Symphony Orchestra (repeatable) (F,Sp) .....	1
<b>MUSC 3790</b> Symphonic Band (repeatable) (F,Sp) .....	1
<b>MUSC 4700</b> Wind Orchestra (repeatable) (F,Sp) .....	1

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## Small Ensembles (4 credits)

Select 4 credits from the following six courses:

MUSC 3700	Woodwind Ensemble (F,Sp)	1-2
MUSC 3780	Flute Ensemble (F)	1
MUSC 3800	Trombone Ensemble (F,Sp)	1
MUSC 3850	Brass Ensemble (F,Sp)	1
MUSC 3870	Percussion Ensemble (F,Sp)	1
MUSC 4720	Saxophone Quartet (F,Sp)	1

## Additional Courses (24-32 credits)

MUSC 1800	Percussion Techniques (F)	1
MUSC 2700	Woodwind Techniques I: Flute, Clarinet (F) (1 cr) or	
MUSC 2710	Woodwind Techniques II: Saxophone, Oboe, Bassoon (Sp) (1 cr) or	
MUSC 2740	Recorder Techniques (Sp) (1 cr)	1
MUSC 2800	Brass Techniques I: Trumpet, French Horn (F) (1 cr) or	
MUSC 2810	Brass Techniques II: Trombone, Tuba, Euphonium (Sp) (1 cr)	1
MUSC 3240	Instrumental Methods and Materials (Sp) (2 cr) or	
MUSC 4930	Readings and Conference (Independent Study with major prof in instrumental pedagogy) (2 cr) (F,Sp,Su)	2
MUSC 3900	Jazz Improvisation (F,Sp)	2
MUSC 4730 (CI)	Directed Project in Instrumental Pedagogy (F,Sp,Su)	2
MUSC 4920	Individual Recital (Junior) (F,Sp,Su)	1-2
MUSC 4920	Individual Recital (Senior) (F,Sp,Su)	3-6
	Secondary Instrument Course <sup>6</sup>	2
	Electives (at least 4 credits in Music) <sup>9</sup>	9-13

<sup>6</sup>A student in this program will study privately each semester of residency.

<sup>7</sup>A student in this program will participate in a large ensemble for each semester of residency.

<sup>8</sup>Choose 2 credits from: MUSC 2470, 2490, 2750, 2760, 2770, 2780, 2790, 2850, 2860, 2870, 2880, 2890.

<sup>9</sup>At least 3 credits must be from a course that is designated as Communications Intensive and at least 3 credits must be from a course that is designated as Quantitative Intensive.

## Guitar Performance (54 credits)

### Piano or Keyboard Harmony Instruction .....2

Choose one of the following three options:

MUSC 1150 Beginning Group Piano (Sp) (1 cr) and

MUSC 1160 Intermediate Group Piano (Sp) (1 cr) .....2

Or

MUSC 1170 Keyboard Harmony I (F) (1 cr) and

MUSC 1180 Keyboard Harmony II (Sp) (1 cr) .....2

Or

MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (F,Sp,Su) (1 cr, repeatable) .....2

MUSC 2550 Guitar Styles (Blues/Bluegrass) (F) .....2

MUSC 2560 Guitar Styles (Jazz/Classical) (Sp) .....2

MUSC 2570 Fingerboard Theory I (F) .....2

MUSC 2580 Fingerboard Theory II (Sp) .....2

MUSC 3550 Individual Guitar Instruction for Music Majors (F,Sp,Su) .....10

MUSC 3560 Guitar History and Literature (Sp) .....3

MUSC 3570 Guitar Pedagogy I (F) .....2

MUSC 3580 Guitar Pedagogy II (Sp) .....2

MUSC 3590 Electric Guitar Ensemble (F,Sp) (1 cr, repeatable) or

MUSC 4550 Acoustic Guitar Ensemble (1 cr, repeatable) (F,Sp) .....8

MUSC 3900 Jazz Improvisation (F,Sp) .....2

MUSC 4920 Individual Recital (F,Sp,Su) .....6

MUSC 4930 Readings and Conference (F,Sp,Su) .....2

Music Electives .....3

University Electives .....6

## Bachelor of Music Degree

### (Piano Pedagogy Emphasis)

**(2.75 cumulative GPA; 3.00 GPA**

### in Music courses)

The Bachelor of Music Degree with an emphasis in Piano Pedagogy requires completion of University Studies Requirements, Core Requirements, Pedagogy Emphasis, and Electives. **Music majors must maintain a minimum GPA of 3.00 in Music courses.** A grade of C- or better must be earned in all core and emphasis classes. A 2.75 cumulative GPA is required for graduation. Additional requirements, such as piano proficiency, concert attendance, etc., are stipulated in the Department of Music's *Student Handbook*.

### Music Core Curriculum Requirements (29-34 credits)

Students in the Piano Pedagogy emphasis must complete the 29-34 credit music core curriculum as listed on page 379.

### Pedagogy Emphasis Requirements (59-60 credits)

MUSC 1420	Pedagogy Practicum (F,Sp)	9
MUSC 1430	Piano Pedagogy I (F)	3
MUSC 1440	Piano Pedagogy II (Sp)	3
MUSC 2420	Piano Literature I (F)	3
MUSC 2430	Piano Literature II (Sp)	3
MUSC 2440	Piano Literature III (F)	3
MUSC 2450	Piano Literature IV (Sp)	3
MUSC 3400	Individual Piano Instruction for Music Majors (F,Sp,Su)	12
MUSC 3410	Ensemble and Accompanying (Piano) (F,Sp)	4
MUSC 3420	Keyboard Skills I (F)	3
MUSC 3430	Keyboard Skills II (Sp)	3
MUSC 4410	Advanced Piano Pedagogy I (F)	2
MUSC 4420	Advanced Piano Pedagogy II (Sp)	2
MUSC 4210	Advanced Music Form and Analysis (F) (3 cr) or	
MUSC 4900	Baroque Counterpoint (F) (2 cr)	2 or 3
MUSC 4920	Individual Recital (F,Sp,Su)	2
	Electives	2

### Music Therapy Requirements

Students must complete an application process through the Music Department in order to be accepted for the Music Therapy major.

**Music Therapy majors must maintain a minimum GPA of 3.00 in**

**Music Therapy courses.** A grade of C- or better must be earned in all

required classes. A 2.75 total GPA is required for graduation. Additional

requirements, such as piano proficiency, concert attendance, etc., are

stipulated in the Department of Music's *Student Handbook* and *Music Therapy Addendum to the Handbook*.

### Core Course Requirements (32-33 credits)

MUSC 1110	Music Theory I (F)	3
MUSC 1120	Music Theory II (Sp)	3
MUSC 1130	Aural Skills I (F)	1
MUSC 1140	Aural Skills II (Sp)	1
MUSC 1170	Keyboard Harmony I (F)	1
MUSC 1180	Keyboard Harmony II (Sp)	1
MUSC 2110	Music Theory III (F)	3
MUSC 2120	Music Theory IV (Sp)	3
MUSC 2130	Aural Skills III (F)	1
MUSC 2140	Aural Skills IV (Sp) (1 cr) or	
MUSC 3900	Jazz Improvisation (F,Sp) (2 cr)	1 or 2
MUSC 2350	Conducting (F)	2
MUSC 3110	Music History I: Origins Through Baroque (Sp)	3
MUSC 3120	Music History II: Classical and Romantic Periods (F)	3
MUSC 3140	Musical Form and Analysis (Sp)	3
MUSC 3190 (CI)	Music History III: Music of the Twentieth Century (Sp)	3

## Music Therapy Core Courses (32 credits)

<b>MUSC 1310</b> Introduction to Music Therapy (F).....	2
<b>MUSC 1320</b> Music Therapy Ensemble (F,Sp) (1 cr, repeatable).....	2
<b>MUSC 2310</b> Introduction to Observational and Behavioral Methods in Music Therapy (F).....	2
<b>MUSC 2320</b> Music Therapy Methods and Materials (Sp).....	2
<b>MUSC 3310</b> Music Therapy and the Exceptional Child (F).....	3
<b>MUSC 3320</b> Psychology of Music I (Sp).....	2
<b>MUSC 3330</b> Music Therapy Practicum (F,Sp).....	9
<b>MUSC 4310</b> Music Therapy with Adult Populations (F).....	3
<b>MUSC 4320 (CI)</b> Psychology of Music II (Sp).....	2
<b>MUSC 4330</b> Clinical and Professional Issues in Music Therapy (Sp) ...	3
<b>MUSC 4340</b> Internship in Music Therapy (taken only after all academic coursework has been completed) (F,Sp,Su).....	2

## Additional Music Coursework (2 credits)

<b>MUSC 3260</b> Elementary School Music (F,Sp,Su).....	2
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## Ensemble Performance (2 credits)

Select from the following courses:

<b>MUSC 2600</b> Women's Choir (F,Sp).....	1
<b>MUSC 2610</b> American Festival Chorus (F,Sp).....	1
<b>MUSC 2720</b> Marching Band (F).....	2
<b>MUSC 3500</b> Symphony Orchestra (F,Sp).....	1
<b>MUSC 3700</b> Woodwind Ensemble (F,Sp).....	1-2
<b>MUSC 3780</b> Flute Ensemble (F).....	1
<b>MUSC 3790</b> Symphonic Band (F,Sp).....	1
<b>MUSC 3800</b> Trombone Ensemble (F,Sp).....	1
<b>MUSC 3850</b> Brass Ensemble (F,Sp).....	1
<b>MUSC 3870</b> Percussion Ensemble (F,Sp).....	1
<b>MUSC 4500</b> String Ensemble (F,Sp).....	1
<b>MUSC 4550</b> Acoustic Guitar Ensemble (F,Sp).....	1
<b>MUSC 4600</b> University Chorale (F,Sp).....	1
<b>MUSC 4650</b> Chamber Singers (F,Sp).....	1

## Individual Instruction (Major Instrument)

(Minimum Requirement: 4 semesters, 4 credits)

### Guitar Requirements (with advisor approval) (1-4 credits)

Select from the following courses:

<b>MUSC 1550</b> Beginning Group Guitar (F,Sp).....	1
<b>MUSC 1560</b> Intermediate Group Guitar (F,Sp).....	1
<b>MUSC 2550</b> Guitar Styles (Blues/Bluegrass) (F).....	2
<b>MUSC 2560</b> Guitar Styles (Jazz/Classical) (Sp).....	2
<b>MUSC 2590</b> Individual Guitar Instruction (Second Instrument) for Music Majors (F,Sp,Su).....	1
<b>MUSC 3550</b> Individual Guitar Instruction for Music Majors (F,Sp,Su).....	1-2

### Piano Requirements (with advisor approval) (1-4 credits)

Select from the following courses:

<b>MUSC 2490</b> Individual Piano Instruction (Second Instrument) for Music Majors (repeatable) (F,Sp,Su).....	1
<b>MUSC 3400</b> Individual Piano Instruction for Music Majors (repeatable) (F,Sp,Su).....	1

### Vocal Requirements (with advisor approval) (1-4 credits)

Select from the following courses:

<b>MUSC 1600</b> Voice Techniques (F,Sp).....	1
<b>MUSC 2640</b> Individual Vocal Instruction (Second Instrument) for Music Majors (repeatable) (F,Sp,Su).....	1
<b>MUSC 3670</b> Individual Vocal Instruction for Music Majors (repeatable) (F,Sp,Su).....	1-2

## Required Behavioral Health/Natural Sciences (12 credits)

<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su).....	3
<b>PSY 3210 (DSS)</b> Abnormal Psychology (F,Sp).....	3
<b>BIOL 2320</b> Human Anatomy (Sp,Su).....	4
<b>SPED 4000</b> Education of Exceptional Individuals (F,Sp,Su).....	2

## Behavioral Health/Natural Sciences Electives

(9 credits minimum)

Electives must be chosen from the following courses or with approval of the student's area advisor.

<b>COMD 2500</b> Language, Speech, and Hearing Development (F,Sp).....	3
<b>COMD 2910 (CI)</b> Sign Language I (F,Sp,Su).....	4
<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp).....	3
<b>FCHD 2400 (BSS)</b> Marriage and Family Relationships (F,Sp).....	3
<b>FCHD 3100</b> Abuse and Neglect in Family Context (F,Sp).....	3
<b>PSY 1100</b> Developmental Psychology: Infancy and Childhood (F,Sp).....	3
<b>PSY 3120 (DSS)</b> Abuse, Neglect, and the Psychological Dimensions of Intimate Violence (F,Su).....	3
<b>PSY 3460</b> Physiological Psychology (Sp).....	3
<b>PSY 3510 (DSS)</b> Social Psychology (F,Su).....	3
<b>PSY 4210 (DSS)</b> Personality Theory (Sp).....	3
<b>PSY 4230 (DSS)</b> Psychology of Gender (Sp).....	3
<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp).....	3
<b>SOC 3010</b> Social Inequality (F,Sp).....	3
<b>SOC 4370</b> Sociology of Gender (F).....	3

## Sample Four-year Plans

Sample semester-by-semester four-year plans for students working toward a bachelor's degree within the Department of Music can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Music Minors

### Admission to Music Minor Programs

To be admitted as music minors, students must complete the Music Minor Admission Form and return it to the Department of Music Student Services Office, Fine Arts 102. Students are required to meet the requirements which are in effect at the time the Admission Form is completed.

### Basic Music Minor (24 credits)

<b>MUSC 1110<sup>10</sup></b> Music Theory I ( <i>music minor section</i> ) (F).....	3
<b>MUSC 1130<sup>10</sup></b> Aural Skills I ( <i>music minor section</i> ) (F).....	1
<b>MUSC 1480</b> Individual Piano Instruction for Nonmusic Majors (F,Sp,Su).....	1
<b>MUSC 2350</b> Conducting (F).....	2
Large or Small Ensemble.....	4
Individual Instruction ( <i>nonmajor courses, primary instrument/voice</i> ).....	4

In addition, complete the following three courses, which may also count toward University Studies requirements.

<b>MUSC 1010 (BCA)</b> Introduction to Music (F,Sp,Su).....	3
<b>MUSC 3010 (DHA)<sup>11</sup></b> Masterpieces of Music (F,Sp).....	3
<b>MUSC 3020 (DHA)<sup>11</sup></b> History of Jazz (Sp).....	3



# Department of Music

## Elementary School Music Teaching Minor (16 credits)

*This minor is for Early Childhood Education or Elementary Education majors only.*

**Advisor:** Professor Leslie Timmons, 797-3699, Fine Arts 105

<b>MUSC 1110</b> <sup>10</sup> Music Theory I ( <i>music minor section</i> ) (F).....	3
<b>MUSC 1130</b> <sup>10</sup> Aural Skills I ( <i>music minor section</i> ) (F) .....	1
<b>MUSC 1170</b> Keyboard Harmony I ( <i>music minor section</i> ) (F) .....	1
<b>MUSC 1600</b> Voice Techniques (F,Sp) (1 cr) <b>or</b>	
<b>MUSC 1630</b> Individual Vocal Instruction for Nonmusic Majors (F,Sp,Su) (1 cr).....	1
<b>MUSC 3260</b> <sup>12</sup> Elementary School Music (F,Sp,Su).....	2
Level 1 Orff-Schulwerk Teacher Training (Su) <sup>13</sup> .....	4
Choral Performance Ensemble .....	2
Large or Small Performance Ensembles.....	2

In addition, complete the following course, which may also count toward University Studies requirements.

<b>MUSC 1010 (BCA)</b> Introduction to Music (F,Sp,Su).....	3
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### Elective Courses

Complete at least **one** of the three courses listed below.

<b>MUSC 1480</b> Individual Piano Instruction for Nonmusic Majors (F,Sp,Su) .....	1
<b>MUSC 1550</b> Beginning Group Guitar (F,Sp).....	1
<b>MUSC 1560</b> Intermediate Group Guitar (F,Sp).....	1

<sup>10</sup>Offered during spring semester *only*. These courses must be taken concurrently.

<sup>11</sup>It is recommended that students complete MUSC 1010 prior to enrolling in MUSC 3010 and 3020.

<sup>12</sup>Students must have completed a minimum of 55 credits prior to enrolling in MUSC 3260. It is recommended that students complete MUSC 1010, 1110, 1130, and 1170 prior to enrolling in MUSC 3260.

<sup>13</sup>The Orff-Schulwerk teacher training course, taught as a workshop through the Music Department, is offered *only* during summer semester. The prefix and course number for this course varies; see Music Department for further information. Prior to taking this course, students should complete MUSC 1110, 1130, and 3260.

## Recital and Concert Attendance

Recital and concert attendance is required and will be monitored. Students should turn in programs after attending concerts and recitals. A summary of attendance will be kept in the student's file. To graduate, students are required to attend a minimum of 10 concerts and 10 recitals each year.

## Individual Performance and Jury Requirements

Music majors enroll in individual instruction each semester and practice regularly outside of lessons. Jury exams are held at the end of each semester to assess individual progress. To determine specific jury requirements for their area, students should contact their advisor.

## Recital Participation

Each music education, performance, and pedagogy major is encouraged to appear in a departmental recital each semester. Four such appearances are required for graduation. Since junior and senior recital requirements vary, students should consult program advisors and degree requirement sheets for specific information.

## Piano Proficiency Requirements

Music, Music Education, and Music Therapy majors must meet a minimum standard of piano proficiency before graduation. The specific requirements are detailed in the department's *Student Handbook*.

## Music Theory Proficiency

Music, Music Education, and Music Therapy majors must meet a minimum standard of theory proficiency before entering third-year core music courses. This theory exam is administered upon completion of the theory sequence and is also required for all transfer students. It serves as a placement exam for those who have not completed the theory sequence at their previous schools. For details, contact the Music Department Student Services Office, (435) 797-3015, Fine Arts 102.

## Assessment

Information about the ongoing assessment of the Music Department can be found at: <http://music.usu.edu/assessment.aspx>

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information and Updates

Degree requirements are listed on the Music Major Requirement Sheet and the Music Therapy Major Requirement Sheet, which can be obtained from the department, or online at: <http://www.usu.edu/majorsheets/>

Additional requirements, including appropriate sequencing of courses, are listed in the *Department of Music Student Handbook*. For the most recent information regarding degree requirements and course sequencing, contact advisors over specific programs. Further information can also be obtained by contacting the Music Department Office, Fine Arts 102, or by visiting the department's website.

## Financial Support

Scholarships, grants, and work-study programs are available through the University. Information about these programs can be obtained by calling the Admissions Office, (435) 797-1129 or 1-800-488-8108. In addition, the Department of Music offers talent-based scholarships to undergraduate students and employs students as part-time workers. For scholarship information or to arrange an audition, contact the department at (435) 797-3015 or visit the department's website.

## Graduate Programs

### Master of Music Degree

The Music Department offers a Master of Music (MM) degree, with a specialization in Piano Performance and Pedagogy. The MM degree integrates instruction in piano pedagogy with advanced levels of piano performance, preparing graduates who will offer piano instruction from private studios, as well as those who will teach in a college environment. Graduates of this program will also be equipped to pursue Doctor of Musical Arts degrees at other institutions. Students in the program must complete a minimum of 36 approved semester credits, divided into three main areas: (1) 12 credits in performance, (2) 12 credits in pedagogy, and (3) 12 credits in history and theory. Selected students will be offered graduate instructorship positions.

To qualify for admission to the MM program, applicants must have a bachelor's degree in any field of study, with a GPA of at least 3.0. Students must have scores on the verbal and *either* the quantitative *or* analytical portions of the Graduate Record Examination (GRE) at or above the 40th percentile. International applicants must take the Test of English as a Foreign Language (TOEFL) and earn a minimum score of 213. Three satisfactory letters of recommendation are also required. An audition and interview is required for admission to the degree. If a live audition is impractical, applicants may send an audiovisual recording demonstrating their level of proficiency with regard to both piano performance and teaching. Candidates will also be required to pass diagnostic examinations in music theory and music history, ensuring their preparation for graduate-level study in these fields.

## Music Faculty

### Professors

*Gary Amano*, piano  
*Michael L. Ballam*, opera  
*Michael K. Christiansen*, guitar program  
*Todd L. Fallis*, instrumental music education, student advising, low brass  
*Craig D. Jessop*, choral/orchestral conducting  
*Nicholas E. Morrison*, clarinet, associate director of bands

### Professors Emeritus

*Warren L. Burton*, introduction to music  
*Max F. Dalby*, bands, woodwind, conducting  
*Glen A. Fifield*, elementary music, cornet and trumpet  
*Larry G. Smith*, jazz program, musicianship program, staff arranger, saxophone, jazz piano  
*Alvin Wardle*, music education, low brass

### Associate Professors

*Cindy J. Dewey*, voice, opera, pedagogy, diction  
*Mark A. Emile*, string performance and pedagogy, violin/viola  
*Lynn Jemison-Keisker*, opera, repertory, diction  
*Thomas Rohrer*, director of bands  
*Bruce M. Saperston*, music therapy  
*Leslie Timmons*, elementary music education, flute

### Associate Professor Emeritus

*Mildred Johnson*, music history and literature, musicianship program, viola

### Assistant Professors

*Sergio Bernal*, orchestra conductor, string program  
*R. Cory Evans*, choral music  
*Jason Gamer*, theory, trumpet  
*Jon Gudmundson*, jazz, saxophone  
*R. Dennis Hirst*, piano, Youth Conservatory  
*Christopher Scheer*, music history, world music

### Assistant Professor Emeritus

*Betty Beecher*, piano

### Lecturers (Fry Street Quartet)

*Russell Fallstad*, viola  
*William Fedkenheuer*, violin  
*Anne Francis*, cello  
*Rebecca McFaul*, violin

## Course Descriptions

Music (MUSC), pages 610-618

# Certificate Program in National Environmental Policy Act (NEPA)

**Director:** Joanna Endter-Wada,  
Department of Environment and Society  
**Location:** Natural Resources 355B  
**Phone:** (435) 797-0922  
**FAX:** (435) 797-3526  
**E-mail:** joanna.endter-wada@usu.edu  
**WWW:** <http://www.cnr.usu.edu/policy/>

**Program Administrator:** Judith A. Kurtzman, Natural Resources 322,  
(435) 797-0922

## Graduate Program Description

The Department of Environment and Society at Utah State University and the Shipley Group, Inc. have formed a partnership to provide a graduate-level certificate program that offers training related to the National Environmental Policy Act (NEPA). NEPA is an important environmental law that requires analysis of impacts, alternatives, and mitigation measures for all major federal actions affecting the environment, both within the territorial boundaries of the U.S. and at foreign military installations. Government agencies, private businesses, public interest organizations, and other groups involved in the NEPA process need individuals who have been trained in decision-making, analysis, and documentation aspects of NEPA, as well as in the accompanying Council on Environmental Quality (CEQ) regulations and various agencies' NEPA implementing procedures.

The NEPA Certificate Program was designed to prepare natural resource and environmental professionals to meet the challenges of complying with the act and working effectively on NEPA documents. Participants who successfully complete the program should have a solid understanding of both the spirit and the letter of the law, and will be more effective members of interdisciplinary teams responsible for developing NEPA documents.

## Certificate

Students who complete the program will receive a graduate-level certificate in the National Environmental Policy Act. Their Utah State University transcript will list the courses they attended to complete the program.

## Admission Requirements

To apply and gain acceptance into the program, a person must complete and submit a NEPA Certificate Program application form to the Department of Environment and Society at USU, as well as provide a transcript documenting the completion of a bachelor's degree. Students pursuing the NEPA Certificate are not required to be enrolled in a graduate degree program. However, credits obtained from the program may be applied toward a graduate degree.

## Course Requirements

To receive the certificate, a participant must complete the following set of requirements:

1. apply and be accepted into the NEPA Certificate Program;
2. register for and successfully complete seven graduate-level courses taken for grades (four required courses and three elective courses);
3. undertake an individual capstone experience for graduate credit that involves a negotiated project;
4. maintain a minimum 3.0 GPA for program courses (grades below C will not be accepted);
5. abide by the *Code of Policies and Procedures for Students at Utah State University*.

## NEPA Certificate Program Courses

Courses for the program will be offered at USU and at other locations around the country. Courses will be offered on a short-course basis through Continuing Education. A two-credit course requires a minimum of three full days in class; a one-credit course requires two full days in class. To receive graduate credit that can be applied toward completion of the certificate, all NEPA courses must be taken for a letter grade, which requires completion of a written examination in addition to class attendance. All courses offered as part of the NEPA Certificate Program may be taken for University graduate credit, whether or not a participant in the course is enrolled in the NEPA Certificate Program.

## Curriculum

Students must complete four core courses (2 credits each), three elective courses (1 credit each), and a capstone experience (1 credit) in order to fulfill the requirements for the NEPA Certificate.

## Core Courses

Participants are required to take four of the following courses. The first three listed are required. However, participants may choose between the last two courses to fulfill the core course requirements.

<b>NEPA 6200</b> How to Manage the NEPA Process and Write Effective NEPA Documents .....	2
<b>NEPA 6210</b> Clear Writing for NEPA Specialists .....	2
<b>NEPA 6220</b> Reviewing NEPA Documents .....	2
<b>NEPA 6230</b> Risk Communication for NEPA Specialists: Strategies and Implementation .....	2
<b>NEPA 6260</b> Cultural and Natural Resource Management .....	2

## Elective Courses

Participants are required to take three courses of their choosing from the following list.

<b>NEPA 6270</b> Environmental Compliance Overview .....	1
<b>NEPA 6280</b> Interdisciplinary Team Building .....	1
<b>NEPA 6300</b> Effective Environmental Contracting .....	1
<b>NEPA 6310</b> NEPA Writing for Technical Specialists .....	1
<b>NEPA 6320</b> NEPA: Cumulative Impacts .....	1
<b>NEPA 6330</b> Conflict Management in the NEPA Process .....	1
<b>NEPA 6350</b> Socio-economic Impact Analysis for NEPA Specialists .....	1
<b>NEPA 6360</b> Overview of the Endangered Species Act .....	1
<b>NEPA 6380</b> NEPA Process Management .....	1
<b>NEPA 6390</b> NEPA Climate Change Analysis .....	1

# Certificate Program in National Environmental Policy Act (NEPA)

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## Capstone Experience

After completing the coursework, participants are required to complete a NEPA Capstone Experience (NEPA 6370) before being awarded the NEPA Certificate. This experience will be individualized for each participant, will consist of a project that has been negotiated between the participant and the program faculty, and may be subject to oversight from the NEPA Certificate Program Advisory Board.

## Course Descriptions

National Environmental Policy Act (NEPA), pages 618-619

# Natural Resources and Environmental Education Graduate Certificate

**Director:** Steven W. Burr, Environment and Society  
**Location:** Biology-Natural Resources 289  
**Phone:** (435) 797-7094  
**E-mail:** steve.burr@usu.edu

**Program Office:** Department of Environment and Society  
**Location:** Natural Resources 201  
**Phone:** (435) 797-1790  
**FAX:** (435) 797-4048  
**WWW:** <http://www.cnr.usu.edu/departments/envs/>

## Graduate Program Description

The Natural Resources and Environmental Education (NREE) Program offers an Interdisciplinary Graduate Certificate Program to provide graduate students with a comprehensive educational foundation for understanding and communicating natural resources and environmental information, and for developing the analytical skills needed to effectively implement appropriate environmental education and communication techniques for varying audiences. The NREE Certificate Program is administered by the Department of Environment and Society, College of Natural Resources. The certificate program consists of three components, for a total of 15-17 credits: (1) the NREE Core that includes two foundation courses, a NREE graduate seminar, and an "integrating" capstone experience; (2) one Human Dimensions of Natural Resources/Environment course; and (3) one Natural Resources/Environmental Management course.

The purpose of the certificate is to meet an identified need expressed by graduate students with interests in working professionally in the field of natural resources and environmental education and interpretation. The certificate program provides an interdisciplinary perspective on environmental education, and provides graduate students with the ability to teach people how to think critically and creatively in understanding, interpreting, and dealing with environmental issues and challenges. This approach enables students to focus on a broad spectrum of issues and content related to natural resources and the environment.

The structure of the certificate program emphasizes: (1) processes and skills necessary to present and integrate information across a broad spectrum of delivery systems; (2) interdisciplinary information and technical content across many areas, including natural resources, ecology, human resources, history, education, sociology, etc.; and (3) development of an interest area of personal/professional inquiry. The program provides a mechanism to support graduate student project development and research, emphasizing scholarship, discovery, and application of findings in applied settings in order to contribute to the professional field of natural resources and environmental education and interpretation.

Completion of the certificate program will provide graduate students with a working knowledge of the depth and breadth of the professional field of environmental education and interpretation. Moreover, it will prepare them for a job market demanding innovative and creative approaches for incorporating environmental education and interpretation in natural resource management agencies, in both formal (K-12 school-based) and nonformal (youth, community, and outdoor) education programs, in nonprofit organizations, and in the for-profit commercial sector. Although professionals working in natural resources and environmental education may work in a wide range of settings, they share one objective: to help people appreciate and understand the relationship between humans and the natural world around them. Thus, the value of the NREE Certificate Program goes far beyond more traditional approaches associated with education-oriented certificate programs.

## Certificate

Students who complete the program receive a certificate in Natural Resources and Environmental Education. Notification of this certificate appears on the student's transcript.

## Admission Requirements

To apply for admittance into the NREE Interdisciplinary Graduate Certificate Program, a graduate student must: (1) be accepted by the School of Graduate Studies at Utah State University for graduate study (current or provisional), (2) complete an NREE Interdisciplinary Graduate Certificate Program Application, and (3) submit a resume with references, along with a narrative describing personal interest in completing the NREE Certificate Program with respect to his or her professional goals. The NREE Program Director reviews the application and makes a recommendation for admittance into the certificate program, if appropriate, to the NREE Certificate Advisory Committee.

## Student Advisement

An NREE Certificate Advisory Committee, comprised of the NREE Program Director, NREE Program Associate, and two NREE-affiliated faculty from participating departments and colleges, will assist in reviewing graduate student applications for admission into the certificate program, identifying major advisors, identifying funding opportunities, recommending courses to meet the NREE Certificate requirements, and advising graduate students. Graduate students accepted into the NREE Certificate Program will work with their major faculty advisor, as well as with the NREE Certificate Advisory Committee, to support them in understanding and meeting the requirements of the NREE Graduate Certificate Program.

## Course Requirements

The NREE Interdisciplinary Graduate Certificate Program consists of three curriculum components, for a total of 15-17 credits: (1) the NREE Core, (2) one Human Dimensions of Natural Resources/Environment course, and (3) one Natural Resources/Environmental Management course. Many of the identified courses in the latter two categories will also satisfy the requirements for a specific degree program in different departments. Therefore, students can select courses in these two categories to complete their specific degree requirements, while at the same time satisfying the requirements of the NREE Certificate Program.

### I. Natural Resources and Environmental Education Core Courses (10 credits)

For the NREE Interdisciplinary Graduate Certificate Program, students are required to take the following two foundation courses, participate in the Graduate Seminar, and complete an "integrating" capstone experience, for a total of 10 credits, to fulfill the requirements of the NREE Graduate Certificate Program Core.

#### NREE Graduate Core: Foundation Courses

ENVS 5110 Environmental Education (Sp).....	3
ENVS 6600 Advanced Natural Resource Interpretation (F).....	3

# Natural Resources and Environmental Education Graduate Certificate

The Environmental Education course and the Advanced Natural Resource Interpretation course serve as Foundation Courses. Environmental Education covers teaching about the environment, as well as using the environment and natural world to teach other subjects, with a strong emphasis on participation and on practicing techniques. Advanced Natural Resource Interpretation examines the planning processes, techniques, and evaluation procedures for using information and education to influence human behavior and increase benefits to visitors in natural settings, and also focuses on the leadership of teams involved in producing personal and nonpersonal interpretive programs and materials.

## Graduate Seminar

**ENVS 6800** Environment and Society Departmental Seminar (F or Sp)..... 1

The Graduate Seminar requires student attendance at a number of different speaker seminars, occurring during the fall or spring semester, that are related to NREE, along with occasional meetings with NREE affiliated faculty to discuss connections and relevance of the seminars to NREE.

## Capstone Experience

Students must complete 3 credits in a capstone experience, developed in consultation with a faculty advisor. Credits may be completed in the following types of courses:

Graduate Internship/Co-op  
 Graduate Special Topics  
 Graduate Directed Study  
 Thesis Research  
 Dissertation Research

The Capstone Experience requirement may be fulfilled in a number of ways, based on each student's interest, through an internship/co-op/special field experience, an investigation of a special topic and/or development of a project, directed readings/study, or a research project. In meeting this requirement, it will be important for students to be able to demonstrate they are getting an "integrating" capstone experience in natural resources and environmental education. Depending on the topic and its relationship to natural resources and environmental education, the completion of a student's Plan A thesis or Plan B project at the master's level may also fulfill this requirement. A student's doctoral dissertation research may qualify as a Capstone Experience. The student's graduate advisor, graduate committee, and NREE Advisory Committee will approve the "capstone" experience. A final "integrative" paper or thesis/dissertation will be the product for the "capstone" experience, emphasizing scholarship and discovery, as well as application of findings in applied settings in natural resources and environmental education.

## II. Human Dimensions of Natural Resources/Environment Courses (2-3 credits)

For the NREE Interdisciplinary Graduate Certificate Program, students are required to take **one** of the following courses, in order to gain a human dimensions' orientation toward natural resources and the environment, and help place natural resources and environmental education in a broader context of human-environment relationships.

**APEC 5560** Natural Resource and Environmental Economics..... 3  
**ENVS 5300** Natural Resources Law and Policy..... 2  
**ENVS 5320** Water Law and Policy in the United States..... 3  
**ENVS 5640** Conflict Management in Natural Resources ..... 3  
**ENVS 6000** Theoretical Foundations in Human Dimensions of Ecosystem Science and Management ..... 3

**ENVS 6110** Fisheries and Wildlife Policy and Administration..... 3  
**HIST 6460** Seminar in Environmental History ..... 3  
**PHIL 5510** Ethics and the Environment ..... 3  
**POLS 5180** Natural Resource Policy ..... 3  
**POLS 5200** Global Environment ..... 3  
**SOC 6620** Environment, Technology, and Social Change ..... 3  
**SOC 6630** Natural Resources and Social Development..... 3

There may be another course that can satisfy this requirement, but the course will need to be approved by the student's graduate advisor and the NREE Advisory Committee.

## III. Natural Resources/Environmental Management Courses (3-4 credits)

For the NREE Interdisciplinary Graduate Certificate Program, students are required to take **one** of the following courses in order to gain a management perspective toward natural resources and the environment.

**ADVS 5030** Sustainable Agricultural Production Systems with Animals..... 3  
**ENVS 5000** Collaborative Problem-Solving for Environment and Natural Resources..... 3  
**ENVS 5570** Sustainable Living..... 3  
**PLSC 5550/6550** Weed Biology and Control ..... 4  
**SOIL 5350/6350** Wildland Soils..... 3  
**WATS 5150/6150** Fluvial Geomorphology ..... 3  
**WATS 5330/6330** Large River Management..... 3  
**WATS 5640/7640** Riparian Ecology and Management ..... 3  
**WATS 5660** Watershed and Stream Restoration ..... 2  
**WATS 6530** Water Quality and Pollution ..... 3  
**WATS 6650** Principles in Fishery Management ..... 3  
**WILD 5000** Predator Ecology and Management..... 3  
**WILD 5070/6070** Range Wildlife Relations ..... 3  
**WILD 5300/7300** Wildlife Damage Management Principles..... 3  
**WILD 7000** Theory and Applications of Rangeland Ecosystem Management ..... 3

There may be another course that can satisfy this requirement, but the course will need to be approved by the student's graduate advisor and the NREE Advisory Committee.

## IV. Personal/Professional Inquiry

Although not formally required, a number of courses exist that can support students' interest in natural resources and environmental education, and support student efforts in completing individual degree requirements. These courses include the following:

**ASTE 5260/6260** Environmental Impacts of Agricultural Systems..... 3  
**ASTE 6070** Program and Curriculum Development in Career and Technical Education..... 3  
**ASTE 6110** Applied Technology Education Program Planning and Evaluation..... 3  
**ASTE 6170** Supervision and Administration of International Extension Programs ..... 3  
**ASTE 6240** Strategies for Teaching Adults ..... 3  
**BIOL 5550** Freshwater Invertebrates ..... 3  
**BIOL 5560** Ornithology..... 3  
**BIOL 5570** Herpetology..... 3  
**BIOL 5580** Mammalogy ..... 3  
**BIOL 6510** Insect-Plant Interactions ..... 2  
**ELED 6700** Improvement of Science Instruction..... 3  
**ENGL/HIST 6610** Seminar on the American West..... 3-4  
**ENGL/HIST 6620** Seminar in Native American Studies..... 3-4  
**ENGL/HIST 6730** Public Folklore..... 3

# Natural Resources and Environmental Education Graduate Certificate

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ENGL/HIST 6740 Folk Narrative.....	3
ENGL/HIST 6760 Cultural and Historical Museums.....	3
GEOG 5650 Developing Societies.....	3
HIST 6460 Seminar in Environmental History.....	3
LAEP 5400/6400 Low Water Landscaping.....	3
LAEP 6110 Landscape Planning for Wildlife.....	3
MGT 6620 Training and Organizational Development.....	3
MGT 6650 Team and Interpersonal Effectiveness.....	3
PLSC 5100/6100 Landscape Irrigation Management.....	3
POLS 5180 Natural Resource Policy.....	3
PSY 6660 Cognition and Instruction.....	3
PSY 7700 Grant Writing.....	3
SCED/ELED 6150 Foundations of Curriculum.....	3
SCED/ELED 6310 Content Area Reading and Writing.....	3
SPCH 5250 Environmental Rhetoric.....	3
THEA 6030 Storytelling.....	3

## NREE Affiliated Faculty

### Professors

*Mark W. Brunson*, Environment and Society  
*Melody Graulich*, English  
*Michael R. Kuhns*, Wildland Resources  
*Terry L. Sharik*, Wildland Resources  
*Gary S. Straquadine*, Agricultural Systems Technology and Education  
*Richard E. Toth*, Environment and Society

### Associate Professors

*James J. Barta*, Elementary Education  
*Steven W. Burr*, Environment and Society  
*Christopher A. Call*, Wildland Resources  
*Christopher A. Conte*, History  
*Nancy O. Mesner*, Watershed Sciences  
*Rebecca M. Monhardt*, Elementary Education  
*Jan E. Roush*, English  
*Robert H. Schmidt*, Environment and Society

### Assistant Professors

*Christopher Cokinos*, English  
*Michael Dietz*, Environment and Society  
*Christopher Monz*, Environment and Society  
*Jennifer A. Peeples*, Languages, Philosophy, and Speech  
Communication  
*Bonnie L. Pitblado*, Sociology, Social Work and Anthropology

### Senior Lecturer

*Michael F. Butkus*, Environment and Society

### Lecturers

*Barbara Middleton*, Environment and Society  
*Susan K. Morgan*, Geology

### Other Affiliated Individuals

*David T. Anderson*, Project Director, Utah Botanical Center  
*Darren J. McAvoy*, Extension Program Associate, Wildland Resources  
*Jack Shea*, Director, Teton Science School  
*Debra M. Spielmaker*, Director, Utah Agriculture in the Classroom  
*Karla VanderZanden*, Director, Canyonlands Field Institute

# Master of Natural Resources (MNR)

**Degree Coordinator:** Judith A. Kurtzman

**Location:** Natural Resources 322

**Phone:** (435) 797-0922

**FAX:** (435) 797-4048

**E-mail:** judy.kurtzman@usu.edu

**WWW:** <http://www.cnr.usu.edu/htm/students/grad-students/mnr/>

**Degree offered:** Master of Natural Resources (MNR)

## Objectives

The Master of Natural Resources (MNR) is a nonthesis, management-oriented degree designed specifically for natural resource professionals who are returning to school to advance their careers. The MNR prepares students to work in the interdisciplinary context of the twenty-first century. The MNR focuses on core areas important for natural resource professionals. Input from state and federal agencies, as well as from other professionals, has helped in the development of a degree program preparing students for the challenges of the future.

## Admission Requirements

All students must be admitted into USU's School of Graduate Studies, following standard procedures and policies.

To be accepted into the MNR program, students must *either* have a bachelor's degree in a natural resources related field *or* must have demonstrated work experience in natural resources. Students accepted into the program may be required to fulfill prerequisites.

The degree is administered by the College of Natural Resources, rather than through any of the departments within the college. Prior to applying to the program, applicants are encouraged to contact the degree coordinator directly.

## Course Requirements

The MNR degree program consists of 33 total semester credits. The degree is designed to develop competencies in several core areas, several electives, and a capstone experience. The MNR is tailored to the specific needs of each student. Students may choose the specific courses that meet core area requirements, as well as choose from a set of electives. Each student works with a degree coordinator and a graduate committee to identify a program of study that best meets his or her needs.

Core areas include:

1. Ecological foundations
2. Human dimensions of natural resource management
3. Natural resource policy
4. Natural resource economics
5. Quantitative methods
6. Spatial information management
7. Administration and leadership

The capstone experience is also tailored to each specific student's career objectives. Through this capstone experience, each student demonstrates the ability to apply and synthesize the knowledge gained through the MNR program.

## Modes of MNR Delivery

Since flexibility is necessary for people with busy lives and full-time jobs, the MNR is available through several different delivery modes: entirely online, through short-courses, in a traditional classroom setting, or through a combination of these delivery options, in order to best meet the student's needs.



# Cooperative Nursing Program

**Coordinator:** Jonny Kelly  
**Location:** Lundberg Building 201  
**Phone:** (435) 797-1515  
**FAX:** (435) 797-3649  
**E-mail:** jon.kelly@aggiemail.usu.edu  
**WWW:** <http://weber.edu/nursing/>

**Advisor:**  
Doug Watson, (801) 626-6128 or (800) 350-7042 (Utah only),  
healthprofessions@weber.edu

## Undergraduate Programs

### Associate of Science Degree Program Objectives

Weber State University and Utah State University jointly offer an Associate of Science degree in Nursing at Logan.

All nursing theory, University Studies, and laboratory practice classes are offered on the Utah State University campus and in health service agencies in Northern Utah.

Weber State University admits the prospective student and grants the Associate of Science degree upon the student's completion of the course. The student participates in graduation ceremonies held on the Weber State University campus.

A graduate of this program is eligible to write the State Board licensing examination to become a registered nurse. The program is accredited by the Utah State Board of Nursing and the National League of Nursing Accrediting Commission.

Students admitted to the program have the prerogative of taking the licensing examination for Practical Nursing upon an equivalency basis with the completion of the first year's course of studies.

### Departmental Admission Requirements for Associate of Science Degree Program

Admission into the Cooperative Nursing Program is selective. To ensure quality clinical placement, a limited number of students are accepted into the program each year. Applications are accepted once a year and are available online or in-person after October 1. Students must complete the application process by February 1.

Applications are reviewed by the Weber State University Nursing Program admissions and advancement committee. A point system is used to facilitate candidate selection. Applications received by January 15 will earn extra points. Support courses will be evaluated, but points will not be awarded for courses already in-progress during the semester in which an application is received. Students will be notified of acceptance into the program by April 15.

## Utah State University Pre-Nursing Program

Initially, many students are admitted into Utah State University to take their general education and supporting science courses, in order to become competitive applicants for the Weber State RN program on the Logan campus. Students must attain a minimum GPA of 3.0 in order to apply to the WSU Nursing Program.

All pre-nursing students should subscribe to the Pre-Nursing E-mail List. The purpose of this list is to keep pre-nursing students informed about meetings and activities which will support their progress toward admission into an RN program in Utah. To subscribe, visit: [http://lists.usu.edu/mailman/listinfo/pre-nursing\\_list](http://lists.usu.edu/mailman/listinfo/pre-nursing_list)

**USU Pre-Nursing Advisor:** Yvonne Kobe, (435) 797 2577,  
yvonne@biology.usu.edu

## Graduation Requirements

### Associate of Science Degree in Nursing (Weber State University) (3.0 overall GPA minimum)

Students must complete all prerequisite courses listed *before* beginning fall nursing classes. A grade of C or better must be achieved in each of these courses in order for the student to remain in the Nursing Program.

#### First Year

##### Summer Semester (or prior college credit)

BIOL 2320 Human Anatomy .....	4
BIOL 2420 Human Physiology .....	4
CHEM 1110 (BPS) General Chemistry I (Prereq: MATH 1050) .....	4
Quantitative Literacy (QL) course .....	3
Breadth Humanities (BHU) elective course .....	3

**Mathematics Requirement.** For information about the mathematics requirement, students should refer to their admission packet.

#### Fall Semester

BIOL 1100 Introduction to Microbiology (Home Study only) (3 cr) or	
BIOL 2060 Elementary Microbiology (4 cr) .....	3 or 4
NFS 1020 (BLS) Science and Application of Human Nutrition .....	3
NURS 1030 Foundations of Nursing Practice .....	3
NURS 1031 Foundations of Nursing Practice Clinical .....	3
NURS 1050 Treatment Modalities .....	3

#### Spring Semester

PSY 1010 (BSS) General Psychology .....	3
HS 2230 Introductory Pathophysiology .....	3
NURS 1040 Women's Health and the Childbearing Family .....	2
NURS 1041 Women's Health and the Childbearing Family Clinical .....	1
NURS 1045 Nursing Care of Adults and Children .....	3
NURS 1046 Nursing Care of Adults and Children Clinical .....	2

#### Second Year

##### Summer Semester

ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
Breadth Social Sciences (BSS)/Diversity	
elective course (SOC 1010) .....	3
Breadth Creative Arts (BCA) elective course .....	3
Computer and Information Literacy (CIL) competency exam	

# Cooperative Nursing Program

## Fall Semester

<b>ENGL 2010 (CL2)</b> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
<b>NURS 2050</b> Treatment Modalities .....	2
<b>NURS 2070</b> Nursing Care of Adults and Children II .....	3
<b>NURS 2071</b> Nursing Care of Adults and Children II Clinical .....	4
Breadth American Institutions (BAI) elective course.....	3

## Spring Semester

<b>NURS 2060</b> Psychiatric/Mental Health Nursing .....	2
<b>NURS 2061</b> Psychiatric/Mental Health Nursing Clinical.....	1
<b>NURS 2080</b> Patient Care Management .....	2
<b>NURS 2081</b> Patient Care Management Clinical.....	3
Breadth Humanities (BHU) elective course.....	3

## Additional Information

For detailed information about course requirements for the Associate of Science degree in Nursing, see the major requirement sheet, available from the Nursing Program, or online at:

<http://www.usu.edu/majorsheets/>

## Course Descriptions

Nursing (NURS), pages 623-624

Health Sciences (HS), page 581

# Department of Nutrition and Food Sciences

**Department Head:** Charles E. Carpenter  
**Location:** Nutrition and Food Sciences 213  
**Phone:** (435) 797-2126  
**FAX:** (435) 797-2379  
**E-mail:** marlene.israelsen@usu.edu  
**WWW:** <http://nfs.usu.edu/>

## Undergraduate Advisor:

Marlene Israelsen, Nutrition and Food Sciences 222,  
(435) 797-2131

**Degrees offered:** Bachelor of Science (BS), Master of Science (MS), and Doctor of Philosophy (PhD) in Nutrition and Food Sciences; Master of Food Microbiology and Safety (MFMS); Master of Dietetics Administration (MDA)

**Undergraduate emphases:** BS—Food Science, Food Technology Management, Nutrition Science, Biotechnology, and Dietetics

**Graduate specializations:** MS, PhD—Dietetics, Food Biotechnology, Food Chemistry, Food Engineering, Food Microbiology, Food Processing, Human Nutrition, and Nutrient Metabolism

## Undergraduate Programs

### Objectives

The Department of Nutrition and Food Sciences has the following three objectives:

1. To provide students with the scientific/academic background necessary to function well in further academic pursuits or future work environments.
2. To provide students with the critical thinking and problem solving skills necessary to enhance further academic pursuits or future work environments.
3. To provide students with practical application and work experience credentials to provide personal and employment satisfaction.

### Program Emphases and Career Opportunities

#### Food Science

A degree in the Food Science emphasis applies principles of engineering, biology, and physical science to food. Students in this discipline focus on the production, selection, preservation, processing, packaging, distribution, and use of safe, nutritious, and wholesome food. Graduates receive an excellent background in chemistry, engineering, food processing, microbiology, sensory evaluation, and statistics. Students planning to apply to graduate school are encouraged to major in Food Science instead of Food Technology Management. The Food Science program is approved by the Institute of Food Technologists.

#### Food Technology Management

The Food Technology Management emphasis gives students a broad background in basic food science and in business administration to be applied to the business-oriented aspects of the food industry. Students also have the option of *either* a **Business Minor** or an **Operations Management Minor** through the Huntsman School of Business. Graduates are sought by private food industry and public institutions in management positions.

#### Nutrition Science

The Nutrition Science emphasis is for students who are interested in studying the molecular and cellular aspects of human health and disease. This is a multi-disciplinary program in which students learn to apply techniques from the fields of molecular and cellular biology, physiology, genetics, and biochemistry to issues in nutrition. Students will gain experience in laboratory, clinical, and epidemiological methods, and may have the opportunity to gain laboratory research experience in nutrition studies being conducted by faculty members. The undergraduate Bachelor of Science degree qualifies a student with the Nutrition Science emphasis to find employment in industry or academic laboratories, as well as in government agencies. It can also be used as preparation for medical or graduate school.

The **Nutrition Science Pre-Medical School** option is for students planning to pursue medical school, dental school, or another professional degree. The curriculum is based on undergraduate admission requirements for the University of Utah Medical School and meets most medical school admission requirements. Because nutrition is an applied science and offers research opportunities, completing a degree in this emphasis area may give students an advantage for admission to medical school, over applicants representing other science majors.

#### Biotechnology

The Biotechnology emphasis gives students a specialized background in biotechnology with depth training in either **Food Science** or **Nutrition Science**. Graduates of the program will be well-qualified to pursue biotechnology-related positions related to their depth area of choice.

#### Dietetics

Students in the Dietetics emphasis prepare to become Registered Dietitians (RDs) and receive excellent instruction and experience in clinical nutrition, community nutrition, and food service management. USU offers two programs in Dietetics—the **Coordinated Program in Dietetics (CPD)** and the **Didactic Program in Dietetics (DPD)**. Both are accredited by the the Commission on Accreditation for Dietetics Education (CADE) of the American Dietetic Association, 20 South Riverside Plaza Suite 2000, Chicago IL 60606-6995, tel. (312) 899-0040.

The **CPD Program** includes coursework **and** a 1,200-hour supervised internship. The graduate is eligible to take the national registration exam to become an RD upon completion of the BS degree.

After completing requirements for a bachelor's degree, students in the **DPD Program** are eligible to apply for a supervised internship experience elsewhere. This includes the USU Distance Internship and others across the nation. Upon completion of a post-BS internship, graduates are eligible to take the national registration exam.

Admission into either Dietetics Program (CPD or DPD) requires formal application during spring semester of the sophomore year (or when prerequisite coursework is completed). Ten to twelve students are accepted into the CPD program each year and go through the program in unison. Other applicants who meet the minimum criteria for entry into the Dietetics Program (a GPA of 3.0 or higher and a grade of C or better in required prerequisite coursework) are eligible for entry into the DPD program. Selected applicants are expected to register for dietetics courses beginning the following fall semester.

**Completion of courses required for the Food Science Emphasis, Nutrition Science emphasis, or Dietetics emphasis may be suitable preparation for students planning to apply to medical school.**

# Department of Nutrition and Food Sciences

## Bachelor of Science Requirements

### Departmental Admission Requirements

Admission requirements for the Department of Nutrition and Food Sciences are the same as those described for the University on pages 30-35. Students in good standing may apply for admission to the department. Students planning to major in Nutrition and Food Sciences should take algebra, chemistry, and biology in high school.

### Graduation Requirements

All graduates from the department must have completed one of the five emphasis areas in the department and must meet the following minimum requirements:

1. Grade point average (GPA) must be 2.5 or higher in all courses required for the major.
2. A grade of C or better must be received in every required course offered through the department (i.e., courses having an NFS prefix).
3. Courses required for the major may be repeated *only once* to improve a grade, unless approved by the department head or program director.
4. Courses required for the major may not be taken as *Pass-D-Fail* credits.

## Minor in Food Sciences

Students with majors outside of the Nutrition and Food Sciences Department may graduate with a minor in Food Sciences by completing NFS 1020, 3070, 3110, 5020 (or 5030), and 5560 with a minimum cumulative GPA of 2.5 for these courses. Prerequisite courses must also be completed.

## Major and Emphasis Requirements

Specific requirements for each emphasis are listed below. Requirements change periodically, and sequence of courses is important.

### Food Science Emphasis

Courses followed by an asterisk (\*) are suggested for fulfilling University Studies Requirements.

#### Freshman Year

##### Fall Semester

CHEM 1210 Principles of Chemistry I .....	4
CHEM 1215 Chemical Principles Laboratory I .....	1
MATH 1050 (QL) College Algebra.....	4
NFS 1000 Food Science from Farm to Fork.....	3
USU 1340 (BSS)* Social Systems and Issues.....	3

##### Spring Semester

CHEM 1220 (BPS) Principles of Chemistry II .....	4
CHEM 1225 Chemical Principles Laboratory II .....	1
ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
MATH 1060 Trigonometry .....	2
NFS 1020 (BLS) Science and Application of Human Nutrition.....	3
USU 1300 (BAI)* U.S. Institutions.....	3

#### Sophomore Year

##### Fall Semester

BIOL 1610 Biology I .....	4
CHEM 2300 Principles of Organic Chemistry.....	3
CHEM 2315 Organic Chemistry Laboratory I .....	1
MATH 1210 (QL) Calculus I .....	4
NFS 3110 Food, Technology, and Health .....	3

##### Spring Semester

CHEM 3700 Introductory Biochemistry .....	3
CHEM 3710 Introductory Biochemistry Laboratory .....	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode .....	3
NFS 1250 Sanitation and Safety .....	3
NFS 3070 Science of Food Preparation.....	4
STAT 3000 (QI) Statistics for Scientists .....	3

#### Junior Year

##### Fall Semester

BIOL 3300 General Microbiology .....	4
NFS 5020 Meat Technology and Processing .....	4
NFS 5560 Food Chemistry .....	4
PHYS 2110 The Physics of Living Systems I .....	4

##### Spring Semester

NFS 3100 (QI) Sensory Evaluation of Food .....	3
NFS 5110 (CI) Food Microbiology .....	4
NFS 5500 (QI) Food Analysis.....	4
PLSC 4600 (QI) Cereal Science .....	3

#### Senior Year

##### Fall Semester

NFS 4440 (QI) Fundamentals of Food Engineering .....	4
NFS 5030 Dairy Technology and Processing.....	4
NFS 5250 Occupational Experiences in Nutrition and Food Sciences.....	2
NFS 5920 (CI) Food Product Development.....	3
USU 3330 (DHA)* Arts Symposium .....	2

##### Spring Semester

NFS 4990 Nutrition and Food Sciences Seminar.....	1
NFS 5510 Food Laws and Regulations.....	2
SPCH 3050 (DSS)* Technical and Professional Communication.....	3
USU 1320 (BHU)* Civilization: Humanities .....	3
USU 1330 (BCA)* Civilization: Creative Arts.....	3

## Food Technology Management Emphasis with Business Minor

Food Technology Management students must also fulfill requirements for a minor in *either* Business *or* Operations Management. The following four-year plan includes all courses required for a Business Minor.

Courses followed by an asterisk (\*) are suggested for fulfilling University Studies Requirements.

#### Freshman Year

##### Fall Semester

CHEM 1110 (BPS) General Chemistry I.....	4
MATH 1050 (QL) College Algebra.....	4
NFS 1000 Food Science from Farm to Fork.....	3
USU 1340 (BSS)* Social Systems and Issues.....	3

# Department of Nutrition and Food Sciences

## Spring Semester

CHEM 1115 General Chemistry Laboratory .....	1
CHEM 1120 (BPS) General Chemistry II .....	4
MATH 1100 (QL) Calculus Techniques .....	3
NFS 1020 (BLS) Science and Application of Human Nutrition.....	3
USU 1300 (BAI)* U.S. Institutions.....	3

## Sophomore Year

### Fall Semester

BIOL 2060 Elementary Microbiology.....	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
NFS 1240 Culinary Basics.....	3
USU 1320 (BHU)* Civilization: Humanities .....	3
USU 1330 (BCA)* Civilization: Creative Arts.....	3

### Spring Semester

ACCT 2010 <sup>1</sup> Survey of Accounting I.....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
NFS 1250 Sanitation and Safety .....	3
NFS 3070 Science of Food Preparation.....	4
STAT 3000 (QI) Statistics for Scientists .....	3

## Junior Year

### Fall Semester

MGT 3110 (DSS) <sup>1</sup> Managing Organizations and People.....	3
MGT 3500 <sup>1</sup> Fundamentals of Marketing.....	3
NFS 5020 Meat Technology and Processing .....	4
NFS 5560 Food Chemistry.....	4

### Spring Semester

NFS 3100 (QI) Sensory Evaluation of Food.....	3
NFS 5110 (CI) Food Microbiology .....	4
NFS 5500 (QI) Food Analysis.....	4
NFS 5510 Food Laws and Regulations.....	2
SPCH 3050 (DSS)* Technical and Professional Communication.....	3

## Senior Year

### Fall Semester

NFS 4440 (QI) Fundamentals of Food Engineering .....	4
NFS 5030 Dairy Technology and Processing.....	4
NFS 5250 Occupational Experiences in Nutrition and Food Sciences .....	2
NFS 5920 (CI) Food Product Development.....	3

### Spring Semester

FIN 3400 (QI) <sup>2</sup> Corporate Finance (3 cr) or PFP 3460 <sup>2</sup> Fundamentals of Personal Investing (3 cr).....	3
NFS 4990 Nutrition and Food Sciences Seminar.....	1
USU 3330 (DHA)* Arts Symposium .....	2
Business Minor elective courses <sup>3</sup> .....	6

<sup>1</sup>This course is required as part of the Business Minor.

<sup>2</sup>Students must complete *either* FIN 3400 *or* PFP 3460 as part of the Business Minor.

<sup>3</sup>Choose 6 credits from the *Business Minor Elective Courses*, shown below.

## Business Minor Elective Courses

Students must select two of the following courses:

ACCT 2020 Survey of Accounting II (F,Sp,Su).....	3
ECN 3400 (DSS) International Economics for Business (F,Sp,Su).....	3
MGT 2050 Legal and Ethical Environment of Business (F,Sp,Su).....	3
MGT 3700 Operations Management (F,Sp,Su).....	3
MIS 2100 Principles of Management Information Systems (F,Sp,Su).....	3

## Food Technology Management Emphasis with Operations Management Minor

Food Technology Management students must also fulfill requirements for a minor in *either* Business *or* Operations Management. The following four-year plan includes all courses required for an Operations Management Minor.

Courses followed by an asterisk (\*) are suggested for fulfilling University Studies Requirements.

## Freshman Year

### Fall Semester

CHEM 1110 (BPS) General Chemistry I.....	4
MATH 1050 (QL) College Algebra.....	4
NFS 1000 Food Science from Farm to Fork.....	3
USU 1340 (BSS)* Social Systems and Issues.....	3

### Spring Semester

CHEM 1115 General Chemistry Laboratory .....	1
CHEM 1120 (BPS) General Chemistry II .....	4
MATH 1100 (QL) Calculus Techniques .....	3
NFS 1020 (BLS) Science and Application of Human Nutrition.....	3
USU 1300 (BAI)* U.S. Institutions.....	3

## Sophomore Year

### Fall Semester

BIOL 2060 Elementary Microbiology.....	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
NFS 1240 Culinary Basics.....	3
STAT 3000 (QI) Statistics for Scientists .....	3
USU 3330 (DHA)* Arts Symposium .....	2

### Spring Semester

MGT 3500 <sup>4</sup> Fundamentals of Marketing.....	3
MGT 3700 <sup>4</sup> Operations Management.....	3
NFS 1250 Sanitation and Safety .....	3
NFS 3070 Science of Food Preparation.....	4
USU 1330 (BCA)* Civilization: Creative Arts.....	3

## Junior Year

### Fall Semester

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode .....	3
NFS 5020 Meat Technology and Processing .....	4
NFS 5560 Food Chemistry.....	4
Operations Management elective course <sup>5</sup> .....	3

### Spring Semester

NFS 3100 (QI) Sensory Evaluation of Food.....	3
NFS 5110 (CI) Food Microbiology .....	4
NFS 5500 (QI) Food Analysis.....	4
NFS 5510 Food Laws and Regulations.....	2

## Senior Year

### Fall Semester

NFS 4440 (QI) Fundamentals of Food Engineering .....	4
NFS 5030 Dairy Technology and Processing.....	4
NFS 5920 (CI) Food Product Development.....	3
USU 1320 (BHU)* Civilization: Humanities .....	3

# Department of Nutrition and Food Sciences

## Spring Semester

<b>MGT 4720*</b> Production Planning and Control.....	3
<b>NFS 4990</b> Nutrition and Food Sciences Seminar.....	1
<b>NFS 5250</b> Occupational Experiences in Nutrition and Food Sciences.....	2
<b>SPCH 3050 (DSS)*</b> Technical and Professional Communication.....	3
Operations Management Minor elective course <sup>5</sup> .....	3

<sup>4</sup>This course is required as part of the Operations Management Minor.

<sup>5</sup>Choose 6 credits from the *Operations Management Minor Elective Courses*, shown below.

## Operations Management Minor Elective Courses

Students must select two of the following courses:

<b>MGT 3080 (QI)</b> Operations Research (F,Sp).....	3
<b>MGT 4750</b> Production Simulation (Sp).....	3
<b>MGT 4790</b> Supply Chain Management (F).....	3
<b>MGT 5730</b> Continuous Improvement (F).....	3

## Nutrition Science Emphasis

Courses followed by an asterisk (\*) are suggested for fulfilling University Studies Requirements.

### Freshman Year

#### Fall Semester

<b>BIOL 1610</b> Biology I.....	4
<b>CHEM 1210</b> Principles of Chemistry I.....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I.....	1
<b>MATH 1050 (QL)</b> College Algebra.....	4
<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition.....	3

#### Spring Semester

<b>BIOL 1620 (BLS)</b> Biology II.....	4
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II.....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II.....	1
<b>ENGL 1010 (CL1)</b> Introduction to Writing: Academic Prose.....	3
<b>MATH 1060</b> Trigonometry.....	2

### Sophomore Year

#### Fall Semester

<b>CHEM 2300</b> Principles of Organic Chemistry (3 cr) <b>or</b>	
<b>CHEM 2310</b> Organic Chemistry I (4 cr).....	3 or 4
<b>CHEM 2315</b> Organic Chemistry Laboratory I.....	1
<b>MATH 1210 (QL)</b> Calculus I.....	4
<b>USU 1320 (BHU)*</b> Civilization: Humanities.....	3
<b>USU 1330 (BCA)*</b> Civilization: Creative Arts.....	3
Elective course(s).....	3

#### Spring Semester

<b>CHEM 3700</b> Introductory Biochemistry.....	3
<b>CHEM 3710</b> Introductory Biochemistry Laboratory.....	1
<b>NFS 2020</b> Nutrition Throughout the Life Cycle.....	3
<b>USU 1340 (BSS)*</b> Social Systems and Issues.....	3
Elective course(s).....	3

### Junior Year

#### Fall Semester

<b>BIOL 2420</b> Human Physiology.....	4
<b>FCHD 3350 (DSS)*</b> Family Finance.....	3
<b>STAT 3000 (QI)</b> Statistics for Scientists.....	3
Elective course(s).....	3

## Spring Semester

<b>ENGL 2010 (CL2)</b> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
<b>HIST 3850 (DHA/CI)*</b> History of Utah.....	3
<b>USU 1300 (BAI)*</b> U.S. Institutions.....	3
Elective courses.....	6

## Senior Year

### Fall Semester

<b>NFS 4020</b> Advanced Nutrition.....	3
<b>NFS 4550</b> Nutrition Assessment/Clinical Nutrition I.....	4
<b>NFS 5220</b> Endocrine Aspects of Nutrition.....	2
<b>NFS 5250</b> Occupational Experiences in Nutrition and Food Sciences.....	2

### Spring Semester

<b>NFS 4990</b> Nutrition and Food Sciences Seminar.....	1
<b>NFS 5210</b> Advanced Public Health Nutrition.....	2
<b>NFS 5300</b> Advanced Micronutrient Nutrition.....	3
<b>NFS 5410</b> Nutrient Gene Interactions.....	3
<b>NFS 5420</b> Molecular Nutrition Laboratory.....	2

## Electives

Students in the Nutrition Science Emphasis must select a minimum of 15 credits from the following courses to meet their career objectives. Alternative courses must be approved by the department head and program director.

<b>BIOL 2320</b> Human Anatomy (Sp,Su).....	4
<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su).....	4
<b>BIOL 3100 (CI)</b> Bioethics (Sp).....	3
<b>BIOL 3300</b> General Microbiology (F,Sp).....	4
<b>BIOL 5210</b> Cell Biology (F).....	3
<b>BIOL 5620</b> Medical Physiology (F).....	3
<b>CHEM 2320</b> Organic Chemistry II (Sp).....	4
<b>CHEM 2325</b> Organic Chemistry Laboratory II (Sp).....	1
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su).....	4
<b>NFS 1250</b> Sanitation and Safety (Sp).....	3
<b>NFS 3020</b> Nutrition and Physical Performance (F).....	2
<b>NFS 3600</b> Medical Technology for Health Care Professionals (F,Sp).....	1
<b>NFS 4480</b> Community Nutrition (F).....	3
<b>NFS 5200</b> Nutritional Epidemiology (F).....	2
<b>NFS 5830</b> International Nutrition: Macronutrients (F).....	3
<b>PHYS 2110</b> The Physics of Living Systems I.....	4
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II.....	4
<b>PUBH 4030</b> Communicable Disease Control (F).....	3

## Nutrition Science Emphasis Program Requirements for Pre-Medical School Option

**Note:** The Pre-Medical School Option will meet the pre-medical school requirements. Student transcripts and diplomas will show a Nutrition and Food Sciences major with a Nutrition Science emphasis.

Courses followed by an asterisk (\*) are suggested for fulfilling University Studies Requirements.

### Freshman Year

#### Fall Semester

<b>BIOL 1610</b> Biology I.....	4
<b>CHEM 1210</b> Principles of Chemistry I.....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I.....	1
<b>MATH 1050 (QL)</b> College Algebra.....	4
<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition.....	3

# Department of Nutrition and Food Sciences

## Spring Semester

BIOL 1620 (BLS) Biology II.....	4
CHEM 1220 (BPS) Principles of Chemistry II.....	4
CHEM 1225 Chemical Principles Laboratory II.....	1
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
MATH 1060 Trigonometry.....	2

## Sophomore Year

### Fall Semester

CHEM 2300 Principles of Organic Chemistry (3 cr) or	
CHEM 2310 Organic Chemistry I (4 cr).....	3 or 4
CHEM 2315 Organic Chemistry Laboratory I.....	1
MATH 1210 (QL) Calculus I.....	4
PHYS 2110 The Physics of Living Systems I.....	4
USU 1320 (BHU)* Civilization: Humanities.....	3

### Spring Semester

BIOL 2320 Human Anatomy.....	4
CHEM 2320 Organic Chemistry II.....	4
CHEM 2325 Organic Chemistry Laboratory II.....	1
NFS 2020 Nutrition Throughout the Life Cycle.....	3
PHYS 2120 (BPS) The Physics of Living Systems II.....	4

## Junior Year

### Fall Semester

BIOL 2420 Human Physiology.....	4
FCHD 3350 (DSS) Family Finance.....	3
STAT 3000 (QI) Statistics for Scientists.....	3
USU 1330 (BCA)* Civilization: Creative Arts.....	3
Univ. Studies Communications Intensive (CI) Course.....	3

### Spring Semester

BIOL 3300 General Microbiology (4 cr) or	
BIOL 5620 Medical Physiology (3 cr).....	3 or 4
CHEM 3700 Introductory Biochemistry.....	3
CHEM 3710 Introductory Biochemistry Laboratory.....	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing	
in a Persuasive Mode.....	3
HIST 3850 (DHA/CI)* History of Utah.....	3

## Senior Year

### Fall Semester

NFS 4020 Advanced Nutrition.....	3
NFS 4550 Nutrition Assessment/Clinical Nutrition I.....	4
NFS 5220 Endocrine Aspects of Nutrition.....	2
NFS 5250 Occupational Experiences in Nutrition	
and Food Sciences.....	2
USU 1340 (BSS)* Social Systems and Issues.....	3

### Spring Semester

NFS 4990 Nutrition and Food Sciences Seminar.....	1
NFS 5210 Advanced Public Health Nutrition.....	2
NFS 5300 Advanced Micronutrient Nutrition.....	3
NFS 5410 Nutrient Gene Interactions.....	3
NFS 5420 Molecular Nutrition Laboratory.....	2
USU 1300 (BAI)* U.S. Institutions.....	3

## Biotechnology Emphasis

Students selecting the Biotechnology Emphasis must choose either **Depth Training in Food Science** or **Depth Training in Nutrition Science**. Courses followed by an asterisk (\*) are suggested for fulfilling University Studies Requirements.

## Depth Training in Food Science

### Freshman Year

#### Fall Semester

CHEM 1210 Principles of Chemistry I.....	4
CHEM 1215 Chemical Principles Laboratory I.....	1
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
MATH 1050 (QL) College Algebra.....	4
NFS 1000 Food Science from Farm to Fork.....	3
NFS 1020 (BLS) Science and Application of Human Nutrition.....	3

#### Spring Semester

CHEM 1220 (BPS) Principles of Chemistry II.....	4
CHEM 1225 Chemical Principles Laboratory II.....	1
ECN 1500 (BAI)* Introduction to Economic Institutions, History,	
and Principles.....	3
MATH 1100 (QL) Calculus Techniques.....	3
NFS 2040 Introduction to Biotechnology.....	1
USU 1320 (BHU)* Civilization: Humanities.....	3

### Sophomore Year

#### Fall Semester

BIOL 1610 Biology I.....	4
CHEM 2300 Principles of Organic Chemistry.....	3
CHEM 2315 Organic Chemistry Laboratory I.....	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a	
Persuasive Mode.....	3
NFS 3110 Food, Technology, and Health.....	3

#### Spring Semester

BIOL 3060 (QI) Principles of Genetics.....	4
BIOL 3300 General Microbiology.....	4
CHEM 3700 Introductory Biochemistry.....	3
CHEM 3710 Introductory Biochemistry Laboratory.....	1
STAT 3000 (QI) Statistics for Scientists.....	3

### Junior Year

#### Fall Semester

NFS 5260 Methods in Biotechnology: Molecular Cloning.....	3
NFS 5560 Food Chemistry.....	4
PHYS 2110 The Physics of Living Systems I.....	4
SPCH 3330 (DSS)* Intercultural Communication.....	3

#### Spring Semester

NFS 3100 (QI) Sensory Evaluation of Food.....	3
NFS 5110 (CI) Food Microbiology.....	4
NFS 5500 (QI) Food Analysis.....	4
NFS 5510 Food Laws and Regulations.....	2
PLSC 4600 (QI) Cereal Science.....	3

### Summer Semester

NFS 5250 Occupational Experiences in Nutrition	
and Food Sciences.....	1

### Senior Year

#### Fall Semester

NFS 5020 Meat Technology and Processing (4 cr) or	
NFS 5030 Dairy Technology and Processing (4 cr).....	4
NFS 5920 (CI) Food Product Development.....	3
USU 1330 (BCA)* Civilization: Creative Arts.....	3
USU 1340 (BSS)* Social Systems and Issues.....	3
Univ. Studies Depth Humanities and Creative Arts (DHA) Course.....	3

# Department of Nutrition and Food Sciences

## Spring Semester

<b>ADVS 3200</b> Ethical Issues in Genetic Engineering and Biotechnology.....	3
<b>NFS 4990</b> Nutrition and Food Sciences Seminar.....	1
<b>NFS 5160</b> Methods in Biotechnology: Cell Culture.....	3
<b>NFS 5240</b> Methods in Biotechnology: Protein Purification Techniques.....	3
<b>NFS 5420</b> Molecular Nutrition Laboratory.....	2
<b>STAT 5200</b> Design of Experiments.....	3

## Depth Training in Nutrition Science

### Freshman Year

#### Fall Semester

<b>BIOL 1610</b> Biology I.....	4
<b>CHEM 1210</b> Principles of Chemistry I.....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I.....	1
<b>MATH 1050 (QL)</b> College Algebra.....	4
<b>USU 1340 (BSS)*</b> Social Systems and Issues.....	3

#### Spring Semester

<b>BIOL 1620 (BLS)</b> Biology II.....	4
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II.....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II.....	1
<b>MATH 1060</b> Trigonometry.....	2
<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition.....	3
<b>NFS 2040</b> Introduction to Biotechnology.....	1

### Sophomore Year

#### Fall Semester

<b>BIOL 2420</b> Human Physiology.....	4
<b>CHEM 2300</b> Principles of Organic Chemistry.....	3
<b>CHEM 2315</b> Organic Chemistry Laboratory I.....	1
<b>ENGL 1010 (CL1)</b> Introduction to Writing: Academic Prose.....	3
<b>MATH 1100 (QL)</b> Calculus Techniques.....	3

#### Spring Semester

<b>CHEM 3700</b> Introductory Biochemistry.....	3
<b>CHEM 3710</b> Introductory Biochemistry Laboratory.....	1
<b>ECN 1500 (BAI)*</b> Introduction to Economic Institutions, History, and Principles.....	3
<b>NFS 2020</b> Nutrition Throughout the Life Cycle.....	3
<b>USU 1320 (BHU)*</b> Civilization: Humanities.....	3
Univ. Studies Communications Intensive (CI) Course.....	3

### Junior Year

#### Fall Semester

<b>BIOL 5620</b> Medical Physiology.....	3
<b>NFS 4020</b> Advanced Nutrition.....	3
<b>PHYS 2110</b> The Physics of Living Systems I.....	4
<b>STAT 3000 (QI)</b> Statistics for Scientists.....	3
<b>USU 1330 (BCA)*</b> Civilization: Creative Arts.....	3

#### Spring Semester

<b>BIOL 3060 (QI)</b> Principles of Genetics.....	4
<b>ENGL 2010 (CL2)</b> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
Univ. Studies Depth Humanities and Creative Arts (DHA) Course.....	3
Univ. Studies Depth Social Sciences (DSS) Course.....	3
Univ. Studies Communications Intensive (CI) Course.....	3

## Senior Year

### Fall Semester

<b>BIOL 3300</b> General Microbiology.....	4
<b>BIOL 5210</b> Cell Biology.....	3
<b>NFS 5200</b> Nutritional Epidemiology.....	2
<b>NFS 5260</b> Methods in Biotechnology: Molecular Cloning.....	3

### Spring Semester

<b>ADVS 3200</b> Ethical Issues in Genetic Engineering and Biotechnology.....	3
<b>BIOL 5150</b> Immunology.....	3
<b>NFS 4990</b> Nutrition and Food Sciences Seminar.....	1
<b>NFS 5160</b> Methods in Biotechnology: Cell Culture.....	3
<b>NFS 5220</b> Endocrine Aspects of Nutrition.....	2
<b>NFS 5240</b> Methods in Biotechnology: Protein Purification Techniques.....	3
<b>NFS 5420</b> Molecular Nutrition Laboratory.....	2

## Dietetics Emphasis

Students selecting the Dietetics Emphasis must choose either the **Coordinated Program in Dietetics (CPD)** or the **Didactic Program in Dietetics (DPD)**.

### Coordinated Program in Dietetics (CPD)

#### Freshman Year

##### Fall Semester

<b>CHEM 1210</b> Principles of Chemistry I.....	4
<b>MATH 1050 (QL)</b> College Algebra.....	4
<b>NFS 1020 (BLS)</b> Science and Application of Human Nutrition.....	3
<b>NFS 1240</b> Culinary Basics.....	3
<b>PSY 1010 (BSS)</b> General Psychology (3 cr) <b>or</b>	
<b>SOC 1010 (BSS)</b> Introductory Sociology (3 cr).....	3

##### Spring Semester

<b>CHEM 1220 (BPS)</b> Principles of Chemistry II.....	4
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles.....	3
<b>ENGL 1010 (CL1)</b> Introduction to Writing: Academic Prose.....	3
<b>NFS 2020</b> Nutrition Throughout the Life Cycle.....	3
<b>NFS 3600</b> Medical Terminology for Health Care Professionals.....	1
<b>USU 1320 (BHU)</b> Civilization: Humanities.....	3

#### Sophomore Year

##### Fall Semester

<b>BIOL 2420</b> Human Physiology.....	4
<b>CHEM 2300</b> Principles of Organic Chemistry.....	3
<b>ENGL 2010 (CL2)</b> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
<b>FCHD 3350 (DSS)</b> Family Finance (3 cr) <b>or</b>	
<b>MGT 3110 (DSS)</b> Managing Organizations and People (3 cr).....	3
<b>NFS 3020</b> Nutrition and Physical Performance.....	2
<b>STAT 1040 (QL)</b> Introduction to Statistics (acceptable) (3 cr) <b>or</b>	
<b>STAT 2000 (QI)</b> Statistical Methods (preferred) (3 cr) <b>or</b>	
<b>STAT 3000 (QI)</b> Statistics for Scientists (preferred) (3 cr).....	3

##### Spring Semester

<b>CHEM 3700</b> Introductory Biochemistry.....	3
<b>CHEM 3710</b> Introductory Biochemistry Laboratory.....	1
<b>NFS 1250</b> Sanitation and Safety.....	3
<b>NFS 3070</b> Science of Food Preparation.....	4
<b>USU 1330 (BCA)</b> Civilization: Creative Arts.....	3
Univ. Studies Depth Humanities and Creative Arts (DHA) Course.....	3



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## Junior Year

### Fall Semester

NFS 4020 Advanced Nutrition .....	3
NFS 4050 (CI) Education and Counseling Methods in Dietetics I .....	2
NFS 4480 Community Nutrition .....	3
NFS 4550 Nutrition Assessment/Clinical Nutrition I .....	4
NFS 4570 Clinical Nutrition Experience I .....	1
NFS 4710 Quantity Food Preparation .....	2
NFS 4730 Quantity Food Preparation Lab .....	2

### Spring Semester

NFS 4060 (CI) Education and Counseling Methods in Dietetics II .....	2
NFS 4560 (CI) Clinical Nutrition II .....	4
NFS 4580 Clinical Nutrition Experience II .....	2
NFS 4720 (QI) Food Service Organization and Management .....	2
NFS 4740 Food Service Organization and Management Lab .....	2

## Senior Year

### Fall Semester

NFS 4660 (CI) Medical Dietetics .....	12
NFS 4780 (CI) Maternal and Child Nutrition .....	4

### Spring Semester

NFS 4420 (QI) Nutrition Research Methodology .....	2
NFS 4750 Management of Dietetics .....	3
NFS 4990 Nutrition and Food Sciences Seminar .....	1
NFS 5210 Advanced Public Health Nutrition .....	2
NFS 5300 Advanced Micronutrient Nutrition .....	3
NFS 5750 Advanced Dietetics Practicum .....	3

## Didactic Program in Dietetics (DPD)

### Freshman Year

#### Fall Semester

CHEM 1210 Principles of Chemistry I .....	4
MATH 1050 (QL) College Algebra .....	4
NFS 1020 (BLS) Science and Application of Human Nutrition .....	3
NFS 1240 Culinary Basics .....	3
PSY 1010 (BSS) General Psychology (3 cr) <b>or</b>	
SOC 1010 (BSS) Introductory Sociology (3 cr) .....	3

#### Spring Semester

CHEM 1220 (BPS) Principles of Chemistry II .....	4
ECN 1500 (BAI) Introduction to Economic Institutions, History, and Principles .....	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
NFS 2020 Nutrition Throughout the Life Cycle .....	3
NFS 3600 Medical Terminology for Health Care Professionals .....	1
USU 1320 (BHU) Civilization: Humanities .....	3

### Sophomore Year

#### Fall Semester

BIOL 2420 Human Physiology .....	4
CHEM 2300 Principles of Organic Chemistry .....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode .....	3
FCHD 3350 (DSS) Family Finance (3 cr) <b>or</b>	
MGT 3110 (DSS) Managing Organizations and People (3 cr) .....	3
NFS 3020 Nutrition and Physical Performance .....	2
STAT 1040 (QL) Introduction to Statistics (acceptable) (3 cr) <b>or</b>	
STAT 2000 (QI) Statistical Methods (preferred) (3 cr) <b>or</b>	
STAT 3000 (QI) Statistics for Scientists (preferred) (3 cr) .....	3

### Spring Semester

CHEM 3700 Introductory Biochemistry .....	3
CHEM 3710 Introductory Biochemistry Laboratory .....	1
NFS 1250 Sanitation and Safety .....	3
NFS 3070 Science of Food Preparation .....	4
USU 1330 (BCA) Civilization: Creative Arts .....	3
Univ. Studies Depth Humanities and Creative Arts (DHA) Course .....	3

## Junior Year

### Fall Semester

NFS 4020 Advanced Nutrition .....	3
NFS 4050 (CI) Education and Counseling Methods in Dietetics I .....	2
NFS 4450 Clinical Nutrition I Lab .....	1
NFS 4480 Community Nutrition .....	3
NFS 4550 Nutrition Assessment/Clinical Nutrition I .....	4
NFS 4710 Quantity Food Preparation .....	2

### Spring Semester

NFS 4060 (CI) Education and Counseling Methods in Dietetics II .....	2
NFS 4460 Clinical Nutrition II Lab .....	1
NFS 4560 (CI) Clinical Nutrition II .....	4
NFS 4720 (QI) Food Service Organization and Management .....	2
SPCH 1020 (CI) Public Speaking (3 cr) <b>or</b>	
SPCH 2110 (CI) Interpersonal Communication (3 cr) <b>or</b>	
SPCH 3330 (DSS) Intercultural Communication (3 cr) .....	3

(Note: SPCH 3330 is taught during fall semester *only*.)

## Senior Year

### Fall Semester

ACCT 2010 Survey of Accounting I .....	3
MGT 3500 Fundamentals of Marketing .....	3
NFS 4780 (CI) Maternal and Child Nutrition .....	3
NFS 5200 Nutritional Epidemiology .....	2
NFS 5750 Advanced Dietetics Practicum .....	3

### Spring Semester

NFS 4420 (QI) Nutrition Research Methodology .....	2
NFS 4750 Management of Dietetics .....	3
NFS 4990 Nutrition and Food Sciences Seminar .....	1
NFS 5150 Clinical Nutrition Practice .....	1
NFS 5210 Advanced Public Health Nutrition .....	2
NFS 5300 Advanced Micronutrient Nutrition .....	3

## Financial Support

The Department of Nutrition and Food Sciences and the College of Agriculture award scholarships in addition to those available through the University Financial Aid Office. Information and application forms may be obtained from the department office. Students may also contact the department for assistance in finding employment that will enhance their academic studies. Many students are employed by the department and by private firms near the University.

## Assessment of Instruction

Information about assessment within each of the departmental programs can be found at:

<http://nfs.usu.edu/htm/assessment/>

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty

# Department of Nutrition and Food Sciences

in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For more information about Bachelor of Science requirements and the sequence in which courses should be taken, see major requirement sheet, available from the Nutrition and Food Sciences Department, or online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### MS and PhD Programs

#### Admission Requirements

Candidates for graduate study in the Department of Nutrition and Food Sciences need a background in chemistry, biochemistry, physics, mathematics, statistics, bacteriology and physiology. Prior coursework in food science or nutrition is desirable. Students may be accepted into the NFS graduate program with deficiencies in these areas; however, their supervisory committee will require that competence equivalent to a BS degree in Nutrition and Food Sciences be obtained as part of the *Program of Study*.

Students must meet some departmental requirements, in addition to requirements of the School of Graduate Studies, as shown at: <http://www.usu.edu/graduateschool/apply/>

Departmental requirements include the following:

1. Students must attain Graduate Record Examination (GRE) scores at the 40th percentile minimum on the Verbal, Quantitative, and Analytical Writing tests.
2. Before acceptance into a PhD program, a student must have obtained an MS degree or have a manuscript reporting original research accepted for publication in a refereed journal.
3. Before acceptance into the Department of Nutrition and Food Sciences, potential MS and PhD graduate students must be accepted by a faculty member who is willing to add them to his or her research team.

#### Registration Requirements

Once admitted, students are required to maintain enrollment as follows:

1. Enrollment in at least 3 credits per semester in order to use University facilities and receive direction (including thesis or dissertation direction) from their major professor.

2. Enrollment in at least 9 credits per semester if receiving an assistantship or fellowship from Utah State University.
3. Enrollment in no more than 6 credits per semester if employed full time by Utah State University.

#### Selecting a Major Professor

Initially, students are accepted into the department when at least one faculty member has expressed a willingness to add the student to his or her research team. By doing so, the faculty member guarantees at the time of acceptance that the student may work in his or her research program. However, offers of financial aid must be discussed directly with the faculty member. Students may choose as their major professor any faculty member who can and is willing to accommodate them.

#### Establishing a Supervisory Committee

A supervisory committee must be selected by the student in conjunction with his or her major professor during the student's first semester as an NFS graduate student. The major professor serves as the chair of the supervisory committee. A minimum of three members (at least two from the department) including the major professor are required for the MS program, and at least five (three or more from the department and one or more from outside the department) for a PhD program must be suggested.

The *Supervisory Committee Approval Form* needs to be submitted to the department head by the 8th week of the first semester for MS students and the 15th week of the first semester for PhD students. The department head must approve the student's committee and may add members. It is the student's responsibility to meet with the proposed committee members to make certain they are able and willing to serve. The *Supervisory Committee Approval Form* is then forwarded to the dean of the School of Graduate Studies for final approval. (**Note:** The *Supervisory Committee Approval Form* may be found on the School of Graduate Studies website at: [http://www.usu.edu/graduateschool/apply/pdf/Sup\\_Ctee\\_Form.pdf](http://www.usu.edu/graduateschool/apply/pdf/Sup_Ctee_Form.pdf), or may be obtained at the Nutrition and Food Sciences departmental office.)

#### Defining a Program of Study

Students should register for their first semester based on advice from their major professor. Students should then prepare a *Program of Study* in conjunction with their major professor. The *Program of Study* should ensure fulfillment of the minimum requirements for all NFS graduate students (shown below) and also include other courses providing the background necessary to conduct their research.

Students need to schedule a meeting with their supervisory committee to discuss the proposed *Program of Study* by the end of the first semester for MS students and by the end of the second semester for PhD students. A copy of the proposed *Program of Study* should be given to each committee member several days prior to the committee meeting.

The purpose of the committee meeting is to secure the supervisory committee's approval of the *Program of Study*. The committee will determine any deficiencies in core BS competencies or academic background. Students in the NFS graduate program should have already taken undergraduate general chemistry, organic chemistry, biochemistry, algebra, and statistics. Although these courses may be taken as part of the graduate program, they will not be counted as graduate credit in the *Program of Study*.

The supervisory committee is responsible for ensuring NFS graduate students have (or obtain during their program of study) the expected core competencies of NFS bachelor's degree graduates. This can be

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based upon transcripts of courses from prior studies, passing courses listed in the program of study (with a minimum grade of *B*), or by administering a written or oral examination.

The committee will also determine that the courses included in the *Program of Study* meet the minimum requirements for obtaining an MS or PhD in Nutrition and Food Sciences (as shown below). All members of the committee, as well as the department head, must sign the *Program of Study Form* before it is sent to the School of Graduate Studies. Registration for all subsequent semesters should be based on the approved *Program of Study*. Changes to the *Program of Study* require a letter written by the major professor to the School of Graduate Studies (with copies to all members of the committee and the department head) justifying the change.

The student may register for courses not listed on the *Program of Study* with approval of his or her major professor (especially if the student is receiving a research assistantship). However, the student will be responsible for paying any additional in-state and out-of-state tuition and fees required for these additional classes. Tuition waivers (and tuition remission for PhD students) are based upon the approved Program of Study.

## Minimum Course Requirements for MS/PhD Students in Nutrition and Food Sciences

### BS Core Competency Classes by Graduate Specialization

**Food Science.** The following courses are required for students specializing in a food science related area: NFS 3110 (Food Technology and Health), NFS 5020 (Meat Technology and Processing) or NFS 5030 (Dairy Technology and Processing), NFS 5110 (Food Microbiology), NFS 5500 (Food Analysis), NFS 5560 (Food Chemistry), and STAT 3000 (Statistics for Scientists).

**Nutrition.** The following courses are required for students specializing in a nutrition related area: NFS 4020 (Advanced Nutrition) and STAT 3000 (Statistics for Scientists).

### Program of Study for MS and PhD Degrees

The following courses are required. For further information, see pages 116-119 of the *School of Graduate Studies* section of this catalog.

1. **NFS Graduate courses.** NFS graduate courses (other than BS core competency courses): 5 credits for MS, 10 credits for PhD.
2. **Biochemistry and Statistics.** Biochemistry (CHEM 5700, 5710): 3 credits for MS, 6 credits for PhD; Statistics (STAT 5100, 5120, 5200, 5600): 3 credits for MS, 6 credits for PhD.
3. **NFS Graduate Seminar (NFS 7800).** Students must enroll in NFS 7800 during each fall and spring semester: 2 credits for MS, 6 credits for PhD
4. **Teaching.** INST 7920: 1 credit required for PhD; NFS 6910 (Teaching Experience) or NFS 5250 (Occupational Experience): 2 credits required for PhD. (Credits in this area are *not* required for MS.)
5. **Other Graduate Courses.** BS core competency courses taken at the 6000 level, or other USU courses approved for graduate studies, may be included. For MS, 5-11 credits are required; for PhD, 15-25 credits are required.

6. **Research.** For MS, 6-12 credits of NFS 6970 are required. For PhD, 34-45 credits of NFS 7970 are required. If students desire to do research beyond the *Program of Study* requirements, they should register for Continuing Graduate Advisement.

### Total Credits Required

For the MS degree, 30 total credits are required. For the PhD degree, 90 total credits are required (including the 30 credits taken for the MS).

### Research Proposal

In consultation with the major professor, the student must choose a research area suitable for the MS thesis or PhD dissertation, and then prepare a research proposal. Research proposals should be written and approved by the end of the second semester for students completing the MS degree and by the end of the third semester for PhD students.

The content and duration of the proposed research should be appropriate for the degree. It is expected that MS research and coursework (including writing and defense of the thesis) should be completed within 2 years (24 months). The length of research being proposed for the PhD dissertation is dependent on the discovery by the student of a substantial level of new information that can be added to their field of specialization.

The proposal should include the following:

1. Title
2. Description of the problem, based on the most current literature
3. Statement of the purpose of the intended research
4. Research Plan
5. List of references cited, presented in a form acceptable for publication in a scientific journal in the student's field

The student prepares the research proposal under the guidance of the major professor. Once the research proposal is completed, it is the student's responsibility to schedule a meeting with his or her supervisory committee, and to provide each committee member with a copy of the research proposal at least two weeks prior to the meeting.

During the committee meeting, the student is expected to provide an oral presentation of the proposed research, and discuss any regulated aspects of the research, such as hazardous materials, experimental animals, or human subjects. After all members of the supervisory committee have approved the research proposal, a copy of the proposal will be sent to the graduate school.

### Departmental Seminar

The NFS graduate seminar (NFS 7800) is held in the Nutrition and Food Sciences Building, room 202 from 3:30 to 5:00 p.m. each Wednesday during fall and spring semesters. All NFS MS and PhD students are expected to register for and attend this seminar during each semester for which they are enrolled as full-time graduate students.

This seminar will include presentations by NFS faculty members, faculty members from other USU departments, invited speakers, and graduate students. In addition to the presentations, NFS 7800 will also include assignments on topics such as critical thinking, scientific writing, poster preparation, and grant proposal writing. The theme of the seminar will be chosen by the NFS faculty member who is assigned as the course instructor.

During the semester in which they defend their thesis or dissertation, all MS and PhD students are required to give a presentation (a 30 to 45 minute seminar) on the results of their research. This presentation

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will be given to the NFS faculty members and students as part of the NFS 7800 seminar series. The student must invite all members of the supervisory committee to attend this seminar presentation. At the beginning of the semester in which they plan to defend their thesis or dissertation, students need to schedule a date for their presentation with the NFS 7800 instructor.

## **Comprehensive Examination (PhD students only)**

Before a student can become a candidate for the PhD degree, he or she must take a comprehensive examination, as required by the School of Graduate Studies. After completion of the courses listed in the *Program of Study*, the student should schedule a meeting of their committee for the comprehensive examination. This is usually an oral examination (although committee members have the option of providing a written exam), and the student should bring the *Application for Candidacy for Doctoral Degree Form* to the examination.

Typically students will be asked questions related to their area of specialization and their field of research. However, the comprehensive exam can also be used to test students' overall knowledge of food science or nutrition, and committee members can ask any questions that will test the student's knowledge and ability to synthesize nutrition and food science information, as well as answer questions. The form should be completed at this time. On the *Application for Candidacy for Doctoral Degree Form*, the committee members will list the field in which they examined the student, and then sign the form accordingly.

## **Thesis or Dissertation Final Examination**

Students write the thesis or dissertation under the guidance of their major professor. To schedule a tentative date for the final examination (or defense) of the thesis or dissertation, students should also contact their supervisory committee members. Students need to plan well in advance, so that there will be sufficient time allowed for the student to complete their writing and for the committee members to read the thesis or dissertation. When the thesis or dissertation is ready to be defended, and at least four weeks prior to the tentative defense (or final) examination date and time, the student submits a copy to each committee member.

After the committee members have read the thesis or dissertation and have determined that it is indeed ready to be defended, the student prepares the *Appointment for Examination Form*. Each of the supervisory committee members is required to sign this form, indicating that they have read and tentatively approve the content and format of the thesis or dissertation, and that they can be in attendance at the defense.

The *Appointment for Examination Form* needs to be submitted to the School of Graduate Studies a minimum of 10 working days prior to the defense. The School of Graduate Studies will appoint one of the supervisory committee members (other than the major professor) to chair the defense examination.

## **Completing the Thesis or Dissertation**

After a successful defense of the thesis or dissertation, the student is required to make any changes to the thesis or dissertation that are required as a consequence of the final examination. At this time, the student can schedule with the School of Graduate Studies a date by which he or she expects to have the thesis or dissertation available for review. If the thesis or dissertation is not submitted to the School of Graduate Studies prior to this date, it will be reviewed at the next available date.

When the thesis or dissertation has been revised to the satisfaction of the committee member(s) assigned the responsibility of ensuring such changes are completed to the satisfaction of the supervisory committee (usually the major professor), the front page of the thesis or dissertation can be signed. The student then completes the *Thesis/Dissertation Format and Style Form* and obtains the major professor's signature (in the NFS Department the major professor also acts as the departmental format/style reviewer) and submits the thesis or dissertation to the School of Graduate Studies.

Following review by the School of Graduate Studies, the thesis or dissertation is collected by the NFS Department and returned to the major professor, along with a list of corrections. The major professor then has the responsibility of ensuring that the thesis or dissertation is revised (if necessary), and of signing a release indicating that the thesis or dissertation is ready for binding. The student may then make the needed copies of the thesis or dissertation and submit them for binding. It is also the student's responsibility to ensure that all other forms and fees related to the thesis or dissertation and to the completion of his or her degree are finalized.

## **Other Graduate Programs**

### **Master of Food Microbiology and Safety (MFMS)**

The MFMS degree is a professional degree designed to provide students with depth training in food safety assurance and the use of management systems such as HACCP. The degree is primarily intended for individuals planning careers in food quality assurance or other food safety-related positions in the food industry.

#### **MFMS Admission Requirements**

Students seeking entry into the MFMS program must satisfy the minimum admission requirements of the USU School of Graduate Studies and the NFS Department, and must also achieve a score of 3 (equivalent to the 40th percentile) or higher on the newly administered GRE Written Examination. Applications will be reviewed by the MFMS Advisory Committee, which is responsible for accepting students into the MFMS program and assigning them an advisor. The advisor will then consult with the student to select two additional graduate committee members.

#### **MFMS Program of Study**

The MFMS program of study has been tailored for students with undergraduate training in (1) food science or (2) microbiology or biology. Students who lack prerequisite competencies in food science, microbiology, or biology will be required to address those deficiencies during the MFMS program of study. Course requirements to meet specific deficiencies will be designated by the student's advisory committee and, in accordance with School of Graduate Studies policy, may or may not count toward course requirements for the MFMS program of study.

The MFMS program of study, outlined below, requires a minimum of 32 semester credits, including (1) 10 semester credits of core coursework in food safety assurance, microbiology, and epidemiology; (2) at least 19 semester credits of coursework based on the student's career goals and undergraduate competencies; and (3) the written preparation and oral presentation of a substantive literature review on a food safety topic.

# Department of Nutrition and Food Sciences

## MFMS Program Requirements (32 credits minimum)

Students must complete all of the following courses (12 credits): NFS 6170, 6200, 6900 (2 credits), 7800 (2 credits); BIOL 5850/6850; and PUBH 4030. During NFS 6900 (Special Problems), students will prepare a substantive written literature review of a food safety topic. NFS 7800 (Seminar) must be taken during two semesters; during the final seminar, students must make an oral presentation on the food safety topic used for their literature review.

Students with a **BS degree in Food Sciences** must demonstrate competency equivalent to a USU BS degree in Nutrition and Food Sciences with a Food Science emphasis. These students must also select a minimum of 10 credits from the following: ADVS 6400; BIOL 5150 (offered biennially), 5300, 5330. The remaining credits should generally be selected from the following, although additional course substitutions may be made with approval of the student's advisory committee: NFS 6020, 6030, 6120, 6210, 6500, 6510, 6610; NFS 6270, 6670, 6680, 6690 (the preceding four courses are offered biennially); ASTE 6260; CHEM 6730.

Minimum program prerequisites for students with a **BS in biology, microbiology, or an equivalent degree** include the following (the USU equivalent course is listed in parentheses): biochemistry (CHEM 3700), general microbiology (BIOL 3300), microbial physiology (BIOL 5300), and statistics (STAT 3000). In addition, these students must complete *both* NFS 6110 and 6500, and must take *at least one* of NFS 6020 and 6030. The remaining credits should generally be selected from the following, although additional course substitutions may be made with approval of the student's advisory committee: NFS 6120, 6210, 6510, 6610; NFS 6270, 6670, 6680, 6690, BIOL 5150 (the preceding five courses are offered biennially); ADVS 6400; ASTE 6260; CHEM 6730.

## Master of Dietetics Administration (MDA)

The MDA degree is a professional degree designed to provide dietitians with in-depth training in management and leadership in food and nutrition program administration. Nationwide, there is a need for professionally trained managers at local, district, state, and federal levels in food and nutrition programs, including school, university, and hospital food services; public health programs; and clinical management. This program provides in-depth training in financial management, human resource management, marketing, and dietetics-specific management.

### MDA Admission Requirements

Candidates for the MDA program must qualify for one of the following categories: *Option 1*: Must have completed the USU Extension Dietetics Internship; *or Option 2*: Must be currently registered as a dietitian with at least two years of work experience. Students seeking entry must also satisfy: (1) admission requirements of the USU School of Graduate Studies; (2) admission requirements of the NFS Department; and (3) admission requirements of the MDA program, including a letter of application and an approved *Program of Study*. For further details, see:

<http://www.nfs.usu.edu/htm/for-students/diet-graduate/>

The MDA Advisory Committee is responsible for reviewing applications, accepting students into the MDA program, and assigning students to an advisor.

### MDA Program of Study

**Option 1** is tailored for applicants who have completed the USU Extension Dietetics Internship. Students must complete a minimum of 41 credits and a Plan B thesis. The completed USU Extension Dietetics Internship provides 26 of the 41 credits. Following the internship, 15

additional credits are required including: NFS 6780, 6900 (3 credits), 6970 (2 credits), 7800 (1 credit), and two courses to be determined by the MDA candidate and the Advisory Committee.

**Option 2** is tailored to the registered dietitian with at least two years of work experience. A minimum of 30 credits is required for this Plan B option. Students must complete 18 credits from the NFS Department and a minimum of 6 credits each in two of the three related disciplines. These disciplines include overall management, financial management, and human resource management. Coursework will be based on the student's career goals and competencies. The following courses are required: NFS 4750, 5200, 5210, 5510, 6750, 6780, 6900 (3 credits), 6970 (2 credits), and 7800 (1 credit). The remaining courses must be selected from the following: ECN 6310; FIN 3400, 6440; INST 6490; MGT 6370, 6410, 6500, 6550, 6630, 6760.

## Registration Requirements for Graduate Students

Once admitted, students are required to maintain enrollment as follows: at least 3 credits to use University facilities and receive direction (including thesis or dissertation direction) from their major professor; at least 6 credits if on a Graduate Teaching or Research Assistantship (9 credits if employed less than 15 hours per week); at least 9 credits if on a Research Fellowship or unsupported; at least 6 credits if receiving tuition waivers, student loans, or other University-administered financial aid; and no more than 6 credits if employed full time by the University.

## Financial Assistance

Some teaching assistantships and research fellowships and many research assistantships are available to graduate students in the Department of Nutrition and Food Sciences. Teaching assistantships are used to cover the teaching needs of the department. Research fellowships and research assistantships are available through individual faculty members. Most research assistantships are tied to specific research projects.

The Gandhi Scholarship is available, on a competitive basis, to support outstanding students during their graduate education in food science. Each incoming student may select any advisor who fits his or her area of interest in food science. Awards are available for entering master's degree students, as well as for PhD candidates. Applications are due February 1. To obtain an application, visit the Department of Nutrition and Food Sciences website or contact the departmental staff.

## Career Opportunities

There is a continuing shortage of MS and PhD graduates in nutrition and food sciences. Many MS graduates go on to obtain a PhD, but all graduates have a wide choice of career opportunities.

## Additional Information

Additional information and updates may be obtained by writing or telephoning the Department of Nutrition and Food Sciences directly or by checking out the departmental website at: <http://www.nfs.usu.edu/>

Graduation requirements described in this catalog are subject to change. Students should check with the Department of Nutrition and Food Sciences concerning possible changes.

# Department of Nutrition and Food Sciences

## Nutrition and Food Sciences Faculty

### Professors

*Jeffery R. Broadbent*, food science, microbial genetics  
*Charles E. Carpenter*, food science, muscle biochemistry and physiology, meat processing  
*Nedra K. Christensen*, nutrition, dietetics  
*Daren P. Cornforth*, food science, meat and muscle chemistry  
*Conly L. Hansen*, food science, food engineering  
*Michael Lefevre*, nutrition  
*Donald J. McMahon*, food science, dairy chemistry and technology  
*Ronald G. Munger*, nutrition, epidemiology, and public health  
*Ilka Nemere*, nutrition, molecular nutrition

### Clinical Professors

*Janet B. Anderson*, dietetics, food science management, food safety  
*Noreen B. Schvaneveldt*, dietetics, clinical nutrition

### Adjunct Professors

*Gary M. Chan*, pediatrics  
*Timothy A. Gilbertson*, biology  
*Craig J. Oberg*, microbiology

### Professors Emeritus

*Deloy G. Hendricks*  
*Georgia C. Lauritzen*  
*Von T. Mendenhall*  
*Gary H. Richardson*  
*Ann W. Sorenson*  
*Bonita W. Wyse*

### Associate Professor

*Marie K. Walsh*, food science, dairy chemistry

### Clinical Associate Professor

*Tamara S. Vitale*, dietetics, community nutrition

### Adjunct Associate Professors

*Barbara Chatfield*, pediatric pulmonology  
*Paul A. Savello*, dairy processing and food science, food laws and regulations, milk ultra high temperature and whitening

### Adjunct Clinical Associate Professor

*Heidi Reese LeBlanc*, dietetics

### Adjunct Research Associate Professor

*Laurie J. Moyer-Mileur*, pediatric nutrition

### Associate Professor Emeritus

*Charlotte P. Brennand*

### Assistant Professors

*Korry Hintze*, nutrition, nutrient-gene interaction, iron metabolism, selenium metabolism  
*Silvana Martini*, characterization of lipids, sensory evaluation of foods, product development  
*Brian A. Nummer*, biosecurity, food service, food safety, food process development  
*Robert E. Ward*, bioactive nutrients, food and lipid analysis  
*Heidi J. Wengreen*, nutrition, clinical dietetics, epidemiology  
*Siew Sun Wong*, nutrition, nutrition education program, epidemiology

### Research Assistant Professor

*Dong Chen*, molecular structure and biochemistry

### Clinical Assistant Professor

*Megan Bunch Smith*, dietetics

### Adjunct Research Assistant Professors

*Thomas Jared Bunch*, dietetics  
*Catherine McDonald*, pediatric nutrition, clinical dietetics

### Adjunct Clinical Assistant Professors

*W. Daniel Jackson*, pediatrics  
*Ann M. Mildenhall*, dietetics, director of dietetic internship program  
*Julianne Steiner*, dietetics, diabetes  
*Clinton Wasuita*, dietetics

### Adjunct Assistant Professor

*Theodore Liou*, nutrition, internal medicine, pulmonology

### Assistant Professor Emeritus

*Frances G. Taylor*

### Clinical Instructors

*Marlene Israelsen*, dietetics, nutrition  
*Janette Smith*, dietetics, nutrition

### Adjunct Clinical Instructors

*Sarah Gunnell*, dietetics  
*Kim McMahon*, dietetics/food service management  
*Cynthia Mitchell*, dietetics management  
*Jennie Oler*, Assistant Director of Dietetic Internship Program; dietetics  
*Rachel T. Rood*, dietetics  
*Pauline Williams*, dietetics

### Lecturers

*Karin Allen*, food science  
*Randall T. Bagley*, dairy processing  
*Dick R. Whittier*, meat processing

### Adjunct Clinical Lecturer

*Suzette Holt*, dietetics

## Course Descriptions

Nutrition and Food Sciences (NFS), pages 619-623

# Office Systems Support AAS Degree

**Program Director/Advisor:** Dennis Garner  
**Location:** Uintah Basin Regional Campus (Roosevelt)  
**Phone:** (435) 722-1713  
**FAX:** (435) 722-4889  
**E-mail:** dennisg@ext.usu.edu  
**WWW:** <http://www.usu.edu/cob/oss>

## Objectives

This 2+2 program, offered *only* through Continuing Education, leads to an Associate of Applied Science (AAS) degree in Office Systems Support (OSS). This degree is offered through the Center for Independent and Distance Learning (CIDL) at Continuing Education Centers located in Logan, Brigham City, Tooele, and the Uintah Basin. The OSS curriculum reflects the IS 2002 Model Curriculum for undergraduate programs developed by information systems professionals and educators. This degree is designed to prepare students for office positions using the latest office skills and the applications of computer technology for transmitting business information. Although the degree is a two-year program, students who take articulated classes, concurrent enrollment classes, or challenge tests can complete the degree in less than two years.

## Admission Requirements

1. New freshmen admitted to USU in good standing qualify for admission to this major.
2. Transfer students from other institutions and from other USU majors need a 2.20 total GPA for admission to this major in good standing.

## Degree Requirements

The OSS degree program is a blend of Office Systems Support courses and courses from other departments. Students begin by taking English, communications, mathematics, and microcomputer courses that provide knowledge and skills useful in everyday office work. In addition, they select a number of courses from those approved for University Studies. Classes in English; Sociology; Psychology; Family, Consumer, and Human Development; and Business Administration are recommended. Next, students learn advanced word processing and business correspondence skills needed in today's offices. Students also learn about computers, accounting, and economics. After completing the prerequisite knowledge and skill courses, students are placed in internship positions for on-the-job training.

In completing the minimum 65 credits required in the program, students will complete courses related to their major, such as accounting and information systems. They will also select courses of their own choice. The requirements for this program, including University Studies requirements, are summarized below. Students are urged to visit with their advisor on a regular basis about progress toward the completion of the program.

## Career Opportunities

Recent graduates have been employed in various occupations, including Medicare specialist, senior administrative assistant, computer analyst, and as administrative assistants in legal, marketing, and accounting offices.

## Academic Advisement

All students should contact their academic advisor for assistance with course selection, program planning, and meeting graduation requirements. If they do not know who their advisor is, students should contact the Continuing Education center through which they are completing their degree.

## Graduation Requirements (65 credits)

All courses completed as part of this program may also be applied toward the requirements for a bachelor's degree. Some classes may have prerequisites. For further information, review this catalog.

## University Studies Requirements (18-19 credits)

### Communications Literacy (6 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose .....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3

### Quantitative Literacy (3-4 credits)

MATH 1050 (QL) College Algebra (4 cr) or	
MATH 1100 (QL) Calculus Techniques (3 cr).....	3 or 4

### Computer and Information Literacy (CIL)

No specific course is required, but students must pass competency exams in computer and information literacy. See the *General Education Requirements* section (page 67) for more information. OSS 1400 is designed to prepare students for these competency exams.

### Breadth Requirements (9 credits)

Two of the following three classes <i>must</i> have a USU prefix.	
Breadth Humanities (BHU) course (USU 1320 recommended) .....	3
Breadth Life Sciences (BLS) course (USU 1350 recommended).....	3
Breadth Physical Sciences (BPS) course (USU 1360 recommended)..	3

## Elective Requirements (4-5 credits)

## Major Area Requirements (33 credits) (2.5 GPA)

ACCT 2010 Survey of Accounting I.....	3
BUS 2250 Introductory Internship (pre-approval required) .....	3
MIS 2100 Principles of Management Information Systems.....	3
MIS 2200 (CI) Business Communication.....	3
OSS 1400 Microcomputer Applications (3 cr) or	
OSS 1410 Special Topics: Basic Computer Concepts .....	3
OSS 1420 Word Processing Applications .....	3
OSS 1550 (CI) Business Correspondence.....	3
OSS 2300 Data Communications and Networking.....	3
OSS 2400 Web Design Applications .....	3
OSS 2520 Integrating Office Technology .....	3
OSS 2600 Office Procedures .....	3

# Office Systems Support AAS Degree

## Related Area Requirements (9 credits)

Students must also take 9 or more credits from the following recommended courses. Students must choose from *at least two* areas.

### Accounting

ACCT 1550 Accounting Software for Small Business Applications.....	3
ACCT 2020 Survey of Accounting II.....	3
BUS 3010 Intermediate Accounting I.....	3

### Business Information Systems

BUS 3330 Essentials of Database Systems.....	3
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### Office Systems Support

OSS 1410 Special Topics.....	1-3
OSS 2450 Spreadsheets and Databases.....	3
OSS 2500 Visual Basic Applications.....	3

### General Business

ACCT 1050 Accounting Essentials.....	3
BUS 3110 (DSS) Management Fundamentals.....	3
BUS 3710 Interpersonal and Team Skills.....	3
ECN 1500 (BAI) Introduction to Economic Institutions, History, and Principles.....	3
ECN 2010 (BSS) Introduction to Microeconomics.....	3
MGT 1350 Introduction to Business.....	3
MGT 2050 Legal and Ethical Environment of Business.....	3
PSY 1010 (BSS) General Psychology.....	3

### English (ENGL Electives)

### Other Courses Approved by Advisor

## Course Descriptions

Office Systems Support (OSS), page 624



# Department of Physics

**Department Head:** Jan J. Sojka  
**Location:** Science Engineering Research 250A  
**Phone:** (435) 797-2857  
**FAX:** (435) 797-2492  
**E-mail:** physics@usu.edu  
**WWW:** http://www.physics.usu.edu/

**Assistant Department Head:**  
Charles G. Torre, Science Engineering Research 232,  
(435) 797-3426, charles.torre@usu.edu

**Academic Advisor:**  
Karalee Ransom, Science Engineering Research 250D,  
(435) 797-4021, karalee.ransom@usu.edu

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA),  
Master of Science (MS), and Doctor of Philosophy (PhD) in Physics;  
BS in Physics Teaching; BS in Composite Teaching—Physical Science  
(Physics)

**Undergraduate emphases:** BS—Professional Emphasis or Applied  
Emphasis

**Graduate specializations:** Electromagnetic Theory, Industrial Physics  
(MS only), Space Science, Surface Physics, Theoretical Physics,  
Upper Atmospheric Physics (MS only)

## Undergraduate Programs

### Objectives

The Physics Department embraces undergraduate students from all quarters of the University—in introductory courses required for majors by various departments, in courses for more general audiences that are part of the University Studies Program, and in upper-level courses designed primarily to fulfill bachelor's degree requirements in Physics. These courses, and the degree programs offered, are strongly impacted by the department's central goals:

1. to communicate the beauty and utility of the fundamental principles of the physical universe and the power of describing nature in quantitative terms,
2. to create new knowledge,
3. to foster critical and creative thinking,
4. to enhance the ability of citizens to participate in a technological democracy,
5. to assist in the preparation of elementary and secondary school teachers,
6. to provide opportunities for students to sharpen their communication and interpersonal skills, and
7. to develop new tools and texts to improve physics pedagogy.

The degree programs of the department are constructed to be rigorous, yet flexible, and are intended to help students prepare for careers in academia, government and industrial laboratories, medicine, law, teaching, and business. Required course and laboratory work in these programs carefully balances theory and experiment. Because the department believes one must participate in

discovery to understand science, undergraduates are encouraged to engage in departmental research early in their studies, and a formal research experience is integral to most departmental programs. The department's Microgravity Research Team (MRT) activities provide excellent opportunities for students of all backgrounds to participate in space-related research.

## Requirements

### Departmental Admission and Graduation Requirements

New freshmen admitted to USU in good standing qualify for admission to the degree programs in Physics. Admission in good standing for students transferring from another institution requires a minimum transfer GPA of 2.2, while students transferring from another USU major are required to have a minimum total GPA of 2.0. Students wishing to complete the Teaching Major in Physics must apply for admission to the Secondary Education program as well. Requirements for admission to the **Secondary Teacher Education Program (STEP)** include a minimum GPA of 2.75 in either PHYS 2110 and 2120, or PHYS 2210 and 2220; and at least 60 total credits completed with a minimum GPA of 2.75. A Composite Teaching Major in Physical Science is available through either the Physics or the Chemistry and Biochemistry departments. Students applying for admission to the STEP with the Composite major must satisfy the latter requirements, plus a minimum GPA of 2.75 in CHEM 1210, 1215, 1220, and 1225.

Students may use no more than one course with the *P-D-F* option to satisfy a major or minor requirement in Physics. All other courses used to satisfy major or minor requirements must be completed with at least a C- grade, and the total GPA in all required Physics courses must be at least 2.3. The Teaching Major and Teaching Minor in Physics and the Composite Teaching Major in Physical Science require a 2.75 minimum GPA in Physics courses and a minimum 2.75 overall GPA for graduation.

### College of Science Requirements

The College of Science requires a year of mathematics (8 credits) and a year sequence in science (6-8 credits) for all of its majors. For Physics majors, the College of Science requirements are:

<b>MATH 1210 (QL)</b> Calculus I, (F,Sp,Su) .....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su) .....	4

#### Choose one of the following pairs of courses:

<b>BIOL 1610</b> Biology I (F) (4 cr) <b>and</b>	
<b>BIOL 1620 (BLS)</b> Biology II (Sp) (4 cr) .....	8
<b>Or</b>	
<b>CHEM 1210</b> Principles of Chemistry I (F,Sp) (4 cr) <b>and</b>	
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su) (4 cr) .....	8
<b>Or</b>	
<b>GEO 1110 (BPS)</b> The Dynamic Earth: Physical Geology (F,Sp) (4 cr) <b>and</b>	
<b>GEO 3200 (DSC)</b> The Earth Through Time (Sp) (4 cr) .....	8

### Bachelor's Degrees and Core Requirements

The Physics Department awards the following degrees: BS in Physics, BA in Physics, BS in Physics with a Professional Emphasis, BS in Physics with an Applied Emphasis, BS in Mathematics and Physics Dual Major Option, BS in Physics Teaching, and BS in Composite Teaching—Physical Science.

Except for the two Teaching Majors, all degrees require a common core (42 credits):

## A. College of Science Requirements (16 credits)

### B. Required Physics Courses (23 credits)

<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I (4 cr) and	
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II (4 cr) .....	8

Or

<b>PHYS 2110</b> The Physics of Living Systems I (4 cr) and	
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II (4 cr) .....	8
<small>(PHYS 2210 and 2220 are preferred.)</small>	

<b>PHYS 2500</b> Introduction to Computer Methods in Physics .....	2
<b>PHYS 2710</b> Introductory Modern Physics .....	3
<b>PHYS 3550</b> Intermediate Classical Mechanics .....	3
<b>PHYS 3600</b> Intermediate Electromagnetism .....	3
<b>PHYS 3870 (CI)</b> Intermediate Laboratory I .....	2
<b>PHYS 4900 (CI)</b> Research in Physics .....	2

### C. Required Mathematics Courses (7 credits)

<b>MATH 2210 (QI)</b> Multivariable Calculus (F,Sp,Su) .....	3
<b>MATH 2250 (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su) .....	4

The specific requirements beyond this core for the various bachelor's degrees are:

#### 1. Bachelor of Science Degree in Physics (11 credits)

<b>PHYS 3710</b> Intermediate Modern Physics .....	3
<b>PHYS 3700</b> Thermal Physics (3 cr) or	
<b>PHYS 4650</b> Optics I (3 cr) .....	3
Elective courses in Physics at the 3500 level and above ( <i>not</i> to include PHYS courses designated as University Studies depth courses) .....	5

#### 2. Bachelor of Arts Degree in Physics (28 credits)

<b>PHIL 4310 (DHA)</b> Philosophy of Science (Sp) .....	3
<b>PHIL 4320 (DHA)</b> History of Scientific Thought .....	3
Elective courses in Physics at the 3500 level and above ( <i>not</i> to include PHYS courses designated as University Studies depth courses) .....	6
Two years training (or equivalent) in a foreign language .....	16

#### 3. Bachelor of Science Degree in Physics with a Professional Emphasis (25 credits)

<b>PHYS 3700</b> Thermal Physics .....	3
<b>PHYS 3710</b> Intermediate Modern Physics .....	3
<b>PHYS 3750</b> Foundations of Wave Phenomena .....	3
<b>PHYS 3880 (CI)</b> Intermediate Laboratory II .....	2
<b>PHYS 4600</b> Advanced Electromagnetism .....	3
<b>PHYS 4650</b> Optics I .....	3
<b>PHYS 4700</b> Quantum Mechanics I .....	3
<b>PHYS 4710</b> Quantum Mechanics II .....	3
<b>PHYS 4900 (CI)</b> Research in Physics .....	2

#### 4. Bachelor of Science Degree in Physics with an Applied Emphasis (20 credits)

<b>PHYS 3700</b> Thermal Physics .....	3
<b>PHYS 3880 (CI)</b> Intermediate Laboratory II .....	2
<b>PHYS 4650</b> Optics I .....	3
Elective courses in other technical departments at the 3000 level or above ( <i>not</i> to include courses designated as University Studies depth courses). Selected courses must have a coherent theme and must be approved by the Physics Department .....	12

## 5. Mathematics and Physics Dual Major Option

By fulfilling *all degree requirements for any two separate majors*, it is possible for a student to receive a diploma having two majors listed. Because most physics majors are required to complete a minimum of 14 credits in mathematics courses, many students elect to complete the requirements for a BS degree in mathematics, as well as the requirements for their physics degree.

### Minor in Physics

Majors in other departments may obtain a minor in physics by successfully completing the following courses:

<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I (4 cr) and	
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II (4 cr) .....	8

Or

<b>PHYS 2110</b> The Physics of Living Systems I (4 cr) and	
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II (4 cr) .....	8
<small>(PHYS 2210 and 2220 are preferred.)</small>	

To obtain a physics minor, students must also select 10 additional credits from PHYS 2500, 2710, and/or PHYS courses at the 3000 level and above (*not* to include PHYS courses designated as USU Depth courses). Note that MATH 1100 or 1210 is a prerequisite for PHYS 2110, MATH 1210 is a prerequisite for PHYS 2210, and MATH 1220 is a prerequisite for PHYS 2710.

### Bachelor of Science in Physics Teaching with a Teaching Minor

In addition to the College of Science requirements, courses required for the Bachelor of Science in Physics Teaching with a Teaching Minor include the following:

<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su) .....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su) .....	4
<b>MATH 2250 (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su) .....	4
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) .....	3

<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I (4 cr) and	
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II (4 cr) .....	8

Or (PHYS 2210, 2220 preferred; or PHYS 2110, 2120)

<b>PHYS 2110</b> The Physics of Living Systems I (4 cr) and	
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II (4 cr) .....	8

<b>PHYS 1040 (BPS)</b> Introductory Astronomy .....	3
<b>PHYS 2500</b> Introduction to Computer Methods in Physics .....	2
<b>PHYS 2710</b> Introductory Modern Physics .....	3
<b>PHYS 3710</b> Intermediate Modern Physics .....	3
<b>PHYS 3870 (CI)</b> Intermediate Laboratory I .....	2

In addition, student must select 5 credits in Physics above the 3000 level (including USU Depth courses); SCI 4300; and 8 credits in science, with 4 credits minimum in each of the two areas not covered by the College of Science science sequence requirement.

Students seeking this degree must complete the requirements for the Secondary Teacher Education Program (STEP). Admission to the STEP with this major requires a minimum GPA of 2.75 in either PHYS 2110 and 2120 or PHYS 2210 and 2220, in addition to Secondary Education Program requirements.

# Department of Physics

**Note:** All USU teacher education candidates will be required to take and pass the content exam approved by the Utah State Office of Education in their major content area prior to student teaching.

## Bachelor of Science Degree in Composite Teaching—Physical Science (91-92 credits)

Courses required for the Bachelor of Science in Composite Teaching—Physical Science include the following:

<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su) .....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su) .....	4
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) .....	3
<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I (4 cr) <b>and</b>	
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II (4 cr) .....	8
<b>Or</b>	
<b>PHYS 2110</b> The Physics of Living Systems I (4 cr) <b>and</b>	
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II (4 cr) .....	8
(PHYS 2210 and 2220 are preferred.)	
<b>PHYS 1040 (BPS)</b> Introductory Astronomy .....	3
<b>PHYS 1080 (BPS)</b> Intelligent Life in the Universe (sometimes listed as USU 1360, IPS: Intelligent Life in the Universe) (3 cr) <b>or</b>	
<b>PHYS 3030 (QI)</b> The Universe (3 cr) .....	3
Elective courses in Physics from PHYS 2500, 2710, and/or PHYS courses at the 3000 level and above (including USU Depth courses) .....	5
<b>CHEM 1210</b> Principles of Chemistry I (F,Sp) .....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp) .....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su) .....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp) .....	1
<b>CHEM 2300</b> Principles of Organic Chemistry (F) (3 cr) <b>or</b>	
<b>CHEM 2310</b> Organic Chemistry I (F) (4 cr) .....	3 or 4
<b>CHEM 2315</b> Organic Chemistry Laboratory I (F) .....	1
<b>BIOL 1010 (BLS)</b> Biology and the Citizen (F,Sp,Su) .....	3
<b>GEO 1110 (BPS)</b> The Dynamic Earth: Physical Geology (F,Sp) .....	4
<b>CLIM 2000 (BPS)</b> The Atmosphere and Weather (F,Sp) .....	3
<b>SCI 4300</b> Science in Society (F,Sp) .....	2

Students seeking this degree must complete the requirements for the Secondary Teacher Education Program (STEP). Admission to the STEP with this major requires a minimum GPA of 2.75 in either PHYS 2110 and 2120 **or** PHYS 2210 and 2220, in addition to Secondary Education Program requirements.

Students who may wish to teach Integrated Science at the middle or junior high school level should talk to their advisor about completing the courses necessary for an Integrated Science endorsement.

**Note:** All USU teacher education candidates will be required to take and pass the content exam approved by the Utah State Office of Education in their major content area prior to student teaching.

## Suggested Four-year Plans

Suggested semester-by-semester four-year plans for students working toward a Bachelor of Science or Bachelor of Arts degree in majors within the Department of Physics can be found at:

<http://www.usu.edu/degreplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Teaching Minor in Physics

Students who complete the Secondary Teacher Education Program (STEP) are eligible to obtain a Teaching Minor in Physics by successfully completing the following courses:

<b>PHYS 1040 (BPS)</b> Introductory Astronomy .....	3
<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I (4 cr) <b>and</b>	
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II (4 cr) .....	8
<b>Or</b>	
<b>PHYS 2110</b> The Physics of Living Systems I (4 cr) <b>and</b>	
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II (4 cr) .....	8
(PHYS 2210 and 2220 are preferred.)	

Elective courses in Physics chosen from PHYS 2500, 2710, and/or courses above the 3000 level (including USU Depth courses) .....

**SCI 4300** Science in Society (F,Sp) (2 cr) **or** Science course (not including Physics) not required by the major, if SCI 4300 is required by the student's major (2-3 cr) ....2 or 3

**Note:** MATH 1100 or 1210 is a prerequisite for PHYS 2110, MATH 1210 is a prerequisite for PHYS 2210, and MATH 1220 is a prerequisite for PHYS 2710.

In addition, the Teaching Minor in Physics requires completion of the Secondary Teacher Education Program (STEP). Admission to the STEP with this major requires a minimum GPA of 2.75 in either PHYS 2110 and 2120, **or** PHYS 2210 and 2220, in addition to Secondary Education Program requirements.

## Secondary Teacher Education Program (STEP) (35 credits)

<b>Level 1 (11 credits)</b>	
<b>SCED 3100</b> Motivation and Classroom Management (F,Sp) .....	3
<b>SCED 3210 (CI/DSS)</b> Educational and Multicultural Foundations (F,Sp) .....	3
<b>SCED 3300</b> Clinical Experience I (40 hours minimum) (F,Sp) .....	1
<b>SCED 3400</b> Teaching Science I (Sp) .....	3
<b>INST 3500</b> Technology Tools for Secondary Teachers (F,Sp,Su) .....	1

<b>Level 2 (12 credits)</b>	
<b>SCED 4200 (CI)</b> Reading, Writing, and Technology (F,Sp) .....	3
<b>SCED 4210</b> Cognition and Evaluation of Student Learning (F,Sp) .....	3
<b>SCED 4300</b> Clinical Experience II (40 hours minimum) (F,Sp) .....	1
<b>SCED 4400</b> Teaching Science II (F) .....	3
<b>SPED 4000</b> Education of Exceptional Individuals (may be taken at any time) (F,Sp,Su) .....	2

<b>Level 3 (12 credits)</b>	
<b>SCED 5500</b> Student Teaching Seminar (2 weeks) (F,Sp) .....	2
<b>SCED 5630</b> Student Teaching in Secondary Schools (13 weeks, full-time) (F,Sp) .....	10

**Note:** The Teaching Science I and II courses (SCED 3400 and 4400) are *only* taught once per year. Therefore, it is important for students to consult with their advisor to fit these courses in the correct sequence into their plan of study.

## Undergraduate Research Opportunities

The Physics Department at Utah State University has a long record of successfully involving its undergraduate students in research and extracurricular scholarly activities. Learning what science is requires more than just doing homework and taking exams; it requires getting involved in the pursuit of knowledge that is not yet in any textbook. Undergraduates can take PHYS 4900 (Research in Physics) for academic credit. However, many students participate in research activities without credit, because they enjoy being immersed in the act of discovery. Having a meaningful research experience and working closely with faculty are useful for applying for employment, admission to graduate schools, and applying for competitive scholarships. For more information, contact David Peak at david.peak@usu.edu, or visit the following website:

<http://www.physics.usu.edu/research/undergrad.html>

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Learning Objectives

The Physics Department has the following learning objectives. While many of these objectives are applicable to all six departmental programs, some apply only to specific programs. To see which program(s) includes each learning objective, see the footnotes which follow.

1. Capable communication, written and oral<sup>1,2,3,4,5,6</sup>
2. Skepticism<sup>1,2,3,4,5,6</sup>
3. Ability in critical thinking and problem solving<sup>1,2,3,4,5,6</sup>
4. Knowledge of physics subjects to an advanced undergraduate level<sup>1,2,3,4,5,6</sup>
5. Wide knowledge of physics subjects to an advanced undergraduate level<sup>2,3</sup>
6. Knowledge of focused applied areas of study to the undergraduate level<sup>4</sup>
7. Experience in experimental physics<sup>1,2,3,4,5,6</sup>

8. Experience in physics research<sup>1,2,3,4,5,6</sup>
9. Knowledge of computer methods in physics<sup>1,2,3,4,5,6</sup>
10. Knowledge of broadening subjects<sup>1,2,3,4,5,6</sup>
11. Knowledge of mathematics to undergraduate calculus level<sup>1,2,3,4,5,6</sup>
12. Knowledge of mathematics to undergraduate differential equations level<sup>1,2,3,4,5</sup>
13. Knowledge of statistics to undergraduate level<sup>5,6</sup>
14. Knowledge of philosophy of science to the undergraduate level<sup>1</sup>
15. Knowledge of a foreign language to the undergraduate level<sup>1</sup>

### Programs:

The footnotes following each of the preceding learning objectives indicate which program(s) include that objective. The six undergraduate programs are as follows:

<sup>1</sup>BA degree in physics

<sup>2</sup>BS degree in physics

<sup>3</sup>BS degree in physics with professional emphasis

<sup>4</sup>BS degree in physics with applied emphasis

<sup>5</sup>BS degree in physics teaching

<sup>6</sup>BS degree in composite teaching

## Assessment

The Physics Department supports an ongoing program of assessment based upon input from students, alumni, colleagues, professional organizations, etc. For details, see:

<http://www.physics.usu.edu/assessment/assessment.htm>

## Financial Support

The Physics Department has several small scholarship funds available for physics majors with excellent academic records. In addition, there are a number of Microgravity Research Team (MRT) scholarships for students interested in designing and constructing experiments to be flown in space and in participating in other MRT activities. Inquiries should be made with the Physics advisor in SER 250.

## Additional Information

Information concerning degree programs, recommended schedules of courses, career opportunities, and opportunities to participate in the Microgravity Research Team (MRT) activities and in other areas of undergraduate research may be obtained by consulting the Physics advisor in SER 250. Also see the department's website at: <http://www.physics.usu.edu/>

Major requirement sheets, which provide details of undergraduate programs in physics, can be obtained from the department, or online at: <http://www.usu.edu/majorsheets/>

# Department of Physics

## Graduate Programs

### Admission Requirements

In addition to the general requirements for admission established by the School of Graduate Studies (see pages 36-37), the department admission committee bases its decisions for offering admission on the following criteria: review of applicants' undergraduate records, letters of recommendation, performance in graduate courses (if any), performance in research (if any), and scores on the General portion of the Graduate Record Examination. Students whose native language is not English are strongly encouraged to submit to the School of Graduate Studies results of the Test of Spoken English (TSE). Regardless, nonnative English speakers must submit a score for the Test of English as a Foreign Language (TOEFL). If a satisfactory score on the TSE is not provided, such students will be required to take a test given by the Intensive English Language Institute (IELI) at USU. The purpose of this test is to guide the selection of remedial language courses, if needed, to help with physics coursework comprehension. (See also *Financial Assistance*, page 413.)

### Placement

Prior to registering for graduate courses for the first time, each student will consult with the Graduate Student Tracking Committee and the departmental advisor. Based on these discussions, the student will be advised to register for courses in either the Physics Department standard curriculum or advanced curriculum. Continuing advisement concerning courses will be provided by the Graduate Student Tracking Committee, the departmental advisor, and the student's graduate supervisory committee.

### Qualification Requirements

Each student enrolled in the PhD program will be evaluated for qualification for PhD work. Consideration of qualification will occur no later than the end of the second semester after the student has been admitted for study in the PhD program and has taken a first graduate course in physics. Evaluation will be based on whatever relevant information the student wishes to have presented on his or her behalf (coursework, research, TA performance, subject GRE, etc.), but must include a faculty evaluation of coursework in physics for courses taken at USU. Normally, the student should present the results of at least four physics courses. Students admitted to the PhD program with considerable coursework from another institution, who have not taken at least four courses in physics at USU, must present a qualification seminar to the Department of Physics on research he or she has done during the preceding year at USU. Based on the various pieces of information presented on behalf of the student, the department will judge whether or not the student is qualified to continue in the PhD program. If not, a student already having an MS in physics from USU will be asked to leave. A student without an MS in physics from USU will be invited to finish his or her MS degree. Upon completion, the student can reapply to the PhD program, but acceptance will be contingent on the evaluation of the student's graduate work to that point.

## Degree Programs

### Master of Science

In addition to the above general requirements, students completing a Plan A MS degree must complete four of the nine required PhD courses listed below (see Doctor of Philosophy). Plan B MS students must complete five of the nine courses, and Plan C MS students must

complete six of the nine courses. Each student is required to pass PHYS 5800 (Physics Colloquium) for four consecutive semesters, beginning with the first semester after matriculation. The student must also submit and orally defend either a thesis (Plan A) or a research report (Plan B) at the discretion of the student's supervisory committee. Plan A and Plan B MS candidates must present a colloquium to the department on the research topic during the time the thesis or research report is being written. The department also accepts Plan C, which has no research component. For Plan C, the student must complete 33 credits of graduate-level classwork, the composition of which shall include the required courses listed above. In addition, the student must present a seminar and a paper to his or her supervisory committee on a topic related to educational or managerial aspects of physics graduate education, which is chosen by his or her supervisory committee.

### Master of Science (Upper Atmospheric Physics Specialization)

The department offers a specialization in Upper Atmospheric Physics for MS students. This degree is a Plan A MS. In consultation with his or her advisor, the student selects a minimum of 18 credits of classwork from the following courses:

<b>PHYS 4600</b> Advanced Electromagnetism .....	3
<b>PHYS 6240</b> Space Environment and Engineering .....	3
<b>PHYS 6310</b> Solar-terrestrial Physics I .....	3
<b>PHYS 6320</b> Solar-terrestrial Physics II .....	3
<b>PHYS 6330</b> Plasma Physics I .....	3
<b>PHYS 6340</b> Plasma Physics II .....	3
<b>PHYS 7210</b> Spacecraft Instrumentation (Sp) .....	3
<b>PHYS 7500</b> Advanced Topics in Physics (Topic) .....	3

Three to six additional credits may be chosen from courses in electrical engineering, computer science, mathematics, and biometeorology. The student may gain from 6 to 12 credits by research, to be written up as a thesis that must be defended orally. In addition, the student must present a colloquium on the topic of his or her research.

### Doctor of Philosophy

In addition to the general requirements, a total of nine courses (27 credits) are required for all PhD students. The required courses are:

<b>PHYS 5340</b> Methods of Theoretical Physics I .....	3
<b>PHYS 5350</b> Methods of Theoretical Physics II .....	3
<b>PHYS 6010</b> Classical Mechanics I .....	3
<b>PHYS 6110</b> Electrodynamics I .....	3
<b>PHYS 6210</b> Quantum Mechanics I .....	3
<b>PHYS 6410</b> Statistical Mechanics I .....	3
One State of Matter course .....	3
Two courses in Advanced Topics .....	6

The State of Matter requirement can be fulfilled by taking any one of PHYS 6330 (Plasma Physics I), 6530 (Solid State Physics I), or 6930 (Quantum Field Theory I). These courses must be completed no more than one year after PhD qualification. Each student is required to pass PHYS 5800 (Physics Colloquium) for four consecutive semesters, beginning with the first semester after matriculation. The student must also take an oral candidacy examination, consisting of a presentation made by the student, then followed by questions from departmental faculty. The presentation and questions will be based upon a research topic set by the student's supervisory committee. The candidacy oral examination will normally occur no later than the fifth semester after the student begins graduate coursework. The student will have at least two months to prepare for the examination.

The student must also complete a research dissertation and give an oral defense of the dissertation. Furthermore, the PhD candidate is expected to give two colloquia to the department. The first of these will normally be given at the time of submission of the research proposal, with the other given at the time the dissertation is completed.

## Research

### Space Science

The Physics Department is active in the field of atmospheric and space science, in close association with the interdisciplinary Center for Atmospheric and Space Sciences and the Space Dynamics Laboratory. Atmospheric and space science involves many areas of physics, in addition to such disciplines as engineering, chemistry, and meteorology. At USU, these groups enjoy a strong cooperative relationship and, as a result, the atmospheric and space science program has flourished for many years. Once the departmental requirements have been met, students may select courses from the offerings of the associated departments suited for their particular interests and needs while they gain research experience on challenging problems in atmospheric and space science. Opportunities are available for students in both experimental and theoretical projects. These include participation in instrument development and data analysis related to rocket, satellite, and space shuttle projects and projects in experimental design and data analysis related to incoherent-scatter and coherent radars, ground-based magnetometer, and ground-based optical instruments including a LIDAR system. Opportunities also exist in theoretical modeling of physical processes occurring in both the neutral atmosphere and in the plasma in the solar-terrestrial environment.

### Plasma Theory and Confinement

Research in the field of magnetic confinement fusion at Utah State University includes the theoretical development and experimental realization of minimum-energy confinement configurations possessing substantial electric fields. These configurations hold promise as neutron and energy sources and are being developed as a collaborative effort between Dr. Farrell Edwards and Dr. Eric Held. In addition, Dr. Held is involved in developing improved hybrid fluid/kinetic models for terrestrial and astrophysical plasmas. This work provides theoretical support for next-step fusion experiments such as the International Thermonuclear Experimental Reactor (ITER).

### Surface Physics

The surface physics group has an active experimental research program studying the structure, growth, dynamics, electronic properties, and optical properties of surfaces, interfaces, and adsorbed layers. The group has expertise in the interactions of electrons, ions, and photons with materials. Experimental techniques used within the group include atomic force microscopy (AFM), Auger electron spectroscopy (AES), infrared spectroscopy, ion scattering spectroscopy, ion implantation, low-energy electron diffraction (LEED), photoemission spectroscopy, scanning electron microscopy (SEM), scanning tunneling microscopy (STM), secondary ion mass spectroscopy (SIMS), thermal deflection spectroscopy, ultrafast femtosecond laser spectroscopy, vapor pressure adsorption isotherms, and x-ray diffraction. This interdisciplinary research brings together the fields of solid-state physics, surface physics and chemistry, optics, physical chemistry, and electrochemistry through active collaborations between Physics, Chemistry and Biochemistry, Mechanical and Aerospace Engineering, and other departments. It includes both basic and applied research.

### Physics of Quantum Devices

The rapid advance of technology has made quantum physics an indispensable foundation of the nanoscale devices. The Physics Department is positioned to explore this new field with two complementary research themes. The first theme is to study the growth of novel electronic/photonic materials involving group III-V elements using a commercial, state-of-the-art molecular beam epitaxy machine. Also, novel semiconductor quantum nanostructures are studied using an *in-situ* scanning tunneling microscope directly attached to the machine. The second theme is to use the most advanced surface science techniques to fabricate nanoscale structures on semiconductor surfaces. The interdisciplinary nature of this field provides a stimulating research environment for faculty and students with backgrounds in physics, electrical engineering, material sciences, and chemistry.

### Fields, Astrophysics, and Spacetime Theory

The Fields, Astrophysics, and Spacetime Theory (FAST) group at USU is actively involved in the study of the most fundamental physics principles underlying the fabric of the Cosmos. The FAST group studies the theoretical underpinnings of gravitation and quantum field theory, while exploring how astrophysics plays a role in illuminating these theoretical frameworks. Theoretical research in the FAST group includes explorations of conformal and scale invariant gravity theories and unified field theories, classical and quantum dynamics of the gravitational field, symmetries and conservation laws in relativistic field theories, Lagrangian and Hamiltonian formulation of field theory, and geometrical methods in mathematical physics. Astrophysics research explores how gravitational wave astronomy is changing how we look at the Cosmos, and how observations of the Universe using gravitational waves can illuminate the fundamental structure of gravitational theory itself. The FAST group's research in this area includes simulation of galaxies and binary star systems, extraction of science results from analysis and signal processing of gravitational wave data, and laser interferometer characterization.

### Physics Education

The USU Physics Department is engaged in the study of how to improve the teaching and learning of physics. The program currently emphasizes introductory and general education courses and involves development of hands-on, inquiry-based curricula for lecture and laboratory, development of associated laboratory and multimedia equipment and modules, preparation of new texts and workbooks, sponsorship of undergraduate research, and outreach to the pre-college community.

### Complex Materials and Dynamics

Current work at USU in the interdisciplinary area of complex systems includes theoretical and experimental studies of the physical properties of granular materials, liquid flow in fractured media, and development of new data analysis techniques for uncovering evidence for determinism and computation in biological systems.

### Financial Assistance

Financial assistance in the form of teaching assistantships and fellowships is awarded by the department. Research assistantships are available from research groups or individuals. Some support for teaching laboratory sections or grading papers is available. To be eligible for a teaching assistantship (TA), a student must successfully complete a graduate TA workshop. Nonnative English-speaking students must pass a test of spoken English (or submit a satisfactory TSE score) administered by the Intensive English Language Institute before being admitted to the TA workshop. The MS specialization in Upper Atmospheric Physics is a Western Regional Graduate Program (see page 112).

# Department of Physics

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## Career Opportunities

Master's degree holders in physics are generally employed by industrial or government laboratories as either physicists or engineers. Some are hired as teachers by high schools and by two-year colleges. Holders of the PhD in physics will generally be hired as research and development physicists by industrial or government laboratories and as professors in universities (though this may require additional postdoctoral research experience).

## Additional Information

Regularly updated information about Physics Department activities and programs may be obtained via the Web at:

<http://www.physics.usu.edu/>

## Physics Faculty

### Professors

*J. R. Dennison*, surface physics  
*W. Farrell Edwards*, electromagnetic and plasma theory  
*Bela G. Fejer*, space plasma physics  
*David Peak*, nonlinear dynamics, complex materials  
*Robert W. Schunk*, space plasma physics  
*Tsung-Cheng Shen*, surface physics, nanotechnology  
*Jan J. Sojka*, atmospheric and space physics  
*Michael J. Taylor*, atmospheric and space physics  
*Charles G. Torre*, mathematical and gravitational physics  
*Vincent B. Wickwar*, atmospheric and space physics

### Research Professors

*F. Tom Berkey*, atmospheric and space physics  
*Allen Q. Howard*, electromagnetic theory  
*Kent L. Miller*, atmospheric physics  
*Thomas D. Wilkerson*, atmospheric and space physics

### Adjunct Professors

*Stephen E. Bialkowski*, nonlinear optics and laser spectroscopy  
*Yeaton H. Clifton*, mathematical physics  
*Raymond DeVito*, medical physics  
*Leonard F. Hall*, structure forming systems  
*R. Gilbert Moore*, space physics  
*David Rees*, atmospheric physics  
*Ray W. Russell*, astronomy  
*Neal D. Shinn*, surface interface physics  
*John R. Tucker*, device physics and superconductivity

### Professors Emeritus

*Wilford N. Hansen*, reflection spectroscopy, surface physics  
*Eastman N. Hatch*, nuclear physics  
*Don L. Lind*, space physics  
*V. Gordon Lind*, medium energy nuclear physics  
*William R. Pendleton, Jr.*, atomic and molecular physics  
*W. John Raitt*, space plasma physics  
*John K. Wood*, spectroscopy

### Associate Professors

*Eric D. Held*, plasma physics  
*D. Mark Riffe*, surface physics  
*James T. Wheeler*, mathematical physics, field theory

### Research Associate Professors

*Abdallah R. Barakat*, space plasma physics  
*Howard G. Demars*, space physics  
*Timothy E. Doyle*, random and disordered systems  
*J. Steven Hansen*, image processing  
*Ajay Singh*, plasma physics  
*Lie Zhu*, space physics

### Adjunct Associate Professors

*K. S. Balasubramanian*, solar physics  
*I. Lee Davis*, condensed matter physics  
*Hugo deGaris*, artificial intelligence  
*James S. Dyer*, space contamination and outgassing  
*Jill A. Marshall*, physics education  
*David J. Vieira*, nuclear physics  
*Vladimir Zavyalov*, condensed matter physics

### Associate Professor Emeritus

*Robert E. McAdams*, nuclear physics

### Assistant Professors

*Shane L. Larson*, gravitation and astrophysics  
*Ludger Scherliess*, space physics  
*Haeyeon Yang*, surface physics, nanotechnology

### Adjunct Assistant Professor

*Jeremy R. King*, astrophysics

### Lecturer

*Tonya B. Triplett*, physics education

## Course Descriptions

Physics (PHYS), pages 632-635

# Department of Plants, Soils, and Climate

**Department Head:** Teryl R. Roper  
**Location:** Agricultural Science 322C  
**Phone:** (435) 797-2233  
**FAX:** (435) 797-3376  
**E-mail:** teryl.roper@usu.edu  
**WWW:** <http://psc.usu.edu/>

## Undergraduate Off-Campus Advisor:

Donna B. Minch, Farmington, (801) 451-4604,  
[donna.minch@usu.edu](mailto:donna.minch@usu.edu)

## Graduate Program Coordinator:

Paul G. Johnson, Agricultural Science 306, (435) 797-7039,  
[paul.johnson@usu.edu](mailto:paul.johnson@usu.edu)

**Degrees Offered:** Bachelor of Science (BS) and Bachelor of Arts (BA) in Crop Science, Horticulture, Environmental Soil/Water Science; BS in Residential Landscape Design and Construction; Master of Science (MS), and Doctor of Philosophy (PhD) in Biometeorology, Plant Science, Soil Science, and Ecology; Master of Professional Studies in Horticulture (MPSH)

**Undergraduate emphases:** *Crop Science BS, BA*—Agronomy, Research/Biotechnology; *Horticulture BS, BA*—Ornamental Horticulture, Turfgrass Management, Business, Science; *Environmental Soil/Water Science BS, BA*—Soil, Water, Plant

**Graduate specializations:** *Biometeorology MS, PhD*—Agricultural Meteorology, Climatology, Micrometeorology, Remote Sensing, Turbulence in Plant Canopies; *Plant Science MS, PhD*—Crop Physiology, Crop Production and Management, Molecular Biology, Plant Breeding and Cytology, Plant Biotechnology and Tissue Culture, Plant Nutrition, Space Biology, Weed Science; *Soil Science MS, PhD*—Molecular Biology, Soil and Water Chemistry, Soil Biochemistry and Ecology, Soil Conservation Systems, Soil Fertility and Plant Nutrition, Soil Physics, Soil-Plant-Water Relations, Soil Taxonomy and Genesis, Soils and Irrigation; *Master of Professional Studies in Horticulture (MPSH)*—Water Efficient Landscaping

**Certificate and Associate Degree Program:** Ornamental Horticulture

## Undergraduate Programs

### Objectives

The departmental curricula emphasize understanding the physical, chemical, and biological mechanisms that operate in the continuum of the soil, plants, and the atmosphere; and how they impact management of a wide range of agricultural and natural systems.

The undergraduate teaching program facilitates the acquisition and application of knowledge, understanding, and skills by students within their chosen field of study. The program also prepares students to develop lifelong learning skills, understand and appreciate diversity, be productive citizens of the world, and be professionals in their vocations.

The department also provides training of undergraduates for graduate school and maintains a strong graduate program in biometeorology, plant science, and soil science. The research that underlies the graduate program is conducted in biometeorology (micro- and

meso-scale), crop biotechnology, crop ecology, crop physiology, crop science, horticulture (general and ornamental), plant breeding, soil microbiology, pedology, soil chemistry, soil physics, soil fertility, environmental soil and water science, and arid landscaping.

A major effort is directed at extending research and teaching programs to all citizens of the State of Utah.

## Departmental Facilities

To support these objectives, departmental facilities include well-equipped laboratories and greenhouses on campus. The University has significant acreage for field research at strategic locations throughout the state. In addition, the University is developing a botanical garden, which will offer opportunities to a broad spectra of clientele. The department maintains state-of-the-art analytical equipment for the measurement of critical soil, plant, and climatic variables.

## Requirements

### Departmental Admission Requirements

Persons meeting the admission requirements for the University (see pages 30-35) are admitted to the Department of Plants, Soils, and Climate by listing the department major code on the University admission application form. A change of major form is used when students in good standing wish to transfer from another department to the Department of Plants, Soils, and Climate.

### ARCPACS Certification

Students who meet specific requirements are eligible, after five years of work experience, for professional certification as an Agronomist, Crop Scientist, Crop Specialist, Horticulturist, Soil Scientist, Soil Specialist, or Soil Classifier through the American Registry of Certified Professionals in Agronomy, Crops, and Soils (ARCPACS). General information about ARCPACS certifications can be found at <https://www.agronomy.org/certifications/>. Students interested in becoming certified should inform their advisor of their intent. This certification is granted *in addition* to the bachelor's degree.

### Applied Ornamental Horticulture Certificates and AAS Degree

This program provides practical training in greenhouse and nursery management, turf production, and landscape management. Coursework encompasses pest control, plant identification, construction of landscapes, small business management, and the operation and maintenance of equipment, including small engines. As an integral part of their training, students are required to complete an internship in the industry. Students may work toward a **one-year certificate** or an **Associate of Applied Science Degree**.

### Bachelor of Science Degree

The department offers the Bachelor of Science Degree in four areas: (1) **Crop Science**, which deals with agronomic (commonly called field) crops, such as forages, grains, corn, pasture, etc.; (2) **Horticulture**, which deals with tree fruits, berries, vine fruits, vegetables, and ornamental plants (**ornamental** includes all aspects of landscape plant production and use); (3) **Environmental Soil/Water Science**, which deals with soil and water in relation to plant growth and environmental quality; and (4) **Residential Landscape Design and Construction**, which deals with design, construction, and maintenance of small-scale, residential landscapes. Science-oriented emphases prepare students for research or professional studies, and degree emphases emphasize a practical, applied approach to application of information. All courses



# Department of Plants, Soils, and Climate

used to fill major requirements must be taken on an *A-B-C-D-F* basis. A minimum 2.5 GPA is required for courses used for the major. Transfer students are required to take at least 18 credits of major subject courses in residence at USU. A minor may be earned in Agronomy, Crop Biotechnology, Horticulture, Ornamental Horticulture, and Soil Science. A minimum of 16 approved credits are required (see lists below). All courses must be taken on an *A-B-C-D-F* basis and passed with a grade of C- or better. For information about receiving a Bachelor of Arts degree, consult the departmental undergraduate advisor.

The course requirements for the **Crop Science Major** are designed to prepare students for a career related to the production of agronomic crops. These courses allow students to function well in a rapidly changing technological environment and to acquire new skills and understanding as their career evolves. Each of the emphases within this major has been designed to allow students the flexibility to add courses or a minor to meet their own goals. The **Agronomy Emphasis** is designed for students interested in learning more about the applied aspects of crop production. Some courses emphasize production techniques and systems, while others provide the student with an understanding of the principles underlying crop production. The **Research/Biotechnology Emphasis** is designed for students who wish to participate in the development of plant-oriented technologies at any level of employment, and for those who intend to pursue a career in private or public research requiring graduate degrees. Courses provide the fundamental tools for a twenty-first century career in agriculture.

The **Horticulture Major** prepares students for production of fruits, vegetables, turf, or ornamentals and for landscape construction and maintenance. Course topics include biology, chemistry, and control of insects, diseases, and weeds. The **Ornamental Horticulture Emphasis** adds courses in production management techniques, such as pruning, spraying, and landscaping (materials, design, and maintenance); and greenhouse management. In the **Turfgrass Management Emphasis**, students complete courses in turfgrass management to prepare them for careers in golf course, park, athletic field, and landscaping management. The **Science Emphasis** prepares students for graduate study and for employment in technical occupations. The **Business Emphasis** joins courses necessary for a minor in Business with those necessary for obtaining expertise in horticulture.

The **Environmental Soil/Water Science Major** is intended to provide each student with a fundamental understanding of the basic sciences and mathematics, as well as a strong background in both soil and water sciences. Preparatory requirements include chemistry, physics, mathematics, biology, geology, and statistics. The core courses for Environmental Soil/Water Science emphasize the interactive soil/water processes in the soil's plant-rooting zone—from the microscopic to the landscape perspective. From this base, each student can design his or her own program of specialization in one of the many aspects of soil science, water science, or the integration of both soil and water sciences. Students may choose complementary classes in the **Soil Emphasis**, **Water Emphasis**, or **Plant Emphasis** in preparation for a variety of career opportunities. The Environmental Soil/Water Science Major is complementary to existing undergraduate programs at Utah State University in Geology, Environmental Studies, Watershed and Earth Systems, and Environmental Engineering.

The **Residential Landscape Design and Construction (RLDC) Major** prepares students for careers in the design, construction, and maintenance of small-scale, residential landscapes. Within these career areas, students will foster sustainable water-conserving landscape development by consumers. The overall curriculum strives to balance both landscape horticulture and landscape design. The core curriculum includes preparatory courses in chemistry, mathematics, biology, design, and graphics. Required program courses emphasize the plant sciences (i.e., plant materials, landscape management, weed control, and turfgrass management), soil sciences (fundamentals of soil science, soil reclamation, and remote sensing), and design/construction (i.e., residential landscape design, irrigation design, bidding and estimating, landscape construction, computer-based design, and water conservation). The RLDC Major is complementary to the existing undergraduate program in Landscape Architecture and Environmental Planning.

## Course Requirements

### Crop Science Major

#### Crop Science Major Core Courses (30 credits)

All Crop Science majors must complete the following courses:

<b>BIOL 1610</b> Biology I (F).....	4
<b>BIOL 1620 (BLS)</b> Biology II (Sp).....	4
<b>BIOL 4400 (QI)</b> Plant Physiology (F).....	4
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>PHYS 1200 (BPS)</b> Introduction to Physics by Hands-on Exploration .....	4
<b>PSC 1050</b> Plants, Soils, and Climate Orientation (F).....	1
<b>PSC 3890 (CI)</b> Preparation for Careers in Plants, Soils, and/or Climate (F) .....	1
<b>PSC 4890 (CI)</b> Senior Seminar (Sp).....	1
<b>SOIL 3000</b> Fundamentals of Soil Science (F).....	4

In addition to the courses listed above, students must complete the course requirements for *either* Emphasis A (Agronomy) *or* B (Research/Biotechnology).

#### A. Agronomy Emphasis (56 credits)

Students must complete *all* of the following courses for the Agronomy Emphasis (9 credits).

<b>CHEM 1110 (BPS)</b> General Chemistry I (F,Sp).....	4
<b>CHEM 1115</b> General Chemistry Laboratory (F,Sp).....	1
<b>CHEM 1120 (BPS)</b> General Chemistry II (Sp).....	4

#### Additional Crop-related Courses:

Students must complete at least 36 credits chosen from the following crop-related courses, including all courses identified with an asterisk (\*):

<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su).....	4
<b>BIOL 4410</b> Plant Structure (Sp) .....	3
<b>BIOL 4430*</b> Introduction to Plant Pathology (Sp).....	4
<b>BIOL 4500*</b> Applied Entomology (Sp).....	3
<b>PLSC 3500</b> The Structure and Function of Economic Crop Plants (Sp).....	3
<b>PLSC 3700</b> Plant Propagation (F).....	4
<b>PLSC 3800</b> Turfgrass Management (F) .....	3
<b>PLSC 4280</b> Field Crops (F odd).....	3
<b>PLSC 4320</b> Forage Production and Pasture Ecology (F even).....	3
<b>PLSC 4600 (QI)</b> Cereal Science (Sp even).....	3
<b>PLSC 5200</b> Environmental Plant Physiology (Sp).....	2
<b>PLSC 5550*</b> Weed Biology and Control (F) .....	4
<b>PLSC 5700</b> Principles of Plant Breeding (Sp odd).....	3

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<b>PLSC 5750</b> Crop Biotechnology (Sp odd).....	2
<b>PSC 4250</b> Internship in Plants, Soils, and/or Climate (F,Sp,Su).....	1-4
<b>PSC 5200</b> Site-Specific Agriculture and Landscape/Horticultural Management (Sp, half semester).....	3

## Additional Soils-related Courses:

Students must complete at least 11 credits chosen from the following soils-related courses:

<b>SOIL 4000</b> Soil and Water Conservation (F).....	4
<b>SOIL 4500</b> Soil Reclamation (Sp).....	3
<b>SOIL 4700</b> Irrigated Soils (Sp, half semester).....	3
<b>SOIL 5050</b> Principles of Environmental Soil Chemistry (Sp odd).....	3
<b>SOIL 5130</b> Soil Genesis, Morphology, and Classification (F).....	4
<b>SOIL 5310</b> Soil Microbiology (F even).....	3
<b>SOIL 5320</b> Soil Microbiology Laboratory (F even).....	2
<b>SOIL 5550 (QI)</b> Soils and Plant Nutrient Bioavailability (Sp).....	3
<b>SOIL 5560</b> Analytical Techniques for the Soil Environment (Sp).....	2
<b>SOIL 5650</b> Environmental Soil Physics (F).....	4

## B. Research/Biotechnology Emphasis (55 credits)

Students must complete *all* of the following courses for the Research/Biotechnology Emphasis (37 credits).

<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su).....	4
<b>CHEM 1210</b> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su).....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp).....	1
<b>CHEM 2310</b> Organic Chemistry I (F).....	4
<b>CHEM 2315</b> Organic Chemistry Laboratory I (F).....	1
<b>CHEM 2320</b> Organic Chemistry II (Sp).....	4
<b>CHEM 2325</b> Organic Chemistry Laboratory II (Sp, blocks 1 & 2).....	1
<b>CHEM 3700</b> Introductory Biochemistry (Sp).....	3
<b>CHEM 3710</b> Introductory Biochemistry Laboratory (Sp).....	1
<b>MATH 1060</b> Trigonometry (F,Sp,Su).....	2
<b>PLSC 5200</b> Environmental Plant Physiology (Sp).....	2
<b>PLSC 5750</b> Crop Biotechnology (Sp odd).....	2
<b>SOIL 5550 (QI)</b> Soils and Plant Nutrient Bioavailability (Sp).....	3

## Additional Crop-related Courses:

Students must complete at least 18 credits chosen from the following crop-related courses:

<b>PLSC 3700</b> Plant Propagation (F).....	4
<b>PLSC 4280</b> Field Crops (F odd).....	3
<b>PLSC 4320</b> Forage Production and Pasture Ecology (F even).....	3
<b>PLSC 4600 (QI)</b> Cereal Science (Sp even).....	3
<b>PLSC 5430</b> Plant Nutrition (F odd).....	2
<b>PLSC 5440</b> Plant Molecular, Cellular, and Developmental Biology I (Sp even).....	3
<b>PLSC 5450</b> Plant Molecular, Cellular, and Developmental Biology II (Sp odd).....	3
<b>PLSC 5550</b> Weed Biology and Control (F).....	4
<b>PLSC 5600</b> Plant Water Relations (F).....	2
<b>PLSC 5700</b> Principles of Plant Breeding (Sp odd).....	3
<b>PSC 5160</b> Methods in Biotechnology: Cell Culture (Sp).....	3
<b>PSC 5240</b> Methods in Biotechnology: Protein Purification Techniques (Sp).....	3
<b>PSC 5260</b> Methods in Biotechnology: Molecular Cloning (F).....	3
<b>SOIL 5560</b> Analytical Techniques for the Soil Environment (Sp).....	2
<b>STAT 2000 (QI)</b> Statistical Methods (F,Sp) (3 cr) <b>or</b>	
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) (3 cr).....	3

The following courses are also recommended:

<b>BIOL 4410</b> Plant Structure (Sp).....	3
<b>BIOL 4430</b> Introduction to Plant Pathology (Sp).....	4
<b>BIOL 4500</b> Applied Entomology (Sp).....	3
<b>BIOL 5210</b> Cell Biology (F).....	3

<b>BIOL 5230</b> Developmental Biology (Sp).....	3
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su).....	4
<b>PHYS 2110</b> The Physics of Living Systems I.....	4
<b>PLSC 5440</b> Plant Molecular, Cellular, and Developmental Biology I (Sp even).....	3
<b>PLSC 5450</b> Plant Molecular, Cellular, and Developmental Biology II (Sp odd).....	3

## ARCPACS Certification

For more information, students should refer to the American Society of Agronomy website at: <https://www.agronomy.org/> or <https://www.agronomy.org/certifications/>

## ARCPACS Requirements

**Certified Professional Agronomist (84 credits)**

**Certified Professional Crop Scientist (84 credits)**

Students wishing to obtain ARCPACS certification must satisfy the requirements for the Bachelor of Science degree, as well as complete any required additional courses. For details, contact the department.

## Horticulture Major

Students must complete the core courses and courses for one of the four emphases to fulfill the requirements for a Horticulture Degree.

### Core Courses (22-25 credits)

<b>CHEM 1110 (BPS)</b> General Chemistry I (F,Sp) (4 cr) <b>or</b>	
<b>CHEM 1210</b> Principles of Chemistry I (F,Sp) (4 cr).....	4
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>OSS 1400</b> Microcomputer Applications.....	3
<b>PLSC 2250</b> Occupational Experience in Agronomy and Horticulture (F,Sp,Su) (1-4 cr) <b>or</b>	
<b>PSC 4250</b> Internship in Plants, Soils, and/or Climate (F,Sp,Su) (1-4 cr).....	1-4
<b>PSC 1050</b> Plants, Soils, and Climate Orientation (F).....	1
<b>PSC 3890 (CI)</b> Preparation for Careers in Plants, Soils, and/or Climate (F).....	1
<b>PSC 4890 (CI)</b> Senior Seminar (Sp).....	1
<b>SOIL 3000</b> Fundamentals of Soil Science (F).....	4
<b>WILD 2200 (BLS)</b> Ecology of Our Changing World (F,Sp).....	3

### A. Ornamental Horticulture Emphasis

**(49 credits minimum)**

In addition to the Core Courses, select 40 credits from the following courses. Those marked with an asterisk (\*) are required.

<b>ASTE 3080</b> Compact Power Units for Agricultural and Turfgrass Applications (Sp).....	3
<b>BIOL 1610*</b> Biology I (F).....	4
<b>BIOL 1620 (BLS)*</b> Biology II (Sp).....	4
<b>BIOL 3060 (QI)*</b> Principles of Genetics (F,Sp,Su).....	4
<b>PLSC 2100 (BLS)</b> Introduction to Horticulture (F).....	3
<b>PLSC 2600*</b> Annual and Perennial Plant Materials (F).....	3
<b>PLSC 2620*</b> Woody Plant Materials: Trees and Shrubs for the Landscape (F).....	3
<b>PLSC 3050</b> Greenhouse Management and Crop Production (Sp).....	4
<b>PLSC 3300</b> Residential Landscapes (Sp).....	3
<b>PLSC 3400</b> Landscape Management Principles and Practices (Sp).....	3
<b>PLSC 3700</b> Plant Propagation (F).....	4
<b>PLSC 3800</b> Turfgrass Management (F).....	3
<b>PLSC 4400*</b> Modern Vegetable Production (F).....	3
<b>PLSC 4500*</b> Fruit Production (Sp).....	3
<b>PLSC 4800</b> Professional Turfgrass Management (Sp).....	2
<b>PSC 2800</b> Fundamentals of Organic Agriculture (Sp).....	3
<b>SOIL 4500</b> Soil Reclamation (Sp).....	3
<b>SOIL 5550 (QI)*</b> Soils and Plant Nutrient Bioavailability (Sp).....	3

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Select two of the following courses:

<b>BIOL 4430</b> Introduction to Plant Pathology (Sp) .....	4
<b>BIOL 4500</b> Applied Entomology (Sp) .....	3
<b>PLSC 5550</b> Weed Biology and Control (F) .....	4

Select two of the following courses:

<b>BIOL 4400 (QI)</b> Plant Physiology (F) .....	4
<b>BIOL 4410</b> Plant Structure (Sp) .....	3
<b>CHEM 1120 (BPS)</b> General Chemistry II (Sp) .....	4
<b>PLSC 3500</b> The Structure and Function of Economic Crop Plants (Sp) .....	3
<b>PLSC 5200</b> Environmental Plant Physiology (Sp) .....	2

## B. Turfgrass Management Emphasis (48-52 credits)

In addition to the Core Courses, students must complete the following courses for the Turfgrass Management Emphasis.

<b>BIOL 1610</b> Biology I (F) .....	4
<b>BIOL 1620 (BLS)</b> Biology II (Sp) .....	4
<b>BIOL 3060 (QI)</b> Principles of Genetics (F,Sp,Su) .....	4
<b>PLSC 2620</b> Woody Plant Materials: Trees and Shrubs for the Landscape (F) .....	3
<b>PLSC 3400</b> Landscape Management Principles and Practices (Sp) .....	3
<b>PLSC 3800</b> Turfgrass Management (F) .....	3
<b>PLSC 4400</b> Modern Vegetable Production (F) (3 cr) <b>or</b>	
<b>PLSC 4500</b> Fruit Production (Sp) (3 cr) .....	3
<b>PLSC 4800</b> Professional Turfgrass Management (Sp) .....	2

The following courses are suggested as electives. Select a minimum of two courses from each category:

### Horticulture

<b>ASTE 3080</b> Compact Power Units for Agricultural and Turfgrass Applications (Sp) .....	3
<b>ASTE 3200</b> Irrigation Principles and Practices (Sp) .....	3
<b>PLSC 2200</b> Pest Management Principles and Practices (Sp) .....	3
<b>PLSC 3300</b> Residential Landscapes (Sp) .....	3
<b>PLSC 3700</b> Plant Propagation (F) .....	4
<b>PLSC 5100</b> Landscape Irrigation Management (Sp) .....	3
<b>PLSC 5550</b> Weed Biology and Control (F) .....	4
<b>SOIL 4700</b> Irrigated Soils (Sp, half semester) .....	3
<b>WILD 5300</b> Wildlife Damage Management Principles (Sp) .....	3

### Science

<b>BIOL 2220</b> General Ecology (F,Sp) .....	3
<b>BIOL 3040</b> Plants and Civilization (F) .....	3
<b>BIOL 4400 (QI)</b> Plant Physiology (F) .....	4
<b>BIOL 4410</b> Plant Structure (Sp) .....	3
<b>BIOL 4420</b> Plant Taxonomy (Sp) .....	3
<b>BIOL 4430</b> Introduction to Plant Pathology (Sp) .....	4
<b>BIOL 4500</b> Applied Entomology (Sp) .....	3
<b>CHEM 1120 (BPS)</b> General Chemistry II (Sp) .....	4
<b>CHEM 1215</b> General Chemistry Laboratory (F,Sp) .....	1
<b>PLSC 3500</b> The Structure and Function of Economic Crop Plants (Sp) .....	3
<b>PLSC 5200</b> Environmental Plant Physiology (Sp) .....	2
<b>PLSC 5430</b> Plant Nutrition (F odd) .....	2
<b>SOIL 4000</b> Soil and Water Conservation (F) .....	4
<b>SOIL 4500</b> Soil Reclamation (Sp) .....	3
<b>SOIL 5550 (QI)</b> Soils and Plant Nutrient Bioavailability (Sp) .....	3
<b>STAT 2000 (QI)</b> Statistical Methods (F,Sp) .....	3

### Business

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su) .....	3
<b>ASTE 3050 (CI)</b> Technical and Professional Communication Principles in Agriculture (F,Sp) .....	3
<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su) .....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su) .....	3

<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su) .....	3
<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su) .....	3
<b>MGT 3710</b> Developing Team and Interpersonal Skills (F,Sp) .....	3

## C. Business Emphasis (48 credits)

In addition to the Core Courses, select 30 credits from the following courses. Those marked with an asterisk (\*) are required.

<b>BIOL 1610*</b> Biology I (F) .....	4
<b>PLSC 2100 (BLS)</b> Introduction to Horticulture (F) .....	3
<b>PLSC 2200*</b> Pest Management Principles and Practices (Sp) .....	3
<b>PLSC 2600</b> Annual and Perennial Plant Materials (F) .....	3
<b>PLSC 2620</b> Woody Plant Materials: Trees and Shrubs for the Landscape (F) .....	3
<b>PLSC 3050</b> Greenhouse Management and Crop Production (Sp) .....	4
<b>PLSC 3300</b> Residential Landscapes (Sp) .....	3
<b>PLSC 3400*</b> Landscape Management Principles and Practices (Sp) .....	3
<b>PLSC 3500*</b> The Structure and Function of Economic Crop Plants (Sp) .....	3
<b>PLSC 3700</b> Plant Propagation (F) .....	4
<b>PLSC 3800</b> Turfgrass Management (F) .....	3
<b>PLSC 4400*</b> Modern Vegetable Production (F) .....	3
<b>PLSC 4500*</b> Fruit Production (Sp) .....	3
<b>PLSC 5200</b> Environmental Plant Physiology (Sp) .....	2
<b>PLSC 5550*</b> Weed Biology and Control (F) .....	4
<b>PSC 2800</b> Fundamentals of Organic Agriculture (Sp) .....	3
<b>SOIL 4500</b> Soil Reclamation (Sp) .....	3
<b>SOIL 4700</b> Irrigated Soils (Sp, half semester) .....	3
<b>SOIL 5550 (QI)*</b> Soils and Plant Nutrient Bioavailability (Sp) .....	3

The following courses are required for a Business Minor and the Business Emphasis:

<b>ACCT 2010</b> Survey of Accounting I (F,Sp,Su) .....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su) .....	3
<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su) .....	3
<b>MGT 3500</b> Fundamentals of Marketing (F,Sp,Su) .....	3
<b>PFP 3460</b> Fundamentals of Personal Investing .....	3

Complete one of the following courses:

<b>ACCT 2020</b> Survey of Accounting II (F,Sp,Su) .....	3
<b>ECN 3400 (DSS)</b> International Economics for Business (F,Sp,Su) .....	3
<b>MGT 3700</b> Operations Management (F,Sp,Su) .....	3
<b>MIS 2100</b> Principles of Management Information Systems (F,Sp,Su) .....	3

## D. Science Emphasis (48 credits minimum)

In addition to the Core Courses, students must select 44 credits from the following courses for the Science Emphasis. Those marked with an asterisk (\*) are required.

<b>BIOL 1610*</b> Biology I (F) .....	4
<b>BIOL 1620 (BLS)*</b> Biology II (Sp) .....	4
<b>BIOL 3060 (QI)*</b> Principles of Genetics (F,Sp,Su) .....	4
<b>BIOL 4400 (QI)*</b> Plant Physiology (F) .....	4
<b>BIOL 4410</b> Plant Structure (Sp) .....	3
<b>CHEM 1120 (BPS)</b> General Chemistry II (Sp) .....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp) .....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su) .....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp) .....	1
<b>CHEM 2310</b> Organic Chemistry I (F) .....	4
<b>CHEM 2320</b> Organic Chemistry II (Sp) .....	4
<b>CHEM 3700</b> Introductory Biochemistry (Sp) .....	3
<b>CHEM 3710</b> Introductory Biochemistry Laboratory (Sp) .....	1
<b>MATH 1060</b> Trigonometry (F,Sp,Su) .....	2
<b>MATH 1100 (QL)*</b> Calculus Techniques (F,Sp,Su) .....	3

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<b>PHYS 1200 (BPS)</b> Introduction to Physics by Hands-on Exploration .....	4
<b>PLSC 3700</b> Plant Propagation (F).....	4
<b>PLSC 4400*</b> Modern Vegetable Production (F).....	3
<b>PLSC 4500*</b> Fruit Production (Sp) .....	3
<b>PLSC 5200*</b> Environmental Plant Physiology (Sp) .....	2
<b>PLSC 5430</b> Plant Nutrition (F odd).....	2
<b>PLSC 5440</b> Plant Molecular, Cellular, and Developmental Biology I (Sp even).....	3
<b>PLSC 5450</b> Plant Molecular, Cellular, and Developmental Biology II (Sp odd).....	3
<b>PLSC 5600</b> Plant Water Relations (F).....	2
<b>PLSC 5760</b> Crop Ecology (Sp).....	2
<b>PSC 2800</b> Fundamentals of Organic Agriculture (Sp).....	3
<b>SOIL 3200 (DSC)</b> Microbes in Environmental Action (Sp) .....	3
<b>SOIL 4500</b> Soil Reclamation (Sp) .....	3
<b>SOIL 5550 (QI)*</b> Soils and Plant Nutrient Bioavailability (Sp) .....	3
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) .....	3
Select any Ornamental Horticulture class* .....	3

Select one of the following:

<b>BIOL 4430</b> Introduction to Plant Pathology (Sp) .....	4
<b>BIOL 4500</b> Applied Entomology (Sp) .....	3
<b>PLSC 5550</b> Weed Biology and Control (F).....	4

## Environmental Soil/Water Science Major

### Preparatory Core Courses (43-49 credits)

#### Required Courses (18 credits)

<b>BIOL 1610</b> Biology I (F).....	4
<b>BIOL 1620 (BLS)</b> Biology II (Sp).....	4
<b>GEO 1110 (BPS)</b> The Dynamic Earth: Physical Geology (F,Sp) .....	4
<b>STAT 2000 (QI)</b> Statistical Methods (F,Sp) (3 cr) <b>or</b>	
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) (3 cr) .....	3
<b>WILD 2200 (BLS)</b> Ecology of Our Changing World (F,Sp) (3 cr) <b>or</b>	
<b>BIOL 2220</b> General Ecology (F,Sp) (3 cr) .....	3

#### Chemistry Courses (9 or 13 credits)

Complete *one* of the two following blocks of Chemistry courses:

##### Block 1 (9 credits)

<b>CHEM 1110 (BPS)</b> General Chemistry I (F,Sp).....	4
<b>CHEM 1115</b> General Chemistry Laboratory (F,Sp).....	1
<b>CHEM 1120 (BPS)</b> General Chemistry II (Sp).....	4

##### Block 2 (13 credits)<sup>1</sup>

<b>CHEM 1210</b> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su) .....	4
<b>CHEM 1225</b> Chemical Principles Laboratory II (F,Sp).....	1
<b>CHEM 2300</b> Principles of Organic Chemistry (F) .....	3

#### Mathematics Courses (10 or 8 credits)

Complete *one* of the two following blocks of Mathematics courses:

##### Block 1 (10 credits)

<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>MATH 1060</b> Trigonometry (F,Sp,Su) .....	2
<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su) .....	4

##### Block 2 (8 credits)<sup>1</sup>

<b>MATH 1210 (QL)</b> Calculus I (F,Sp,Su) .....	4
<b>MATH 1220 (QL)</b> Calculus II (F,Sp,Su) .....	4

#### Physics Courses (8 credits)

Complete *one* of the two following blocks of Physics courses:

##### Block 1 (8 credits)

<b>PHYS 2110</b> The Physics of Living Systems I .....	4
<b>PHYS 2120 (BPS)</b> The Physics of Living Systems II .....	4

#### Block 2 (8 credits)<sup>1</sup>

<b>PHYS 2210 (QI)</b> General Physics—Science and Engineering I.....	4
<b>PHYS 2220 (BPS/QI)</b> General Physics—Science and Engineering II ..	4

#### Professional Core Courses (23 credits)

<b>SOIL 3000</b> Fundamentals of Soil Science (F) .....	4
<b>SOIL 5050</b> Principles of Environmental Soil Chemistry (Sp odd).....	3
<b>SOIL 5130</b> Soil Genesis, Morphology, and Classification (F).....	4
<b>SOIL 5310</b> Soil Microbiology (F even) (3 cr) <b>or</b>	
<b>SOIL 5550 (QI)<sup>2</sup></b> Soils and Plant Nutrient Bioavailability (Sp) (3 cr) .....	3
<b>SOIL 5560</b> Analytical Techniques for the Soil Environment (Sp).....	2
<b>SOIL 5650</b> Environmental Soil Physics (F) .....	4
<b>SOIL 5750</b> Environmental Quality: Soil and Water (Sp).....	2
<b>PSC 3890 (CI)</b> Preparation for Careers in Plants, Soils, and/or Climate (F) .....	1
<b>PSC 4890 (CI)</b> Senior Seminar (Sp).....	1

<sup>1</sup>Students in the **Water Emphasis** should take the **Block 2** courses in Chemistry, Mathematics, and Physics.

<sup>2</sup>Students in the **Plant Emphasis** must select **SOIL 5550**.

#### Emphases

Students must select 12 credits from one or a combination of the following three emphases.

##### Soil Emphasis

<b>CEE 5190</b> Geographic Information Systems for Civil Engineers (Sp)...	3
<b>CHEM 3000 (QI)</b> Quantitative Analysis (F).....	3
<b>CLIM/BIE/WATS 5250</b> Remote Sensing of Land Surfaces (Sp).....	4
<b>GEO 3500</b> Mineralogy and Crystallography (F) .....	4
<b>GEO 3550 (CI)</b> Sedimentation and Stratigraphy (F).....	4
<b>GEO/WATS 3600</b> Geomorphology (F) .....	4
<b>GEO 5410<sup>3</sup></b> Introduction to Clay Mineralogy (Sp).....	2
<b>GEO 5600</b> Geochemistry (F).....	3
<b>GEO 5630</b> Photogeology (Sp).....	3
<b>PSC 5200</b> Site-Specific Agriculture and Landscape/Horticultural Management (Sp, half semester) .....	3
<b>SOIL 3100</b> Soils and Civilization (Sp) .....	3
<b>SOIL 3200 (DSC)</b> Microbes in Environmental Action (Sp) .....	3
<b>SOIL 4000</b> Soil and Water Conservation (F).....	4
<b>SOIL 4500</b> Soil Reclamation (Sp) .....	3
<b>SOIL 5310</b> Soil Microbiology (F even).....	3
<b>SOIL 5320</b> Soil Microbiology Laboratory (F even) .....	2
<b>SOIL 5350</b> Wildland Soils (Sp).....	3
<b>SOIL 5550 (QI)</b> Soils and Plant Nutrient Bioavailability (Sp).....	3
<b>WATS 4750<sup>3</sup></b> Fundamentals of Remote Sensing Science (F) .....	3
<b>WATS 4930</b> Geographic Information Systems (F) .....	4
<b>WATS 5930</b> Geographic Information Analysis (Sp).....	3
<b>WILD 5750</b> Applied Remote Sensing (F) .....	3

##### Water Emphasis

<b>ASTE 5260 (CI)</b> Environmental Impacts of Agricultural Systems (F)....	3
<b>BIE 5010<sup>3</sup></b> Principles of Irrigation Engineering (F, Sp online, Su).....	3
<b>BIE 5110<sup>3</sup></b> Sprinkle and Trickle Irrigation (F) .....	4
<b>BIE 5150<sup>3</sup></b> Surface Irrigation Design (F, Sp online, Su) .....	3
<b>CEE 3430</b> Engineering Hydrology (Sp).....	3
<b>CHEM 3000 (QI)</b> Quantitative Analysis (F).....	3
<b>CLIM 4300</b> General Meteorology (F).....	3
<b>CLIM/BIE/WATS 5250</b> Remote Sensing of Land Surfaces (Sp).....	4
<b>CLIM 5500</b> Land-Atmosphere Interactions (Sp odd).....	3
<b>GEO/WATS 5150<sup>3</sup></b> Fluvial Geomorphology (F).....	3
<b>GEO 5510 (QI)</b> Groundwater Geology (F).....	3
<b>GEO 5520 (CI)<sup>3</sup></b> Techniques of Groundwater Investigations (Sp).....	3
<b>PLSC 5200</b> Environmental Plant Physiology (Sp).....	2
<b>SOIL 4000</b> Soil and Water Conservation (F).....	4
<b>SOIL 4700</b> Irrigated Soils (Sp, half semester).....	3

# Department of Plants, Soils, and Climate

WATS 3700 (CI) Fundamentals of Watershed Science (Sp)	3
WATS 4500 Limnology: Ecology of Inland Waters (Sp)	3
WATS 4510 Aquatic Ecology Practicum (F)	3
WATS 4530 Water Quality and Pollution (F)	3
WATS 5640 <sup>3</sup> Riparian Ecology and Management (Sp)	3

## Plant Emphasis

BIOL 2410 Plants and Fungi in the Field (Su)	2
BIOL 4400 (QI) Plant Physiology (F)	4
BIOL 4410 Plant Structure (Sp)	3
BIOL 4420 Plant Taxonomy (Sp)	3
CLIM 5500 Land-Atmosphere Interactions (Sp odd)	3
PLSC 2100 (BLS) Introduction to Horticulture (F)	3
PLSC 2600 Annual and Perennial Plant Materials (F)	3
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F)	3
PLSC 3400 Landscape Management Principles and Practices (Sp)	3
PLSC 3800 Turfgrass Management (F)	3
PLSC 4280 Field Crops (F odd)	3
PLSC 4320 Forage Production and Pasture Ecology (F even)	3
PLSC 4400 Modern Vegetable Production (F)	3
PLSC 4500 Fruit Production (Sp)	3
PLSC 4800 <sup>3</sup> Professional Turfgrass Management (Sp)	2
PLSC 5200 <sup>3</sup> Environmental Plant Physiology (Sp)	2
PLSC 5430 <sup>3</sup> Plant Nutrition (F odd)	2
PLSC 5550 Weed Biology and Control (F)	4
PLSC 5760 <sup>3</sup> Crop Ecology (Sp)	2
PSC 2800 Fundamentals of Organic Agriculture (Sp)	3
SOIL 4700 Irrigated Soils (Sp, half semester)	3
WILD 3600 Wildland Plant Ecology and Identification (F)	4
WILD 4750 (CI) Monitoring and Assessment in Natural Resource and Environmental Management (F)	3
WILD 4910 Assessment and Synthesis in Natural Resource Science (Sp)	3

<sup>3</sup>Prerequisites are required for this course.

## Residential Landscape Design and Construction Major (79-88 credits)

### Required Core Courses (79 credits)

ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (F,Sp)	3
BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su)	3
CHEM 1110 (BPS) General Chemistry (F,Sp)	4
ETE 1200 Computer-Aided Drafting and Design (F,Sp)	3
LAEP 1030 (BCA) Introduction to Landscape Architecture (F,Sp,Su)	3
LAEP 1200 Basic Graphics in Landscape Architecture (F)	4
LAEP 3600 Landscape Materials (F)	2
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
PLSC 2100 (BLS) Introduction to Horticulture (F)	3
PLSC 2200 Pest Management Principles and Practices (Sp)	3
PLSC 2600 Annual and Perennial Plant Materials (F)	3
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F)	3
PLSC 3300 Residential Landscapes (Sp)	3
PLSC 3310 Advanced Residential Landscape Design (F)	3
PLSC 3400 Landscape Management Principles and Practices (Sp)	3
PLSC 3420 Landscape Irrigation Design (Sp, half semester)	2
PLSC 3430 Landscape Business Practices (Sp)	3
PLSC 3500 The Structure and Function of Economic Crop Plants (Sp)	3
PLSC 3800 Turfgrass Management (F)	3
PLSC 5550 Weed Biology and Control (F)	4

PSC 1050 Plants, Soils, and Climate Orientation (F)	1
PSC 3890 (CI) Preparation for Careers in Plants, Soils, and/or Climate (F)	1
PSC 4250 Internship in Plants, Soils, and/or Climate (F,Sp,Su)	1-4
PSC 4890 (CI) Senior Seminar (F,Sp)	1
PSC 5200 Site-Specific Agriculture and Landscape/Horticultural Management (Sp, half semester)	3
SOIL 3000 Fundamentals of Soil Science (F)	4
SOIL 4500 Soil Reclamation (Sp)	3
WILD 2200 (BLS) Ecology of our Changing World (F,Sp)	3

## Recommended Courses

ENVS 2340 (BSS) Natural Resources and Society (F,Sp)	3
MGT 3110 (DSS) Managing Organizations and People (F,Sp,Su)	3
PHIL 3510 (DHA) Environmental Ethics (Sp)	3

## Sample Four-year Plans

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests. Due to the many changes and new major options, degree plans are not published in this catalog. To obtain current information, students should visit the department.

## Ornamental Horticulture Program One-year Certificate (27 credits)

The 27 credits are distributed as follows:

PLSC 2600 Annual and Perennial Plant Materials (F)	3
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F)	3
Additional PLSC courses selected from Associate of Applied Science Core Classes**	18.5-20
Courses selected from Approved Electives	3-5

\*\*Students should choose courses that emphasize either Floriculture or Landscape Horticulture.

## Ornamental Horticulture Program Associate of Applied Science Degree (60 credits)

The 60 credits are distributed as follows. Some courses require biology prerequisite courses.

### University Studies Requirements (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose (F,Sp,Su)	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su)	3
Social Sciences/Humanities Breadth Courses	6
Life Sciences/Physical Sciences Breadth Course	3

### Professional Requirement

All of the Core Courses	34-37
Courses selected from Approved Electives	7-10

### Core Courses (34-37 credits)

OSS 1400 Microcomputer Applications	3
PSC 1050 Plants, Soils, and Climate Orientation (F)	1
PLSC 2100 (BLS) Introduction to Horticulture (F)	3
PLSC 2200 Pest Management Principles and Practices (Sp)	3
PLSC 2250 Occupational Experience in Agronomy and Horticulture (F,Sp,Su)	1-4
PLSC 2600 Annual and Perennial Plant Materials (F)	3
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F)	3
PLSC 3050 Greenhouse Management and Crop Production (Sp)	4

# Department of Plants, Soils, and Climate

PLSC 3300 Residential Landscapes (Sp).....	3
PLSC 3400 Landscape Management Principles and Practices (Sp)....	3
PLSC 3700 Plant Propagation (F).....	4
PLSC 3800 Turfgrass Management (F) .....	3

## Approved Electives (11-15 credits)

Choose electives from the following courses or choose from any courses that are part of a BS Degree in Horticulture.

BIOL 1610 Biology I (F).....	4
CHEM 1110 (BPS) General Chemistry I (F,Sp).....	4
PLSC 2900 Special Problems in Plant Science (F,Sp,Su) .....	1-4
PLSC 3500 The Structure and Function of Economic Crop Plants (Sp).....	3
PLSC 4400 Modern Vegetable Production (F).....	3
PLSC 4500 Fruit Production (Sp).....	3
SOIL 3000 Fundamentals of Soil Science (F).....	4

## Minors

### Crop Biotechnology Minor (16 credits required)

The following courses are required: PLSC 3700, 5750. Select the balance of credits from the following courses. At least one of the production courses, marked with an asterisk, (\*) is required. PLSC 3500, 4280\*, 4320\*, 4400\*, 4500\*, 5200, 5550, 5700, PSC 5160, 5240, 5260.

### Agronomy Minor (16 credits required)

A minimum of 6 credits of Soil Science courses must be taken, including SOIL 3000. A minimum of 6 credits of Plant Science courses must be taken, including the following courses: PLSC 4280 and 4320. Select the balance of credits from the following courses: SOIL 4000, 4500, 4700, 5130, 5310, 5550, 5560, 5650, PLSC 2200, 3800, 4400, 5200, 5550, 5700.

### Soil Science Minor (16 credits required)

The following course is required: SOIL 3000. Select 12 credits from the following courses: SOIL 4000, 4700, 5050, 5130, 5310, 5350, 5550, 5560, 5650, 5750.

### Ornamental Horticulture Minor (16 credits required)

The following courses are required: SOIL 2000 or 3000, PLSC 2200, 2620. Select the balance of credits from the following courses: PLSC 2100, 2600, 3050, 3300, 3400, 3700, 3800, 4400, 4500.

### Horticulture Minor (16 credits required)

SOIL 2000 or 3000 is required. Select 6 credits from the following courses: PLSC 2100, 2200, 4400, 4500, one ornamental horticulture course. Select the remaining credits from the following: PLSC 3050, 3300, 3800, PSC 2800, SOIL 3000.

## Undergraduate Research Opportunities

The Plants, Soils, and Climate Department is dedicated to providing undergraduate students with opportunities to participate with faculty members in research and creative activities. Examples of recent research include seed germination requirements, plant growth regulators, salt cedar control, pasture growth dynamics, soil-less media characteristics, gene sequencing, and essential oils from native plants. In addition to faculty mentorship of such activities, students may

obtain grants of up to \$1,000 for support of their projects. For further information, students may contact any departmental faculty member, or view the research website at: <http://research.usu.edu/>

## Departmental Assessment

Review and assessment of departmental programs is a commitment of the Plants, Soils, and Climate Department. In 2002, the department completed a USDA-Cooperative State Research, Education, and Extension Service review. On an ongoing basis, the department evaluates all academic programs. More information about departmental assessment can be found at: <http://psc.usu.edu/htm/about/assessment/>

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For more information about requirements for undergraduate programs and the sequence in which courses should be taken, see major requirement sheets available from the Plants, Soils, and Climate Department, or accessed online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admission Requirements

See general admission requirements, pages 36-37. Departmental admission committees and potential graduate student advisors (major professors) consider previous work experience, undergraduate and graduate records and curriculum, and formal recommendations in their decisions concerning acceptance of applicants. Students without an undergraduate or graduate degree in plants, soils, climate, or a closely related field may be required to complete selected undergraduate courses prior to admission as fully matriculated graduate students in the Plants, Soils, and Climate Department. Qualified applicants are occasionally denied admission because faculty members in the applicant's area of interest do not have the time or funds to advise additional students. The serious applicant is encouraged to discuss his or her goals with appropriate members of the graduate faculty prior to preparing an application.

# Department of Plants, Soils, and Climate

Graduate student candidates must have scores on the verbal and quantitative portions of the Graduate Record Examination (GRE) at or above the 40th percentile. A minimum TOEFL score of 550 on the paper test, 213 on the computer-based test, or 79 on the Internet-based test is required for candidates from abroad. International students with a prior degree from an English-speaking university are exempted from the TOEFL exam.

## Degree Programs and Specializations

The Master of Science and Doctor of Philosophy degrees are offered as follows: (1) **Plant Science** with specializations in crop physiology, crop production and management, molecular biology, plant breeding and cytology, plant biotechnology and tissue culture, plant nutrition, space biology, and weed science; (2) **Soil Science** with specializations in molecular biology (interdepartmental program), soil and water chemistry, soil biochemistry and ecology, soil conservation systems, soil fertility and plant nutrition, soil physics, soil-plant-water relations, soil taxonomy and genesis, and soils and irrigation; (3) **Biometeorology** with specializations in agricultural meteorology, climatology, micrometeorology, remote sensing, and turbulence in plant canopies; and (4) **Ecology**. A **Master of Professional Studies in Horticulture (MPSH)** is also offered. This program is available to out-of-state students at in-state tuition rates through WICHE-WRGP.

## Course Requirements

Course requirements leading to MS or PhD degrees are developed jointly by the student and the student's advisory committee. Course selections reflect areas of specialization. There are, however, specific departmental requirements regarding physical sciences, biological sciences, and mathematics courses, which differ depending on the area of specialization.

## Research

Research projects vary over time, depending on funding and other factors. Students are encouraged to visit the home page websites of the graduate faculty to determine research interests and lists of recent publications. Some of the research interests in the department include (1) the control of diseases, nematodes, weeds, and other hazards to fruit, vegetable, ornamental, and field crops; (2) physiological and genetic improvement of fruit, vegetable, ornamental, and field crops (breeding and biotechnology); (3) the evolution, genetic regulation, and utilization of apomixis and other developmental phenomena of higher plants; (4) management of agronomic and horticultural production systems; (5) horticultural landscape water management; (6) soil formation and landscape evolution; (7) soil, plant, water, and nutrient relationships; (8) management of saline and sodic soils; (9) alternative land uses; (10) improved management of animal wastes and biosolids; (11) management of soil microbial processes; (12) drainage and irrigation systems; (13) adaptations to weather and weather modification; (14) analyses and modification of large-scale surface evaporation from atmospheric boundary layer measurements; (15) spatial and temporal properties of sun flecks in plant canopies; and (16) spatial variation in surface fluxes of heat and water vapor in semiarid regions.

## Financial Assistance and Assistantships

The financial awards provided by the School of Graduate Studies are listed on pages 111-112 of this catalog. The Department of Plants, Soils, and Climate does not have a formal application form for financial assistance. Most monies used to assist students in the department come from research grants controlled by individual faculty members. Negotiations for financial assistance (research assistantships or part-time employment) are made between faculty members and students. The department provides a few part-time teaching assistantships (a semester at a time). Graduate teaching assistants are responsible to their major professor and to the instructor whom they assist. The MS and PhD in Biometeorology are Western Regional Graduate Programs (see page 112).

## Career Opportunities

A broad range of career opportunities exists for students completing the MS or PhD degree from the Department of Plants, Soils, and Climate. Graduate students specializing in the plant sciences may expect to find employment as consulting scientists, or in the private sector as plant breeders, weed scientists, etc. Graduate students specializing in the soil sciences may expect to find employment as soil scientists with government agencies or in the private sector, where they may pursue careers in environmental consulting, fertilizer retail, irrigation system design, waste management, mineland reclamation, or related environmental or agricultural pursuits. Graduate students specializing in biometeorology may expect to find employment with government agencies, as consulting scientists, or with the private sector. Graduate students specializing in ecology may expect to find employment as research scientists, as consulting ecologists, or with environmental agencies. Graduate students completing the PhD may also find career opportunities in academia.

## Additional Information and Updates

Additional information and updates concerning graduate faculty and graduate student opportunities can be obtained from the web at: <http://psc.usu.edu/>

## Plants, Soils, and Climate Faculty

### Professors

*Janis L. Boettinger*, soil genesis, classification and mineralogy  
*Bruce G. Bugbee*, crop physiology  
*John G. Carman*, plant reproduction and development  
*Steven A. Dewey*, weed science  
*Daniel T. Drost*, vegetable production  
*Lawrence E. Hipps*, biometeorology  
*David J. Hole*, cereal breeding  
*Roger K. Kjølgrén*, urban horticulture  
*H. Paul Rasmussen*, horticulture  
*V. Philip Rasmussen*, sustainable agriculture  
*Teryl R. Roper*, pomology  
*Larry A. Rupp*, ornamental horticulture  
*Ralph E. Whitesides*, weed science

### Research Professor

*Stanford A. Young*, seed production

# Department of Plants, Soils, and Climate

## Adjunct Professors

*Michael C. Amacher*, soil chemistry  
*Kevin B. Jensen*, forage breeding  
*Edward J. Souza*, plant breeding and genetics  
*John M. Stark*, microbial ecology and biogeochemistry  
*Jack E. Staub*, plant breeding and genetics  
*Helga Van Miegroet*, forest soils

## Professors Emeritus

*Rulon S. Albrechtsen*, plant breeding  
*Keith R. Allred*, forage physiology  
*J. LaMar Anderson*, pomology  
*Gaylen L. Ashcroft*, biometeorology  
*William F. Campbell*, crop stress physiology  
*Wade G. Dewey*, plant breeding  
*John O. Evans*, weed science  
*Alvin R. Hamson*, horticulture  
*R. John Hanks*, soil physics  
*Anthony H. Hatch*, horticulture  
*Donald T. Jensen*, climatology  
*Jerome J. Jurinak*, soil chemistry  
*R. Paul Larsen*, horticulture  
*Frank B. Salisbury*, plant physiology  
*Schuyler D. Seeley*, pomology  
*R. L. Smith*, soil science  
*Alvin R. Southard*, soil classification  
*James H. Thomas*, international agronomy  
*H. Grant Vest, Jr.*, vegetable breeding  
*David R. Walker*, pomology

## Associate Professors

*Brent L. Black*, pomology  
*Grant E. Cardon*, soil science  
*Robert R. Gillies*, biometeorology  
*Paul R. Grossl*, biogeochemist  
*Paul G. Johnson*, turfgrass science  
*Scott B. Jones*, soil physics  
*Kelly L. Kopp*, water conservation/turfgrass science  
*Jennifer W. MacAdam*, forage production and physiology  
*Jeanette M. Norton*, soil microbiology

## Research Associate Professor

*Esmail Malek*, biometeorology

## Adjunct Associate Professor

*Thomas A. Jones*, plant genetics

## Assistant Professors

*Astrid Jacobson*, soil chemistry  
*Heidi A. Kratsch*, ornamental horticulture  
*Corey V. Ransom*, weed science  
*Jennifer Reeve*, organic and sustainable agriculture

## Research Assistant Professor

*Raymond L. Cartee*, soils and irrigation

## Adjunct Assistant Professors

*Jayne Belnap*, biological soil crusts  
*Nathaniel Brunsell*, biometeorology  
*Shaun Bushman*, plant genetics, molecular biology  
*David G. Chandler*, surface hydrology  
*Jianli Chen*, plant breeding and genetics  
*Steven R. Larson*, research geneticist  
*Susan Meyer*, seed biology  
*Michael Peel*, plant breeding  
*Joseph Robins*, plant genetics  
*Blair L. Waldron*, research geneticist

## Senior Lecturer

*D. Craig Aston*, ornamental horticulture

## Lecturer

*William A. Varga*, horticulture

## Research Associates

*Shyrl M. Clawson*, plant breeding  
*Robert L. Newhall*, soil conservation and sustainable agriculture

## Director, Soil Testing Lab

*Pamela Hole*, soil chemistry

## Course Descriptions

Plant Science (PLSC), pages 635-637

Soil Science (SOIL), pages 655-656

Climate (CLIM), page 530

Plants, Soils, and Climate (PSC), page 642



# Department of Political Science

**Department Head:** Roberta Q. Herzberg

**Location:** Main 320A

**Phone:** (435) 797-1307

**FAX:** (435) 797-3751

**E-mail:** bobbi.herzberg@usu.edu

**WWW:** <http://politicalscience.usu.edu/>

**Assistant Department Head:** Michael S. Lyons, Main 330D,  
(435) 797-1312, mike.lyons@usu.edu

**Graduate Program Director:** Peter McNamara, Main 324B,  
(435) 797-1318, peter.mcnamara@usu.edu

## Undergraduate Advisors:

### Political Science:

Roberta Q. Herzberg, Main 320A, (435) 797-1307,  
bobbi.herzberg@usu.edu

### Law and Constitutional Studies:

Anthony A. Peacock, Main 330B, (435) 797-1314,  
anthony.peacock@usu.edu

### International Studies:

Veronica Ward, Main 324E, (435) 797-1319,  
veronica.ward@usu.edu

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA),  
Master of Science (MS), and Master of Arts (MA) in Political Science;  
BS and BA in Law and Constitutional Studies; Administers BA in  
International Studies

## Undergraduate Programs

### Objectives

The Department of Political Science offers a flexible program to  
accomplish the following objectives:

1. to provide students with theoretical and factual understanding  
of government, politics, and political philosophy, nationally and  
internationally;
2. to develop students' analytic ability, communication skills, and  
facility with political research methods;
3. to prepare students for effective participation in civic affairs,  
careers in government and the teaching of government, and  
graduate study in political science, law, and other fields related to  
the public sector; and
4. to further the liberal arts education mission of the University and  
to enrich the educational experiences of students in all programs  
of study.

## Admission and Prerequisite Requirements

### Departmental Admission Requirements

Admission requirements for the Department of Political Science include  
a minimum 2.5 GPA for Political Science majors and a minimum 3.0  
GPA for Law and Constitutional Studies majors. Students in good  
standing may apply for admission to the department.

### Prerequisites

It is assumed that students registered for upper-division political  
science courses have acquired the basic knowledge and information  
taught in the lower-division courses required for the major. Anyone  
who wishes to take an upper-division course, but has not had the  
appropriate prerequisites, should consult with the instructor before  
registering. Faculty members reserve the right to drop from upper-  
division courses students who do not meet these requirements.

## Graduation Requirements

### Political Science Major

**Minimum GPA for Admission:** 2.0, USU; 2.0, Career

**Minimum GPA for Graduation:** 2.5, major courses;  
2.0, USU; 2.0, Career

**Minimum Grade Accepted:** C- in major courses

#### A. Total credits in Political Science Courses: 36

#### B. Overall GPA: 2.00

#### C. Average GPA in Political Science Courses: 2.50

#### D. Required Courses (15 credits)

POLS 1100 (BAI) U.S. Government and Politics (F,Sp).....	3
POLS 2100 Introduction to International Politics (F,Sp) (3 cr) or	
POLS 2200 (BSS) Comparative Politics (F,Sp) (3 cr) .....	3
POLS 2300 Introduction to Political Theory (F,Sp).....	3
POLS 3000 (QI) <sup>1</sup> Introduction to Political Research (F,Sp).....	3
POLS 4990 (CI) <sup>2</sup> Senior Research Seminar (F,Sp).....	3

#### E. Area Requirements (15 credits minimum)

Select **two** of the following four areas: U.S. Government and Policy,  
International Relations, Comparative Politics, and Political Theory.  
Complete **nine upper-division credits** in one of the selected areas  
and **six upper-division credits** in the other. Even though a course  
may be listed under more than one area, it can be applied to *only one*  
*area*. Prior to taking the upper-division courses in a particular area,  
students must take the introductory course corresponding to that  
specific area.

##### 1. U.S. Government and Policy

POLS 1100, U.S. Government and Politics, must be taken prior to  
taking any of the upper-division coursework listed below.

POLS 3110 Parties and Elections (Sp) .....	3
POLS 3120 Law and Politics (F) .....	3
POLS 3130 United States Legislative Politics (Sp).....	3
POLS 3140 The Presidency (F) .....	3
POLS 3150 State and Local Government (Sp).....	3
POLS 3170 Law and Economics (F).....	3
POLS 3180 Introduction to Public Administration (F).....	3
POLS 3810 Introduction to Public Policy (F).....	3
POLS 4120 American Constitutional Law (F,Sp).....	3
POLS 4140 Political Organizations .....	3
POLS 4810 Politics and Public Policy (F) .....	3
POLS 4820 Natural Resources and Environmental Policy (Sp).....	3
POLS 4890 <sup>3</sup> Special Topics (F,Sp).....	3
POLS 5110 Social Policy (F).....	3
POLS 5130 Law and Policy (Sp).....	3
POLS 5140 Law, Politics, and War (F).....	3
POLS 5180 Natural Resource Policy (Sp) .....	3

# Department of Political Science

## 2. International Relations

**POLS 2100**, Introduction to International Politics, or **POLS 2200**, Comparative Politics, must be taken prior to taking any of the upper-division coursework listed below.

<b>POLS 3100</b> Global Issues (F)	3
<b>POLS 3400</b> United States Foreign Policy (F,Sp)	3
<b>POLS 4210</b> European Union Politics (Sp)	3
<b>POLS 4280</b> Politics and War (Sp)	3
<b>POLS 4410</b> Global Negotiations (Sp)	3
<b>POLS 4450 (CI)</b> United States and Latin America (Sp)	3
<b>POLS 4460</b> National Security Policy (Sp)	3
<b>POLS 4470</b> Foreign Policy in the Pacific (Sp)	3
<b>POLS 4890<sup>3</sup></b> Special Topics (F,Sp)	3
<b>POLS 5210</b> Comparative Political Change/Development (F)	3
<b>POLS 5270</b> Latin American Politics and Development (Sp)	3
<b>POLS 5290</b> Development in Europe (Sp)	3
<b>POLS 5480</b> International Trade Policy (Sp)	3

## 3. Comparative Politics

**POLS 2200**, Comparative Politics, or **POLS 2100**, Introduction to International Politics, must be taken prior to taking any of the upper-division coursework listed below.

<b>POLS 3210</b> Western European Government and Politics (F)	3
<b>POLS 3220</b> Russian and East European Government and Politics (F)	3
<b>POLS 3230</b> Middle Eastern Government and Politics (F)	3
<b>POLS 3250</b> Chinese Government and Politics (F)	3
<b>POLS 3270</b> Latin American Government and Politics (F)	3
<b>POLS 3430</b> Political Geography (Sp)	3
<b>POLS 4210</b> European Union Politics (Sp)	3
<b>POLS 4220 (CI)</b> Ethnic Conflict and Cooperation (Sp)	3
<b>POLS 4260</b> Southeast Asian Government and Politics (Sp)	3
<b>POLS 4410</b> Global Negotiations (Sp)	3
<b>POLS 4450 (CI)</b> United States and Latin America (Sp)	3
<b>POLS 4890<sup>3</sup></b> Special Topics (F,Sp)	3
<b>POLS 5120</b> Economics of Russia and Eastern Europe, 9th Century to 21st Century (F)	3
<b>POLS 5140</b> Law, Politics, and War (F)	3
<b>POLS 5210</b> Comparative Political Change/Development (F)	3
<b>POLS 5230</b> Development in the Middle East (Sp)	3
<b>POLS 5270</b> Latin American Politics and Development (Sp)	3
<b>POLS 5290</b> Development in Europe (Sp)	3
<b>POLS 5350</b> Evolution, Conflict, and Cooperation (Sp)	3

## 4. Political Theory

**POLS 2300**, Introduction to Political Theory, must be taken prior to taking any of the upper-division coursework listed below.

<b>POLS 3310</b> American Political Thought (F)	3
<b>POLS 3320</b> The Foundations of American Constitutionalism	3
<b>POLS 4130</b> Constitutional Theory (Sp)	3
<b>POLS 4310 (CI)</b> History of Political Thought I (Sp)	3
<b>POLS 4320</b> History of Political Thought II (Sp)	3
<b>POLS 4890<sup>3</sup></b> Special Topics (F,Sp)	3

## F. Electives (6 credits)

In addition to the 15 credits of required prerequisite courses and the 15 credits of area courses, students must complete six upper-division elective credits. Any upper-division Political Science courses may be used to fulfill this requirement, with **two exceptions**:

1. Not more than **three** credits in Directed Readings courses (POLS 4910) can apply to this requirement.

2. Not more than **three** credits in the following courses can apply to this requirement:

<b>POLS 5910</b> Campaign Internship (F,Sp,Su)	1-12
<b>POLS 5920</b> Washington Internship (F,Sp,Su)	1-12
<b>POLS 5930</b> State Government Internship (F,Sp,Su)	1-12
<b>POLS 5940</b> Administrative Internship (F,Sp,Su)	1-12

<sup>1</sup>Prerequisite: STAT 1040 or MATH 1030.

<sup>2</sup>POLS 3000 must be taken before POLS 4990.

<sup>3</sup>The subject matter of POLS 4890 determines the area to which it applies.

## Law and Constitutional Studies Major

**Minimum GPA for Admission:** 3.0, USU; 3.0, Career

**Minimum GPA for Graduation:** 3.0, major courses; 3.0, USU; 3.0, Career

**Minimum Grade Accepted:** C in major courses

This is a rigorous program designed for students interested in leadership roles in business, public communications, government, education, or the study or practice of law.

### A. Total Credits in Political Science Courses: 36

Please note that none of the courses can be taken *Pass/Fail*; all Political Science courses must be taken for a letter grade. Also, all courses must be attended in their entirety. Students cannot take these courses during an internship.

### B. Career Total and USU Cumulative GPAs: 3.00

### C. Average GPA in Political Science Courses: 3.00

### D. Required Courses (21 credits)

<b>POLS 1100 (BAI)</b> U.S. Government and Politics (F,Sp)	3
<b>POLS 2300</b> Introduction to Political Theory (F,Sp)	3
<b>POLS 3120</b> Law and Politics (F)	3
<b>POLS 3170</b> Law and Economics (F)	3
<b>POLS 4120</b> American Constitutional Law (F,Sp)	3
<b>POLS 5130</b> Law and Policy (Sp) (3 cr) or	
<b>POLS 5140</b> Law, Politics, and War (F) (3 cr)	3
<b>POLS 3320</b> The Foundations of American Constitutionalism (3 cr) or	
<b>POLS 4130</b> Constitutional Theory (Sp) (3 cr) or	
<b>POLS 4140</b> Political Organizations (3 cr)	3

### E. Course Sequencing

Law and Constitutional Studies majors are **required** to complete POLS 1100 (U.S. Government and Politics) as a prerequisite to all 3000- and 4000-level Political Science courses. It is **advised** that Law and Constitutional Studies majors take POLS 3120 (Law and Politics) prior to POLS 4120 (American Constitutional Law), 4130 (Constitutional Theory), 5130 (Law and Policy), or 5140 (Law, Politics, and War).

### F. Area Requirements (6 credits minimum)

Students must take a minimum of **six upper-division credits** in U.S. Government and Policy in addition to courses required for this major.

### G. Electives (9 credits)

Any Political Science upper-division courses can be used to complete the major and fulfill this requirement, with **two exceptions**:

1. Not more than **three** credits in Directed Readings courses (POLS 4910) can apply to this requirement.

# Department of Political Science

2. Not more than **three** credits in the following courses can apply to this requirement:

<b>POLS 5910</b> Campaign Internship (F,Sp,Su) .....	1-12
<b>POLS 5920</b> Washington Internship (F,Sp,Su) .....	1-12
<b>POLS 5930</b> State Government Internship (F,Sp,Su).....	1-12
<b>POLS 5940</b> Administrative Internship (F,Sp,Su) .....	1-12

## Political Science Minor

Students can obtain a minor in political science by completing a total of 18 credits in the field. The following courses must be included:

<b>POLS 1100 (BAI)</b> U.S. Government and Politics (F,Sp).....	3
<b>POLS 2100</b> Introduction to International Politics (F,Sp) (3 cr) <b>or</b>	
<b>POLS 2200 (BSS)</b> Comparative Politics (F,Sp) (3 cr) .....	3
<b>POLS 2300</b> Introduction to Political Theory (F,Sp).....	3

The remaining credits must be from upper-division courses.

## Political Science Teaching Minor

This minor is designed specifically for students seeking careers in secondary education. Students must have at least 18 credits in political science courses chosen from a list available from the department and in the Guide to the *Undergraduate Program in Secondary Education at USU*, available at the USU Bookstore.

## International Studies Major

Problems of security, development, ethnic conflict, and human rights, as well as problems relating to the environment and natural resources, are increasingly confronted at a global rather than a national level. With its theoretical models and real-world application, the study of international studies is an exciting and highly relevant interdisciplinary major. This program cultivates the development of language and intercultural skills, develops understanding of global problems and circumstances, and expands the students' capacity to make informed judgments regarding complex international and global issues. For information about requirements for this major, see pages 319-321.

## Sample Four-year Plans

Sample semester-by-semester four-year plans for students working toward a bachelor's degree within the Political Science Department can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Internships

The department places approximately 40-45 students in government or related internships each year. Most of these interns work with a member of the Utah delegation to the U.S. Congress in Washington, D.C., a member of the Utah Legislature in Salt Lake City, a political campaign, a state or local administrative agency, or a lobbying group. Students in any major, of at least junior class standing, and having a minimum GPA of 3.0 are eligible to apply.

## Pi Sigma Alpha

Pi Sigma Alpha is the national honorary political science society. A member must have earned at least 15 credits in political science courses with a minimum 3.0 GPA and a minimum 3.0 GPA overall.

## Financial Support

The Political Science Department offers a number of scholarships yearly to students. Contact the Political Science departmental office for applications (usually available around the first week of February and due back the first week of March) at (435) 797-1306 or visit the office in Main 320.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For detailed information about requirements for the majors and minors within the Political Science Department, see the major requirement sheets, which can be obtained from the department, or online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### Departmental Admission Requirements

Applicants must have a BS or BA degree. An undergraduate GPA of 3.0 or better, or a GPA of 3.5 or better over the last 90 semester credits of undergraduate coursework is required. Students must have quantitative, verbal, and analytical GRE scores at or above the 50th percentile. Applicants with very high GPAs and other exceptional supporting materials may petition for admission with deficient GRE scores. The graduate admissions committee will review petitions individually.

International students must receive a score of 550 or better on the TOEFL exam.

Due to limited space, acceptance into Political Science graduate programs is not guaranteed, even for students who meet admission requirements. Moreover, all students are expected to perform at high levels throughout their program. Any student receiving a C grade or lower for any course at any level or a grade point average below 3.0 for a given semester will be placed on academic probation. Receipt of two grades of C or lower or a grade point average below 3.0 for two semesters will result in termination from the program. In addition,

# Department of Political Science

students must meet the requirements of the School of Graduate Studies. Applicants not meeting minimum requirements may be allowed to correct deficiencies concurrently with graduate coursework.

Applications will be considered throughout the year. However, students who wish to be considered for financial aid outside of the department must submit applications by **March 31** for the coming academic year.

**No application will be considered until all required information arrives in the office of the School of Graduate Studies.**

## Assistantships

The department appoints a number of teaching assistants, each with a \$7,000 annual stipend. Appointments are for one year, and may be renewable for a second year. Research assistantships and government internships are sometimes available as well. Applications are available from the Political Science Department and are due on May 15.

## Course Requirements

Effective Fall 2006, the master's degree in Political Science will consist of three area tracks, with each student choosing **one** of the three. Details of requirements and courses follow. Completion of the degree requires a total of 30 credits, along with a thesis.

### Public Policy Track

#### Required Courses (6 credits)

POLS 6010 Research Design (F).....	3
POLS 6020 Public Policy Analysis (Sp) .....	3

#### Elective Courses (12 credits)

Students must complete 12 credits, chosen from the following list:

FIN 6420 Financial Problems (F)	
(for MSS in Public Administration students <i>only</i> ).....	3
POLS 5110 Social Policy (F).....	3
POLS 5130 Law and Policy (Sp).....	3
POLS 5480 International Trade Policy (Sp) .....	3
POL S 6100 Introduction to Public Administration.....	3
POLS 6400 United States Foreign Policy .....	3
Political Theory and Democracy (course being developed)	

**Note:** Students in the Public Policy Track may also select courses from the Democratic Theory and Practice Track.

### Democratic Theory and Practice Track

#### Required Courses (6 credits)

POLS 6010 Research Design (F).....	3
POLS 6240 Democratic Theories and Practice (F).....	3

#### Elective Courses (12 credits)

Students must complete 12 credits, chosen from the following list:

ECN 5150 Comparative Economic Systems (F) .....	3
POLS 5130 Law and Policy (Sp).....	3
POLS 5140 Law, Politics, and War (F).....	3
POLS 5230 Development in the Middle East (Sp).....	3
POLS 5270 Latin American Politics and Development (Sp).....	3
POLS 5290 Development in Europe (Sp) .....	3
POLS 5480 International Trade Policy (Sp) .....	3
POLS 6100 Introduction to Public Administration.....	3
POLS 6250 Theories of War and Peace (F,Sp).....	3
POLS 6400 United States Foreign Policy .....	3

Comparative Politics: Asia (course being developed)  
Political Theory and Democracy (course being developed)

**Note:** Students in the Democratic Theory and Practice Track may also select courses from the Conflict and Security Track.

### Conflict and Security Track

#### Required Courses (6 credits)

POLS 6010 Research Design (F).....	3
POLS 6210 Conflict and Security (Sp).....	3

#### Elective Courses (12 credits)

Students must complete 12 credits, chosen from the following list:

ECN 5150 Comparative Economic Systems (F) .....	3
POLS 5140 Law, Politics, and War (F).....	3
POLS 5230 Development in the Middle East (Sp).....	3
POLS 5270 Latin American Politics and Development (Sp).....	3
POLS 6230 Terrorism and Counter-Terrorism (Sp).....	3
POLS 6240 Democratic Theories and Practice (F) .....	3
POLS 6250 Theories of War and Peace (F,Sp).....	3
POLS 6400 United States Foreign Policy .....	3
SOC 5650 Developing Societies (F).....	3
Comparative Politics: Asia (course being developed)	
Political Theory and Democracy (course being developed)	

**Note:** Students in the Conflict and Security Track may also select courses from the Democratic Theory and Practice Track.

### Other Requirements (12 credits)

The remaining 12 credits needed for the degree may be chosen from the following:

POLS 6910 Graduate Tutorial (F,Sp,Su).....	1-3
(may count up to 6 credits toward the degree, subject to approval)	
POLS 6920 Internship (F,Sp,Su).....	1-15
(may count up to 3 credits toward the degree, subject to approval)	
POLS 6970 Thesis Research (F,Sp,Su).....	1-9
(may count up to 3 credits toward the degree)	
Approved graduate courses taught outside of Political Science.....	1-3

## Political Science Faculty

### Professors

*William L. Furlong*, Latin America, Central America, democratization, development, U.S. foreign policy

*Yolanda Flores Niemann*, Dean of the College of Humanities, Arts, and Social Sciences

### Adjunct Professors

*Larry Boothe*, national security policy

*Brian Theodore "Ted" Stewart*, constitutional law

*James L. Waite*, European policy, comparative European government, methodology, public opinion

### Professor Emeritus

*Stanford Cazier*, U.S. government, public law

# Department of Political Science

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## Associate Professors

*David B. Goetze*, human cooperation and conflict, ethnic conflict, evolutionary theory

*Roberta Q. Herzberg*, public choice, health policy, public policy, U.S. government

*Michael S. Lyons*, U.S. government, Congress, public policy, elections

*Peter McNamara*, political theory

*Anthony A. Peacock*, public law

*Veronica Ward*, international relations, social choice, global environmental issues, conflict and cooperation

## Adjunct Associate Professor

*Charles E. Kay*, environmental policy ecology

## Assistant Professors

*Damon Cann*, American politics of methodology

*Huiyun Feng*, Chinese politics, East Asian politics, comparative politics, international relations

*V. James Strickler*, public law

## Senior Lecturer

*Carol L. McNamara*, political theory, presidency

## Lecturer

*Jeannie L. Johnson*, international relations, comparative cultures

## Course Descriptions

Political Science (POLS), pages 637-640

Latin American Studies (LATS), page 596

**Interim Department Head (2008-2009):** Gretchen Gimpel Peacock

**Location:** Emma Eccles Jones Education 487E

**Phone:** (435) 797-1633

**Department Mailing Address:**

Department of Psychology,  
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Logan UT 84322-2810

**FAX:** (435) 797-1448

**E-mail:** psydept@usu.edu

**WWW:** <http://www.usu.edu/psychology>

**Program Coordinators:**

**Combined Clinical/Counseling/School PhD:**

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**Experimental and Applied Psychological Science PhD:**

Timothy Shahan, Education 482, (435) 770-7619,  
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**School Psychology EdS:**

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**School Counseling MS:**

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**Undergraduate Advisors:**

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Tressa M. Haderlie, Education 477, (435) 797-0097,  
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**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), Educational Specialist (EdS), and Doctor of Philosophy (PhD) in Psychology

**Graduate specializations:** *MS*—School Counseling; *EdS*—School Psychology; *PhD*—Combined Clinical/Counseling/School Psychology, Experimental and Applied Psychological Science

## Undergraduate Programs

### Objectives

Psychologists endeavor to scientifically understand the thought processes, emotions, and behavior of both humans and animals. Psychologists specialize in diverse areas. Some psychologists seek to better understand the interactions among genetic, biological, social, and psychological determinants of behavior. Other psychologists are concerned with how the body and brain create emotions, memories, and sensory experiences, and how these are perceived and interpreted. Still others are concerned with how we learn observable responses and how we process, store, and retrieve information. Additionally, psychologists focus their careers on the causes, assessment, and/or treatment of emotional and behavioral disorders. Psychologists utilize research methods to understand the causes of behavior, emotion, and thought processes.

The Department of Psychology at USU offers a rich undergraduate program in psychology with the primary objectives being:

1. To provide students with substantive knowledge in the basic discipline of psychology, such as history/systems, basic behavior processes, biological bases of behavior, development, personality, learning and cognition, social influences on individuals, research methods, and psychological disorders and treatment.
2. Teaching students how to critically analyze and solve problems pertaining to human interaction, communication, and relationships.
3. Student mastery of principles relating to the causes of behavior, basic learning processes, and the measurement and analysis of behavior.
4. Training students to use scientific and quantitative methods to better understand and apply social science research.
5. Preparing students to compete successfully for entry into nationally and internationally recognized graduate programs in the social sciences.
6. Preparing majors and minors to compete successfully for postbachelor employment opportunities in private/public education, human services, government, and corporations.

### Assessment of Learning Objectives

#### Didactic, Laboratory, Tutorial, and Independent Coursework

All required, primary elective, and secondary elective courses in psychology address the programmatic learning objectives 1 through 6. Syllabi and ancillary course materials specify detailed learning objects in these six areas that are correlated with each unit of each course. Students complete a pre-test assessment in each of the courses pertaining to their knowledge, critical thinking and problem solving skills, principle mastery, and understanding of the scientific and quantitative methods encompassed by the discipline of psychology on which the course focuses. Their achievement of objectives in these areas is assessed periodically throughout the semester in the form of unit exams, written literature reviews or original research proposals, laboratory experiments and written exercises, or homework assignments. Post-tests are administered at the close of the semester. Records are kept of the students' performance in each area, and final course grades are determined based on mastery of the objectives.

Successful preparation and mastery of the programmatic objectives 5 and 6 are intensively addressed and assessed via the applied and research service-learning experiences that faculty offer to students via independent apprenticeship; independent research; independent applied service-learning coursework (PSY 2250, 2950, 4250, 4910, 4920, 4950, 4960, 5500, 5720, 5900, 5910, 5930); supervision of honors' coursework in any of the required, primary elective, and secondary elective courses in psychology; active student engagement in professional psychological organizations that model the standards and expectations of each employment career or post-baccalaureate graduate education opportunity in psychology (Psi Chi, American Psychological Association, American Psychological Society, and Student Analysis of Behavior Association); student poster or paper presentations at professional societies; and student submissions to competitive undergraduate journals dedicated to teaching or research in psychology. Students prepare a detailed set of learning objectives tailored to the goals of their independently supervised teaching,

# Department of Psychology

applied projects, and/or research projects. These objectives and goals form the basis for a contract to be fulfilled by the end of semester. In collaboration with the faculty or the appointed field supervisor, student progress and the final grade are assessed based on the students' successful and productive efforts toward mastering the objectives and meeting their goals. Students are expected to demonstrate mastery of the requirements of the American Psychological Association Style Manual (5th edition) in their required courses and selected coursework from the primary electives. Effective Fall 2006, students entering the psychology major must take PSY 2950 and 4950 *instead of* PSY 5950 and 5960.

PSY 2950, 4950, and 4960 additionally provide students with the presentation and documentation skills needed to achieve objectives 5 and 6 (e.g., to prepare and successfully complete applications for employment, employment interviews, graduate school admission materials, letters of intent, candidate interviews, a resume, and a curriculum vita). Because PSY 2950 provides specific information that students need to document their competency and achievement of learning objectives 5 and 6, the department *strongly* advises students to enroll in PSY 2950 *very early* in their undergraduate careers. Students should take this course as soon as they know they wish to major in psychology. PSY 2950 should be taken *no later* than the semester immediately following admission to the major. Students are also strongly advised to affiliate themselves with a faculty mentor *early* in their careers and to participate actively in the teaching and research experiences that will help them document continued achievements and mastery of objectives 5 and 6. Students should thus also enroll early in the independent research study or applied courses (PSY 4910, 5900, 5910, and 5930).

## Departmental-level Competency Assessments

Students are required to complete a pre-test, as well as to submit written documentation of their progress and program accomplishments. Students should make arrangements with the Psychology Advising Office to complete the pre-test, and they should submit all written documentation to this office.

Student completion of the departmental competency pre-test in psychology is a formal requirement for admission to the psychology major. The pre-test is a web-based, multiple-choice assessment of students' incoming knowledge and mastery of required and elective coursework, and is correlated with the programmatic learning objectives 1-4.

Final approval of each student's application for graduation is contingent upon the student's submission of three documents to the advising office. The student must submit a professionally prepared curriculum vita in APA style, in both hard copy and electronic (PDF) format. The vita must reflect the culmination of the student's research, applied, and service-learning experiences and accomplishments in, or related to, the field of psychology. The vita must be current, must reflect all of the student's work (up to two weeks prior to graduation), and may include his or her scores on standardized national tests (e.g., the GRE, MCAT, LSAT, and/or MAT, where applicable). It should also include a current e-mail address and phone number that will allow the student to be contacted after graduation to volunteer information regarding his or her post-graduation successes.

The courses in Psychology and the electives available in related departments allow students to tailor their education to meet specific career goals. Some students who major in psychology may qualify for admission to unique specialty tracks: (1) **the (secondary education) Teaching Major**; (2) **Behavior Analysis Skill Track**; (3) **Interpersonal Relationships Skill Track**; and (4) **Graduate School Preparation Track**. A human services/caseworker training option may also be available to majors.

Students can complete the major or minor in psychology either on-campus (Logan), or through the USU Distance Education system (all required courses and selected electives are offered every 1-2 years) available throughout the State of Utah. Most classes are available online. Students should check with the Psychology Advising Office at the time of registration for availability. The specific requirements for the skill tracks, the Apprenticeship, the on- and off-campus (distance education) options, and for how psychology electives can be used to advance students' career goals can be obtained from the **Psychology Advisement Office, Eccles-Jones Education Building, Room 475, (435) 797-1456**.

## Requirements

### Pre-psychology Admission Requirements

Students are admitted to the Department of Psychology as Pre-psychology majors by meeting the Utah State University admission requirements (see pages 30-35). To be a Psychology major, a student must make written application to the department, after meeting the following prerequisites: (1) completion of at least 40 semester credits with a cumulative GPA of 2.75 or higher; (2) completion of at least 18 credits of the University Studies requirement with a GPA of 2.75 or higher; and (3) completion of PSY 1010, 1100, 1400, 1410, 2800, and 2950 with a GPA of 3.0 or higher. Application to the department should be made during the semester in which these prerequisites will be completed.

A student who wishes to be officially recognized as a psychology major or psychology teaching major must submit a formal application to the Department of Psychology Undergraduate Advising Office at Utah State University. The formal application will be reviewed and approved by the USU Psychology Department advisorial staff only. This contingency applies to all students, including those in the on-campus programs and in any of the USU Regional Campuses and Distance Education (RCDE) or Extension programs. Applications that have been reviewed by a USU Psychology Department advisor and meet all requirements will be processed in a timely fashion.

Students who wish to fulfill the major requirements via any of the USU RCDE or Extension programs or sites must contact the Psychology Department Advising Office on the Logan campus to be informed of the contingencies regarding timely progression through the program. Students need to carefully review their program of study with the Psychology Department Advising Office. Students should be aware that their program of study will be delayed when either (1) they fail to contact advisors at the Logan campus or (2) RCDE deviates from the published schedule of courses.

### General Undergraduate Psychology Major:

**Required Courses (24 credits), plus  
Primary Electives (16 credits),  
Secondary Electives (3 credits), and  
Apprenticeship (3 credits)**

Requirements for a psychology major consist of a broad preparation of 24 credits of specified coursework, plus a minimum of 19 credits of approved Psychology elective courses, and 3 credits of an apprenticeship, which allows for integration of coursework knowledge (theory) through application, for a total of 46 credits. At least 20 Psychology credits must be upper-division, 12 of which must be taken at USU.

## A. Required Courses (24 credits)

PSY 1010 (BSS) General Psychology (F,Sp,Su) .....	3
PSY 1100 Developmental Psychology: Infancy and Childhood (F,Sp)..3	3
PSY 1400 Analysis of Behavior: Basic Principles (F,Sp,Su).....3	3
PSY 1410 Analysis of Behavior: Basic Principles Lab (F,Sp,Su).....	1
PSY 2800 (QI) Psychological Statistics (F,Sp) .....	3
PSY 2950 Orientation to Psychology as a Career and Profession (F,Sp,Su) .....	2
PSY 3500 (CI) Scientific Thinking and Methods in Psychology (F,Sp)..3	3
PSY 5100 History and Systems of Psychology (Sp) .....	3
PSY 5330 Psychometrics (F) .....	3

## B. Primary Elective Courses (16 credits)

### Group 1. Select 3 credits from the following:

PSY 3510 Social Psychology (F,Su).....	3
PSY 4210 Personality Theory (Sp).....	3

### Group 2. Select 3 credits from the following:

PSY 3450 Perception and Psychophysics (F).....	3
PSY 3460 Physiological Psychology (Sp) .....	3

### Group 3. Select 4 credits from the following:

PSY 3400 Analysis of Behavior: Advanced (F,Sp).....	4
PSY 4420 Cognitive Psychology (Sp) (3 cr) and PSY 4430 Cognitive Psychology Laboratory (Sp) (1 cr).....	4

### Group 4. Select 6 credits from the following:

PSY 3110 Health Psychology (Sp).....	3
PSY 3120 Abuse, Neglect, and the Psychological Dimensions of Intimate Violence (F,Su) .....	3
PSY 3210 Abnormal Psychology (F,Sp) .....	3
PSY 5200 (CI) Introduction to Interviewing and Counseling (F).....	3
Drugs and Behavior course (number and approval pending).....	3

## C. Secondary Elective Courses (3 credits minimum)

Select at least 3 credits from the following. (A course from the Primary Electives list may count as fulfilling the Secondary Elective requirement *if and only* if it has not been counted as a Primary Elective requirement.)

PSY 1210 Psychology of Human Adjustment (F,Sp).....	3
PSY 2100 Developmental Psychology: Adolescence (Sp).....	3
PSY 3660 Educational Psychology for Teachers (F,Sp).....	2
PSY 3720 Behavior Modification (Sp) .....	3
PSY 4230 Psychology of Gender (Sp) .....	3
PSY 4240 Multicultural Psychology (F) .....	3
PSY 4510 (CI) Effective Social Skills Interventions (Sp).....	3
PSY 4960 (CI) Advanced Undergraduate Apprenticeship (F) .....	3
PSY/PEP 4000 Mental Aspects of Sports Performance (F,Sp,Su) (3 cr) or PSY/PEP 5050 Psychological Aspects of Sports Performance (Sp) (3 cr) .....	3
PSY/COMD 4790 Psychological Principles and Individuals who are Deaf and Hard of Hearing (Sp).....	3
SPED/REH 1010 (BSS) Society and Disability (F,Sp).....	3

## D. Required Apprenticeship Course (3 credits)

PSY 4950 (CI) Undergraduate Apprenticeship (F,Sp,Su).....	3
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A minor in another area is required. A minimum overall USU GPA of 2.75 is required for graduation, with a minimum GPA of 3.0 in Psychology. Students must receive a grade of C- or better in all psychology courses (USU and transfer) in order to have them counted toward major requirements. (Students desiring licensure for teaching in secondary schools must also meet the requirements of the Secondary Education Program of the School of Teacher Education and Leadership.)

Students must meet the above minimum requirements in order to graduate with a major in psychology. These requirements include completing all of the required assessments and providing the supporting documentation (see *Assessment of Learning Objectives* on pages 429-430).

Meeting these minimum requirements alone is *insufficient* to prepare for competitive employment opportunities or to secure admission to graduate school. Students who are planning to secure optimal employment or graduate admissions need to first affiliate with a faculty mentor, as well as become involved in research or applied experiences with the faculty member, *as soon* as they know they will pursue a major in psychology. These students should enroll in one of PSY 5900, 5910, or 5930 *as soon* as they have identified a mentor and have met Utah State University's admission requirements for the Department of Psychology Pre-psychology Major designation. They should pursue their own creative research opportunity experience with the faculty member and enroll in PSY 4910 during the second semester of their junior year and absolutely *no later* than the first semester of their senior year. They should plan to enroll in an additional section of PSY 5900, 5910, or 5930 during their senior year.

## Suggested Sample Four-year Plan for Psychology Major

A suggested semester-by-semester four-year plan for students working toward a bachelor's degree in Psychology can be found at:  
<http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Undergraduate Psychology Minor:

Required Courses (10 credits), plus  
Elective Courses (8 credits minimum)

### A. Required Courses (10 credits)

PSY 1010 (BSS) General Psychology (F,Sp,Su) .....	3
PSY 1100 Developmental Psychology: Infancy and Childhood (F,Sp)..3	3
PSY 1400 Analysis of Behavior: Basic Principles (F,Sp,Su).....	3
PSY 1410 Analysis of Behavior: Basic Principles Lab (F,Sp,Su).....	1

### B. Electives (8 credits)

Choose course(s) from required or primary elective courses listed for the Psychology Major to total 18 credits.

The student's grade point average for all psychology courses, USU or transfer, must average 3.0 or above to qualify for credit toward the minor. At least 12 credits of the 18 required credits must be completed at USU. Students must receive a grade of C- or higher in all psychology courses (USU and transfer) in order to have them counted toward minor requirements.

## Psychology Teaching Major:

Required Psychology Courses (27 credits), plus  
Elective Psychology Courses (16 credits)

Requirements for a Teaching Major in Psychology broadly consist of 27 credits of specified psychology coursework and 16 credits of elective psychology coursework, for a total of 43 credits in psychology. Only 16 of these 43 psychology credits may be taken in lower-division courses. The remaining 27 credits must be received in 3000- or 4000-level psychology courses. At least 12 of the upper-division credits must have been earned in courses completed at USU. A minor in another field of study is also required. Prospective teachers must



# Department of Psychology

complete 35 credits of the Secondary Teacher Education Program (STEP) in the Secondary Education Program of the School of Teacher Education and Leadership. Required GPA for psychology courses is 3.0. Students must receive a grade of C- or better in all psychology courses (USU and transfer) in order to have them counted toward major requirements.

## A. Required Courses (27 credits)

<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) .....	3
<b>PSY 1100</b> Developmental Psychology: Infancy and Childhood (F,Sp)..	3
<b>PSY 1400</b> Analysis of Behavior: Basic Principles (F,Sp,Su).....	3
<b>PSY 1410</b> Analysis of Behavior: Basic Principles Lab (F,Sp,Su).....	1
<b>PSY 2100</b> Developmental Psychology: Adolescence (Sp).....	3
<b>PSY 2800 (QI)</b> Psychological Statistics (F,Sp) .....	3
<b>PSY 3500 (CI)</b> Scientific Thinking and Methods in Psychology (F,Sp)..	3
<b>PSY 3660</b> Educational Psychology for Teachers (F,Sp).....	2
<b>PSY 5100</b> History and Systems of Psychology (Sp) .....	3
<b>PSY 5330</b> Psychometrics (F) .....	3

## B. Elective Courses (16 credits)

### Group 1. Select 3 credits from the following:

<b>PSY 3510</b> Social Psychology (F,Su).....	3
<b>PSY 4210</b> Personality Theory (Sp).....	3

### Group 2. Select 3 credits from the following:

<b>PSY 3450</b> Perception and Psychophysics (F).....	3
<b>PSY 3460</b> Physiological Psychology (Sp) .....	3

### Group 3. Select 4 credits from the following:

<b>PSY 3400</b> Analysis of Behavior: Advanced (F,Sp).....	4
<b>PSY 4420</b> Cognitive Psychology (Sp) (3 cr) <b>and</b>	
<b>PSY 4430</b> Cognitive Psychology Laboratory (Sp) (1 cr).....	4

### Group 4. Select 6 credits from the following:

<b>PSY 3110</b> Health Psychology (Sp) .....	3
<b>PSY 3120</b> Abuse, Neglect, and the Psychological Dimensions of Intimate Violence (F,Su) .....	3
<b>PSY 3210</b> Abnormal Psychology (F,Sp) .....	3
<b>PSY 5200 (CI)</b> Introduction to Interviewing and Counseling (F).....	3
Drugs and Behavior course (number and approval pending).....	3

## C. Secondary Teacher Education Program (STEP) (35 credits)

Admission to Secondary Education must be completed approximately one semester before the following courses may be taken.

### Level 1 (15-week courses) (11 credits)

Students at Level 1 must complete the following courses:

<b>INST 3500</b> Technology Tools for Secondary Teachers (F,Sp,Su).....	1
<b>SCED 3100</b> Motivation and Classroom Management (F,Sp) .....	3
<b>SCED 3210 (CI)</b> Educational and Multicultural Foundations (F,Sp) .....	3
Special Methods Course (major or minor) <sup>1</sup> .....	3
Clinical Experience I Course (major or minor) <sup>1</sup> .....	1

### Level 2 (15-week courses) (12 credits)

Students at Level 2 must complete the following courses:

<b>SPED 4000</b> Education of Exceptional Individuals (may be taken anytime) (F,Sp,Su).....	2
<b>SCED 4200 (CI)</b> Reading, Writing, and Technology (F,Sp) .....	3
<b>SCED 4210</b> Cognition and Evaluation of Student Learning (F,Sp) .....	3
Special Methods Course (major or minor) <sup>1</sup> .....	3
Clinical Experience II Course (major or minor) <sup>1</sup> .....	1

### Level 3

(includes 13 weeks of student teaching and 2 weeks of Student Teaching Seminar) (12 credits)

<b>SCED 5500</b> Student Teaching Seminar (2 weeks) (F,Sp) .....	2
<b>SCED 5630</b> Student Teaching in Secondary Schools (13 weeks, full-time) (F,Sp).....	10

<sup>1</sup>Students must complete a methods course and a clinical experience course for each of their teaching subjects. Students should check with the department offering their other teaching subject for methods and clinical experience course numbers in that subject. Students electing Psychology at Level 1 should register for SCED 3500 (methods course) and SCED 3300 (clinical course). Students electing Psychology at Level 2 should register for SCED 3500 (methods course) and SCED 4300 (clinical course).

## Undergraduate Psychology Teaching Minor: Required Psychology Courses (15 credits), plus Elective Psychology Courses (3 credits)

At least 12 credits of the 18 required credits must be completed at USU. In addition, they must select at least one 3-credit class from the list of courses required for or serving as primary electives for the psychology major. Required GPA for psychology courses is 3.0. Students must receive a grade of C- or better in all psychology courses (USU and transfer) in order to have them counted toward minor requirements. Finally, they need to fulfill the 35-credit requirement for the Secondary Teacher Education Program (STEP) in the Secondary Education Program of the School of Teacher Education and Leadership.

### A. Required Courses (15 credits)

<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) .....	3
<b>PSY 1100</b> Developmental Psychology: Infancy and Childhood (F,Sp)..	3
<b>PSY 1400</b> Analysis of Behavior: Basic Principles (F,Sp,Su).....	3
<b>PSY 1410</b> Analysis of Behavior: Basic Principles Lab (F,Sp,Su).....	1
<b>PSY 2100</b> Developmental Psychology: Adolescence (Sp).....	3
<b>PSY 3660</b> Educational Psychology for Teachers (F,Sp).....	2

### B. Electives (3 credits minimum)

Choose course(s) from required or primary elective courses listed for the Psychology Major to total 18 credits.

**Note:** The Psychology Teaching Minor also requires the completion of the Secondary Teacher Education Program (STEP) (35 credits). See section C under Psychology Teaching Major.

## Skill Tracks for Undergraduate Majors in Psychology

The following skill tracks can be completed as part of a student's major in Psychology. A skill track represents a cluster of courses that help provide more comprehensive knowledge and practical skill in particular areas. After admission as a major in Psychology, students may apply for admission to a skill track. Completing a skill track requires careful planning, so that skill track courses and all other required and elective courses for the major are fulfilled. Enrollment in a skill track is entirely optional for majors.

### Behavior Analysis Skill Track

The following cluster of courses will provide psychology majors with a basic foundation in experimental and applied behavior analysis: PSY 1400, 1410, 3400, 4910, 5720; SPED 5010, 5050; BIOL 3010; and PHIL 4320 or 4900.

## Interpersonal Relationships Skill Track

The following cluster of courses will assist psychology majors in systematically developing a broad range of interpersonal relationship skills, such as listening, assertiveness, negotiation, conflict resolution, and anger management: PSY 1210, 3210, 3510, 4210, 4510, 5200; MGT 3710.

## Graduate School Preparation Track

The major in Psychology has been designed so that students take classes that will help them compete in applying for graduate school. Students completing the graduate school track need to become actively involved with faculty research, form an association with Psi Chi, and enroll in independent research and readings courses. It is recommended that students take at least one upper-division course in statistics from Psychology, FCHD, or Sociology.

Students who pursue the skills tracks in Psychology are encouraged to become involved with the faculty in independent research or applied experiences. Involvement in these experiences is associated with greater chances of successful graduate school admission and/or competitive post-baccalaureate employment, especially for students who pursue this involvement early in their undergraduate careers.

The faculty who teach courses satisfying the skills track requirements are committed to working closely with students to hone their experiences and accomplishments in research methodology and applied fields of psychology.

These faculty have a solid track record in mentoring students. Their students have achieved remarkable success in procuring funding to support student-initiated research projects via Utah State University's competitive University Research Cooperative Opportunity (URCO) mechanism and the national honor society of psychology (Psi Chi).

Their students have been first authors or co-authors on numerous scholarly presentations at regional, national, and international conferences in psychology (e.g., *Association of Behavior Analysis*, *American Psychological Association*, *European Conference of Developmental Psychology*, *International Society for the Study of Behavioral Development*, *Society for Personality and Social Psychology*, *Society for Research in Adolescence*, and *Society for Research in Human Development*). Their students have competed successfully each year for awards that recognize their achievements. Together with the faculty, the students have published in premier research journals in psychology (e.g., *Developmental Psychology*, *Journal of Applied Psychology*, *Journal of Clinical Psychology*, *Journal of Experimental Psychology*, and *Sex Roles*) and books in psychology.

The Department of Psychology and Utah State University actively support students' efforts by awarding matching funding to support the attendance of conferences at which they can present their accepted conference presentations.

## Psychology Courses Fulfilling University Studies Requirements

The following Psychology courses may be used to fulfill University Studies requirements, in the areas indicated:

**Breadth Social Sciences (BSS):** PSY 1010.

**Depth Social Sciences (DSS):** PSY 3120, 3210, 3400, 3500, 3510, 4210, 4230, 4240, 4420.

**Communications Intensive (CI):** PSY 3500, 4510, 4950, 4960, 5200.

**Quantitative Intensive (QI):** PSY 2800.

Although these courses may be applied toward fulfilling the University Studies breadth, depth, communications intensive, and quantitative intensive requirements, students must be prepared to complete additional writing or library assignments, as required for University Studies.

## Important Contingencies for Psychology Courses

Prerequisites for Psychology courses are *strictly enforced*. The prerequisites are indicated, at the end of course descriptions, within the Psychology course listings (see pages 643-647).

A student must be admitted as a psychology major or must complete *at least* 45 semester credits with a GPA of 3.0 or higher prior to taking psychology courses numbered 3000 or above. However, students who have been admitted to the Teacher Education program may take PSY 3660, provided they have met the prerequisites. A student must be admitted as a psychology major or must complete *at least* 60 semester credits with a GPA of 3.0 or higher prior to taking psychology courses numbered 4000 or above.

Students desiring to receive credit for courses taken previously at other institutions will need to assure the Undergraduate Advising Office that the substitute class contained the requisite laboratory experience (where applicable).

Students who can complete a baccalaureate degree within seven years of enrollment at USU can qualify for graduation by meeting (1) the General Education/University Studies requirements in effect when they initially enrolled and (2) the major requirements in effect when they officially declared their major, even though there may have been changes in General Education/University Studies and major requirements since that time. Students who have not completed the baccalaureate requirements within seven years of their initial enrollment at USU must have their General Education/University Studies and major requirements evaluated and approved by their department head and dean. However, exceptions to this seven-year policy may be necessary for mandated changes in degree requirements.

Undergraduate psychology coursework (USU or transfer) that is *more than eight years old* may *not* be used toward meeting the specific psychology coursework requirements for a psychology major or psychology minor. However, the Psychology Department Undergraduate Committee may allow revalidation through testing. Testing arrangements may be made by contacting Karen Ranson at karen.ranson@usu.edu.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school.

# Department of Psychology

In the Psychology Department, students may complete an *Honors in University Studies with Department Honors* or a *Department Honors* only program. The requirements for departmental honors are as follows:

## Honors Coursework

Honors students must complete 12 credits in courses designated as Honors courses. These courses are selected by students, and are approved by the Department Honors Coordinator and individual faculty members. Any upper-division (3000-level or higher) course may be taken as Honors. Additional courses which will meet the criteria for an Honors designation are determined, in conjunction with the student, by the faculty members teaching the courses.

## GPA Requirements

To qualify for departmental honors, students must maintain a cumulative GPA of 3.3 and a GPA of 3.5 within upper-division major requirements and Honors coursework.

## Senior Thesis

In order to obtain departmental honors, students are required to design, conduct, and present a senior thesis/project under the supervision of a faculty mentor. The senior thesis/project can be built from the research component of PSY 4950 and 4960.

Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For detailed information about course requirements for majors and minors within the Psychology Department, see the major requirement sheet, which is available from the department, or which can be accessed online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admission Requirements

Admissions requirements vary somewhat across Psychology graduate programs. Therefore, applicants should review program web pages for more details. However, applications submitted to the School of Graduate Studies must include the following: (1) transcript showing completion of undergraduate course prerequisites, plus any recommended coursework; (2) report of (GRE) test scores from ETS; (3) GPA of at least 3.2, covering the last 60 semester credits; (4) three letters of recommendation; and (5) a statement of professional goals and intent. The department requires a minimum GRE combined (Verbal and Quantitative) score of at least 1,100 for all programs.

The deadline for submitting applications for the Combined Clinical/Counseling/School Psychology PhD program is **January 15**. Applications for the Experimental and Applied Psychological Science PhD program are reviewed starting **January 31**. The application deadline for the EdS School Psychology program is **February 1**. Applications for the MS program in School Counseling must be submitted by **May 1**. With the exception of the PhD program in Combined Clinical/Counseling/School, applications for programs may be accepted after these dates if openings still exist.

Students are admitted to the MS program in School Counseling, following completion of a bachelor's degree. Prospective EdS students in School Psychology and prospective PhD program students in the Combined Clinical/Counseling/School program or the Experimental and Applied Psychological Science program can possess either a bachelor's or a master's degree.

## Prerequisites for Admission to Graduate Programs

Applicants to the Master of Science (MS), Educational Specialist (EdS), and Doctor of Philosophy (PhD) programs are advised that they should possess a broad base of knowledge at the undergraduate level in a *substantive subgroup* of the following: general psychology, human development, learning theory, cognition, personality theory research, psychometrics, elementary statistics, history and systems, physiological, sensation and perception, and social psychology. The absolute prerequisites for each graduate program are outlined below, along with a listing of graduate program course requirements for each program.

## Psychology Master of Science Program

### School Counselor Education (Accreditation: Candidate Member, TEAL)

Completion of this program qualifies graduates for professional licensure in School Guidance Counseling. Coursework is formulated to train students in a broad range of skills, including individual and group counseling for diverse populations; behavior and educational assessment and intervention; research and methodological foundations; and ethical, legal, and professional standards. Experiential learning in the form of practicum and internship placements is a critical component of the program. The program is approved by the Utah State Office of Education and most other states. It originates on the campus of USU and is broadcast live via Interactive Video Conferencing to 10 sites within Utah's boundaries or through face-to-face instructorship in Kaysville, Utah. The program is a candidate member in good standing of the Teacher Education Accreditation Council (TEAL).

Absolute undergraduate course prerequisites for admission to the MS in School Counseling are as follows: (1) *Analysis of Behavior*, (2) *Abnormal Psychology*, and (3) *Psychological Statistics* (or equivalent).

The MS in School Counseling requires a minimum of 48 semester credits. The following courses are required:

<b>PSY 6010</b> Introduction to Program Evaluation: Evaluation Models and Practical Guidelines (Su).....	3
<b>PSY 6150</b> Evidence-Based Practice I: Children and Adolescents (F).....	2
<b>PSY 6220</b> Group Counseling (Sp).....	3
<b>PSY 6240</b> Introduction to School Counseling and Guidance (Sp).....	3
<b>PSY 6250</b> Internship in School Counseling and Guidance (F,Sp,Su).....	10
<b>PSY 6260</b> Career Development: Theory and Practice (Su).....	3
<b>PSY 6290</b> Diversity Issues in Treatment and Assessment (F).....	3
<b>PSY 6330</b> Psychometrics (F).....	3
<b>PSY 6340</b> Psychological and Educational Consultation (Su).....	3
<b>PSY 6350</b> Introduction to Theories of Intervention in Psychology (Su).....	3
<b>PSY 6370</b> Practicum in School Counseling (Sp).....	3
<b>PSY 6460</b> Professional Issues in School Counseling and School Psychology (Sp).....	3
<b>PSY 6530</b> Developmental Psychology (F).....	3
<b>PSY 6810</b> Seminar (Grant Writing) (Su).....	2

## Educational Specialist (EdS) Program

### School Psychology, NASP-accredited

USU's nationally accredited program in school psychology emphasizes child development issues, assessment and treatment of emotional and behavioral disorders, and traditional psychoeducational assessment and consultation activities appropriate to school settings. The program is approved by the Utah State Office of Education for licensure of school psychologists. Students are required to complete a research thesis (Graduate School Plan A option).

**Absolute undergraduate course prerequisites** for admission to the EdS specialization in School Psychology are as follows: (1) *Abnormal Psychology*, and (2) *Theories/Research in Personality*.

#### The following courses are required:

<b>PSY 6150</b> Evidence-Based Practice I: Children and Adolescents (F) .....	2
<b>PSY 6290</b> Diversity Issues in Treatment and Assessment (Sp) .....	3
<b>PSY 6310</b> Intellectual Assessment (F) .....	3
<b>PSY 6320</b> Objective Assessment of Personality and Affect (Sp) .....	3
<b>PSY 6600</b> Research Design and Analysis I (F,Sp,Su) .....	3
<b>PSY 6340</b> Psychological and Educational Consultation (F) .....	3
<b>PSY 6350</b> Introduction to Theories of Intervention in Psychology (F) ...	3
<b>PSY 6380</b> Practicum in School Psychology (F,Sp,Su) (Students must earn 3 credits during each of two semesters.) .....	6
<b>PSY 6410</b> Psychoeducational Assessment (Sp) .....	3
<b>PSY 6450</b> Introduction to School Psychology (F) .....	1
<b>PSY 6460</b> Professional Issues in School Counseling and School Psychology (Sp) .....	3
<b>PSY 6530</b> Developmental Psychology (F) .....	3
<b>PSY 6570</b> Introduction to Educational and Psychological Research (F,Sp,Su) .....	3
<b>PSY 6660</b> Cognition and Instruction (Sp) .....	3
<b>PSY 6810</b> Seminar: Advanced Academic and Behavioral Interventions (F) .....	3
<b>PSY 6810</b> Seminar: Theory and Practice in School Psychology (F,Sp) .....	2
<b>PSY 6950</b> Internship in School Psychology (F,Sp,Su) (Students must earn 3 credits during each of two consecutive semesters.) .....	6
<b>PSY 6970</b> Thesis (F,Sp,Su) .....	6
<b>PSY 7250</b> Professional Ethics and Standards (Sp) .....	3
<b>PSY 7270</b> Lifespan Psychopathology (F) .....	3
<b>PSY 7820</b> Neuropsychology: Principles and Assessment (Sp) .....	2

## PhD Programs

### Combined and Integrated (C-I)

#### Clinical/Counseling/School Psychology, (APA-accredited)

This program integrates the theory and practice of psychology common to the disciplines traditionally denoted as clinical, counseling, and school psychology. It subscribes to the scientist-practitioner model, and students completing the program will enter professional practice in a variety of settings, including VA hospitals, mental health centers, hospitals, clinics, schools, and academic settings. The program provides an excellent balance of research and practitioner skill training. A research thesis and dissertation are required of all students. The combined program provides generalized training, along with three areas of emphasis. The emphasis areas are designed for students to begin systematically developing a specialty area in line with their future career goals. The three areas of concentration mirror faculty interest and expertise and include: health psychology/neuropsychology, child

clinical (school psychology), and rural and multicultural psychology. The program is also affiliated with the American Indian Support Project, one of the nation's most successful programs for training and mentoring American Indian PhD psychologists.

Complete information on accreditation guidelines and principles is available through the Committee on Accreditation (CoA) at Education Directorate, American Psychological Association, 750 First Street NE, Washington DC 20002-4242, (202) 336-5979, or on the web at: <http://www.apa.org/ed/accreditation/>

**Absolute undergraduate prerequisites** for admission to the PhD program in Combined Clinical/Counseling/School are as follows: (1) *Elementary Statistics*; (2) *Theories/Research in Learning*; (3) *Abnormal Psychology*; and (4) *Theories/Research in Personality*.

The Combined Clinical/Counseling/School Psychology PhD requires **105-107 total semester credits**, including the following:

#### A. MS Counseling Psychology Degree Curriculum

<b>PSY 6100</b> History and Systems of Psychology (Sp) .....	3
<b>PSY 6290</b> Diversity Issues in Treatment and Assessment (Sp) .....	3
<b>PSY 6310</b> Intellectual Assessment (F) .....	3
<b>PSY 6320</b> Objective Assessment of Personality and Affect (Sp) .....	3
<b>PSY 6350</b> Introduction to Theories of Intervention in Psychology (F,Su) .....	3
<b>PSY 6360</b> Introduction to the Practice of Professional Psychology (Sp) .....	3
<b>PSY 6530</b> Developmental Psychology (F) .....	3
<b>PSY 6570</b> Introduction to Educational and Psychological Research (F,Sp,Su) .....	3
<b>PSY 6600</b> Research Design and Analysis I (F,Sp,Su) .....	3
<b>PSY 6850</b> Introduction to the Combined Doctoral Program (F) .....	1
<b>PSY 6970</b> Thesis (F,Sp,Su) .....	1-6
<b>PSY 7270</b> Lifespan Psychopathology (F) .....	3

#### B. PhD Program Courses

<b>PSY 6150</b> Evidence-Based Practice I: Children and Adolescents (F) .....	2
<b>PSY 6510</b> Social Psychology (Sp) .....	3
<b>PSY 6650</b> Theories of Learning: The Behavioral Perspective (F) (3 cr) or	
<b>PSY 6660</b> Cognition and Instruction (Sp) (3 cr) .....	3
<b>PSY 6750</b> Evidence-Based Practice II: Adults (Sp) .....	2
<b>PSY 7100</b> Biological Basis of Behavior (Sp) .....	3
<b>PSY 7230</b> Theory and Research in Personality (Sp) .....	3
<b>PSY 7250</b> Professional Ethics and Standards (F) .....	3
<b>PSY 7350</b> Practicum in School Psychology (F,Sp,Su) .....	3
<b>PSY 7360</b> Practicum in Counseling Psychology (F,Sp,Su) .....	3
<b>PSY 7370</b> Practicum in Clinical Psychology (F,Sp,Su) .....	3
<b>PSY 7610</b> Research Design and Analysis II (Sp,Su) .....	3
<b>PSY 7670</b> Literature Reviews in Education and Psychology (F,Sp) (2 cr) or	
Other approved research course (2-3 cr) .....	2-3
<b>PSY 7850</b> Internship and Professional Development Seminar (Sp) .....	1
<b>PSY 7910</b> Independent Research (F,Sp,Su) .....	1-3
<b>PSY 7950</b> Internship in Professional Psychology (F,Sp,Su) .....	1
<b>PSY 7970</b> Dissertation (F,Sp,Su) .....	1-18
One supervision/consultation course .....	1-3
Electives .....	6

**Note:** The MS counseling psychology degree is available *only* to students matriculated into the PhD Clinical/Counseling/School program.

# Department of Psychology

## Experimental and Applied Psychological Science (EAPS)

The department offers a PhD program in Experimental and Applied Psychological Science. The program is designed to prepare students for careers in research, data analysis, and/or teaching in academic, public, or private settings. While satisfying the department's general requirements, students may design their programs to become specialists in a variety of areas, such as program evaluation, behavior analysis, health psychology, statistics, or similar areas. A research thesis and/or dissertation are required of all students.

Undergraduate prerequisites for admission to the PhD program in Experimental and Applied Psychological Science include:

(1) Elementary Statistics, (2) Psychometrics, and (3) History and Systems of Psychology.

### A. MS Degree Curriculum

The Experimental and Applied Psychological Science MS requires a minimum of 32 credits, as follows:

<b>PSY/EDUC 6010</b> Introduction to Program Evaluation: Evaluation Models and Practical Guidelines (F,Sp).....	3
<b>PSY/EDUC 6570</b> Introduction to Educational and Psychological Research (F,Sp,Su).....	3
<b>PSY/EDUC 6600</b> Research Design and Analysis I (F,Sp,Su) .....	3

### Content Requirements (12 credits):

Students must complete four of the following six courses:

<b>PSY 6510</b> Social Psychology (Sp) .....	3
<b>PSY 6530</b> Developmental Psychology (F) .....	3
<b>PSY 6650</b> Theories of Learning: The Behavioral Perspective (F).....	3
<b>PSY 6660</b> Cognition and Instruction (Sp).....	3
<b>PSY 7100</b> Biological Basis of Behavior (Sp) .....	3
<b>PSY 7230</b> Theory and Research in Personality (F).....	3

### Other Requirements (3 credits):

<b>PSY 7090</b> Experimental and Applied Psychological Science Program Seminar (F).....	1
<b>PSY 7250</b> Professional Ethics and Standards (F).....	2
<b>PSY 6970</b> Thesis (F,Sp,Su).....	8 or more

### B. PhD Degree Curriculum

The Experimental and Applied Psychological Science PhD requires a minimum of 63 total credits past the MS degree, including:

<b>PSY 7090</b> Experimental and Applied Psychological Science Program Seminar (F).....	1
<b>PSY 7610</b> Research Design and Analysis II.....	3
<b>PSY/EDUC 7670</b> Literature Reviews in Education and Psychology (F,Sp) .....	2
<b>PSY 7700</b> Grant Writing (Sp) .....	3
<b>PSY 7780</b> Multivariate Methods in Psychology and Education (F) .....	3

### Specialty Area Electives (21 credits):

Students should consult with their supervisory committee to determine which Specialty Area Electives they should complete.

### Additional Requirements for Psychology PhD Programs

All PhD candidates must meet the following general core requirements, regardless of specialty emphasis: (1) submission of an article for publication in a recognized journal; (2) presentation of research findings at a regional or national convention or professional meeting; (3) completion of the doctoral dissertation; (4) a comprehensive literature review; (5) completion of the research core; and (6) completion of an apprenticeship or internship. Students in the combined PhD program must also complete a formal case

presentation, and compete nationally for admission to an APA-approved, 2,000-hour predoctoral internship. The Experimental and Applied Psychological Science program has an additional requirement of a grant proposal.

## Research Opportunities for Students

Departmental faculty are heavily involved in basic and/or applied research. A sampling of the diverse research interests of tenured and tenure-track faculty available to students includes: *Ascione*—prosocial, moral development, domestic violence, relation between cruelty to animals and psychopathology; *Bates*—adolescent problem behavior prevention, community-level prevention, higher education teaching and learning; *Cheney*—behavioral pharmacology, basic operant learning; *Crowley*—anxiety, depression, supervision and training; *DeBerard*—health psychology, behavioral medicine, spinal surgery outcome and technique efficacy; *Domenech-Rodriguez*—Latino family dynamics, parent training programs; *Fargo*—statistical methods, quantitative neuropsychology, seizure disorders, classification statistics; *Ferguson*—bullying, victimization, emotional well-being, religious thinking; *Field*—adolescent behavior disorders, rural mental health issues, school psychology; *Gallagher*—social and dating relationship processes and dynamics in adolescence and rural mental health service delivery; *Gilbertson*—early intervention and prevention of behavior problems, school psychology; *Johnson*—health psychology; *Jordan*—cognitive development, multi-sensory perception; *Gimpel Peacock*—ADHD, behavioral disorders of children; *Odum*—experimental analysis of behavior, behavior pharmacology; *Roberts*—early intervention with families of young children, community-based systems of services; *Schroder*—sexual risk behavior, models of health behavior, stress and coping; *Shahan*— experimental analysis of behavior, drug self-administration, behavior momentum, conditioned reinforcement, behavior economics; *Sinex*—central auditory system; *Stein*—addictive behaviors and models, drug and alcohol prevention/treatment; *J. Tschanz*—neuropsychology of Alzheimer's disease and other dementias; *Twohig*—behavior therapy, acceptance and commitment therapy, anxiety; *White*—educational research, hearing loss detection in infancy, and program evaluation.

## Graduate Student Financial Assistance

Financial support for students enrolled in the MS and EdS programs is limited. These students should meet with their academic advisor for information about possible assistantship opportunities.

PhD students are guaranteed an assistantship for at least their first year. However, for at least the last 15 years, 100 percent of PhD students have continued to enjoy assistantship support beyond their first year, if they desired it. The department also has available a number of teaching assistantships. Though these are generally awarded to students matriculated in psychology PhD programs, they are occasionally given to exceptional MS or EdS students. Also, faculty in the department and college regularly offer research assistantships to graduate students, as does the Counseling Center and a variety of on- and off-campus facilities (e.g., Center for Persons with Disabilities, Bear River Mental Health Center, Head Start, and Early Head Start). Additionally, first-year psychology PhD students typically compete extremely well for several University Fellowships, which were established to attract top student scholars to USU. Furthermore, the department has some scholarship support specifically available to psychology graduate students (e.g., Walter Borg and Elwin Nielsen scholarships). Finally, in accordance with current School of Graduate Studies policy, PhD students may qualify for full tuition remission for up to 70 credits of their program.

## Psychology Faculty

### Professors

*Frank R. Ascione*, developmental  
*Carl D. Cheney*, physiological  
*Susan L. Crowley*, counseling  
*Tamara J. Ferguson*, social and developmental psychology  
*Richard N. Roberts*, developmental  
*Charles L. Salzberg*, applied behavior analysis  
*Donal G. Sinex*, auditory neurophysiology  
*David M. Stein*, clinical psychology  
*Karl R. White*, research and evaluation methodology

### Professors Emeritus

*Marvin G. Fifield*, school and counseling  
*J. Grayson Osborne*, behavior therapy, child  
*Blaine R. Worthen*, research and evaluation methodology

### Associate Professors

*M. Scott DeBerard*, health psychology  
*Melanie M. Domenech-Rodriguez*, counseling, child clinical  
*Renee V. Galliher*, clinical psychology  
*Donna M. Gilbertson*, school psychology  
*Amy L. Odum*, behavior analysis  
*Gretchen Gimpel Peacock*, school psychology  
*Timothy Shahan*, behavior analysis  
*JoAnn T. Tschanz*, neuropsychology, abnormal psychology,  
physiological psychology

### Research Associate Professor

*Mark S. Innocenti*, school psychology

### Assistant Professors

*Scott C. Bates*, social and community psychology  
*Jamison Fargo*, statistical methods, neuropsychology  
*Clint Field*, child clinical psychology  
*Christopher Johnson*, health psychology  
*Kerry Jordan*, psychology and neuroscience  
*Kerstin E. E. Schroder*, health psychology  
*Michael Twohig*, clinical psychology

### Research Assistant Professor

*Susan G. Friedman*, research methods

### Adjunct and Clinical Faculty

*Ann M. Berghout Austin*, infancy through childhood  
*Carolyn G. Barcus*, counseling  
*David W. Bush*, clinical/counseling  
*Robert S. Cook*, rural and family interventions  
*Mary E. Doty*, clinical  
*Eric J. Gee*, research and evaluation  
*Richard D. Gordin, Jr.*, sport and exercise psychology  
*Margaret R. "Peg" Hennon*, career guidance and assessment  
*Randall M. Jones*, family research management  
*Steve Lehman*, educational psychology  
*Mark A. Nafziger*, counseling psychology  
*Maria C. Norton*, research and evaluation methodology  
*D. Kim Openshaw*, marriage and family therapy  
*Lori A. Roggman*, developmental  
*Carol Rosenthal*, instructional design and technology  
*Brian Tschanz*, social psychology  
*Beth Walden*, research and evaluation methodology

## Course Descriptions

Psychology (PSY), pages 643-647

# Religious Studies Major and Minor

**Program Director:** Charles S. Prebish

**Location:** Main 331

**Phone:** (435) 797-1529

**FAX:** (435) 797-3899

**TTY:** (435) 797-1290

**E-mail:** charles.prebish@usu.edu

**WWW:** <http://www.usu.edu/history/rels/>

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA)

## Program Description

The Religious Studies BS or BA degree requires a total of 36 credits for the major, as well as 15 credits in a complementary minor.

Students begin their course of study by completing one lower-division course (RELS 1010, Introduction to Religious Studies).

Students must take 30 credits of upper-division coursework, distributed over the following three areas: **Cultural Inquiry** (humanistic approaches), **Scientific Inquiry** (social scientific approaches), and **Doctrinal Inquiry** (philosophical and theological approaches).

At the end of the program, students completing either the BA or the BS degree must take a capstone seminar.

The minor in religious studies requires the same lower-division course as the major, as well as 12 additional credits with at least one upper-division course chosen from each of the three areas of approach.

## Purpose and Outcomes

Students completing the BA or BS degree in Religious Studies should be able to demonstrate the ability to:

1. understand the influence of religion upon culture, and the influence of culture upon religion;
2. analyze the influence of religious value systems on individuals;
3. apply appropriate methods of research and argumentation to questions concerning religion and culture;
4. communicate their findings in clear, well-reasoned writing; and
5. express cultural literacy concerning the major religions of the world.

## Requirements

New students accepted in good standing by the University may apply for admission to the Religious Studies Program. Students transferring from another institution or another major will be admitted if they have an overall minimum GPA of 2.5.

Candidates must earn a grade of C or better in all courses used to meet the requirements of the Religious Studies major or minor.

## Degree Options

Students in the program may work toward one of the following two degrees:

### Bachelor of Arts (BA) Degree

Students enrolled in the BA degree focus their work on cultural questions within religious studies. Since sufficient coursework in a foreign language is required, students should consider completing courses offered by USU in Latin, Greek, Chinese, or other appropriate languages. The BA degree requires a minimum proficiency in a foreign language. This proficiency may be established in one of the following ways:

1. Sixteen credits in a single language
2. Documentation of a proficiency level of "intermediate low" or better through an examination administered by the USU Department of Languages, Philosophy, and Speech Communication
3. Completion of any upper-division foreign language course constituting a third-year course of study with a grade of C or better

### Bachelor of Science (BS) Degree

Students enrolled in the BS degree focus their work on quantitative or clinical questions within religious studies. Students should consider completing upper-division courses in social science methods or statistics. Students must complete 15 credits of math and science beyond the University Studies requirements.

## Religious Studies Major

**Minimum GPA for Admission:** 2.5, USU; 2.0, Career

**Minimum GPA for Graduation:** 2.5, major courses; 2.0, USU

**Minimum Grade Accepted:** C in all major requirements

Students must complete at least 36 credits in interdisciplinary coursework. A grade of C or better must be earned in all classes used for the major.

### Required Courses (6 credits)

**RELS 1010** Introduction to Religious Studies ..... 3  
Historical and comparative survey of the principal beliefs and practices of the world's religions, as well as an exploration of their interplay with the cultures in which they exist. Following general introduction to the study of religion, course includes units on Hinduism, Buddhism, Chinese and Japanese religions, Islam, Judaism, Christianity, and the "new religions" in America.

**RELS 4990** Religious Studies Capstone ..... 3  
Students write a substantial research paper dealing with a religious studies topic and demonstrating their command of the research methods, documentation, and style of professional communication used in the discipline.

### Elective Courses (30 credits)

Complete at least 6 credits of coursework in *each* of the following three divisions. The total credits for coursework completed in this section must be *at least* 30 credits.

# Religious Studies Major and Minor

## Cultural Inquiry

Courses in this section use the methods of the arts and humanities to explore religious expression and the ways in which religion and behavior interact over time.

### Select at least two of the following courses:

- ENGL 3070 (DHA)** Perspectives in Folklore (F,Su).....3  
In-depth study of folklore for nonmajors. Topics vary according to faculty expertise. Also taught as HIST 3070.
- ENGL 3700 (CI)** Regional Folklore (F,Sp).....3  
Study of folklore and folklife as they relate to regional cultures. Also taught as HIST 3700.
- HIST 3110 (DHA/CI)** Ancient Near East (Sp).....3  
Survey of history and civilization of ancient Mesopotamia, Egypt, and Israel, from prehistory to 500 B.C. Writing intensive. Prerequisite: ENGL 2010 or equivalent. Also taught as ARTH 3110.
- HIST 3150 (CI)** Roman History (Sp).....3  
History of Rome from Neolithic era to “fall” of the Western Empire. Special emphasis on politics, art, literature, and civilization. Writing intensive. Prerequisite: ENGL 2010.
- HIST 3220 (DHA/CI)** Medieval European Civilization, 500-1500 .....3  
Provides students with overview of major themes in medieval European history from 500 to 1500 A.D. Also introduces major historiographical problems related to this period. Writing intensive and document based. Prerequisite: ENGL 2010 or equivalent.
- HIST 3230** Early Modern Europe .....3  
Explores major themes of early modern European history, such as secularization, the rise of the nation state, the Reformation, and the birth of capitalism. Introduces major historiographical issues of the period. Reading and writing intensive. Prerequisite: ENGL 2010 or equivalent.
- HIST 3250 (DHA/CI)** Renaissance Europe 1300 to 1520 (F,Sp).....3  
Emphasizing writing and primary sources, covers significant changes in Europe in government, society, and intellectual life caused by the Black Death, the humanist revolution in arts and literature, and the centralizing efforts of popes and monarchs.
- HIST 3410** The Modern Middle East .....3  
Examines history of the Middle East (Arabian peninsula, Fertile Crescent, Egypt, Iran, and Turkey), with special emphasis on social and political currents which have shaped the area’s history.
- HIST 3460** Comparative Asian History .....3  
Surveys history of Asian continent, analyzing common patterns in the cultures of West, South, Southeast, and East Asia.
- HIST 3850 (DHA/CI)** History of Utah (Sp).....3  
Prehistory to the present. Examines environment and peoples of Utah, emphasizing use of primary documents to view and interpret Utah’s past. Reading and writing intensive. Requires use of USU Special Collections and Archives. Prerequisite: ENGL 2010.
- HIST 4210** Celtic Europe (F) .....3  
History of Celtic peoples in British Isles, Scandinavia, and continental Europe, from Neolithic times to the Norman Conquest in 1066. Computer intensive.

**HIST 4230 (DHA/CI)** The History of Christianity in the West .....3  
Introduces students to history of Christian spirituality, asking how Christianity has been lived and how it has shaped lives over two thousand years. Uses original sources to introduce both the history and the historiographical problems surrounding the Christian religion. Writing intensive.

**HIST 4250** The Reformation in Britain: 1450-1688 .....3  
Focuses on major research questions in the field of early modern studies. Explores causes and consequences of English Reformation and British Civil War. Writing and research intensive.

**HIST 4790** American Religious History .....3  
Varieties of American religious experience from settlement to the present.

**RELS 3010** Introduction to Buddhism .....3  
General survey of historical development, basic doctrine, and practice of Hinayana and Mahayana Buddhism. Also taught as HIST 3010.

**RELS 3020** Introduction to Hinduism .....3  
Surveys history, doctrinal developments, and sociological concerns of Hinduism from the Vedic Period through the Modern Period. Focuses primarily on Hindu religious thought as applied to Hindu life through various modes of religious action. Also taught as HIST 3020.

**RELS 3990** Introduction to Religious Studies Methodology .....3  
Pre-major course helping students to understand the discipline of religious studies. Explores the questions asked by religious studies, as well as the methods used to answer these questions. Helps students gain an understanding of the various approaches to the study of religion and the history of attempts to understand religion in cultural contexts.

**RELS 4010** Buddhism in the West .....3  
One-semester introduction to Buddhism in the Western world for nonspecialists in Buddhism. Focuses on development of Buddhism as a Western religious phenomenon. Presents interpretive, historical introduction to Buddhism in the West. Also taught as HIST 4010.

## Scientific Inquiry

Courses in this section use the methods of the social sciences to explore religious values and behavior on an individual and a societal level.

### Select at least two of the following courses:

- ANTH 3160 (DSS)** Anthropology of Religion (F) .....3  
Cross-cultural description and theoretical analysis of religion and its functional relationships to human psychology, society, and the natural environment.
- ANTH 4110 (d6110) (DSS)** Southwest Indian Cultures, Past and Present (F) .....3  
Reviews past and present Indian cultures of greater southwest region. Examines the prehistoric Anasazi, the Pueblos, the canyon and desert peoples, the Utes, and the Navajos. Interprets these cultures in ecological, historic, and political contexts.
- ANTH 4230 (DSS)** Medical Anthropology: Matter, Culture, Spirit, and Health (Sp) .....3  
Examines the bio-ecological (matter) and socio-cultural aspects of disease/illness in human populations and examines “spiritual” dimensions of health in cross-cultural context. Includes methods component for anthropology majors and serves as a Liberal Arts cluster capstone course.



# Religious Studies Major and Minor

**PHIL 3750** Religion and Science in the Modern World (F).....3  
Study of problems addressing the relation of religion to science in the modern world (e.g., evolution, Big Bang, origin of life).

**PSY 3500 (CI/DSS)** Scientific Thinking and Methods in Psychology (F,Sp).....3  
Social science research is commonly reported by the media, and by political and governmental interests. Students learn how to legitimately interpret such research through a study of accepted research methods and analysis procedures, and through critical study of the common interpretive mistakes made by media writers. Prerequisite: PSY 1010.

**PSY 3510 (DSS)** Social Psychology (F,Su).....3  
Study of the individual in society; problems, theories, and methods of social psychology; will relate reading assignments to current social issues. Prerequisite: PSY 1010.

**PSY 4420 (DSS)** Cognitive Psychology (Sp) .....3  
In-depth study of basic concepts, methods, and theories involved in perception, memory, and thinking. Lab required. Prerequisite: PSY 1010.

**PSY 4430** Cognitive Psychology Laboratory (Sp).....1  
Required laboratory, designed to accompany PSY 4420. Focuses on conducting cognitive experiments via computer simulations and sampling data collection. Designed to increase skills in designing data collection and interpreting experimental data.

**SOC 3110 (CI)** Methods of Social Research (F,Sp) .....3  
Examines surveys, field techniques, and observational studies. Prerequisite: Completion of 6 credits of Sociology coursework.

**SOC 3500** Social Psychology (F,Sp).....3  
Explores interaction between the social system and the individual. Examines human behavior in terms of positions people occupy in the social structure.

**SOC 4330** Religion, Science, and Society (Sp) .....3  
Discussion of theories and research used by sociologists to understand social dimensions of religion. Includes ways in which religion influences and is influenced by other societal institutions, such as politics, the economy, and the class system.

## Doctrinal Inquiry

Courses in this section use the methods of philosophy and theology, exploring systems of belief and major theological models.

### Select at least two of the following courses:

**PHIL 3100 (CI)** Ancient Philosophy .....3  
Development of philosophical thought in the Ancient Greek world. Readings from the pre-Socratics, Plato, Aristotle, the Stoics, and Epicureans.

**PHIL 3110** Medieval Philosophy.....3  
Neo-Platonism with stress on Plotinus, St. Augustine, and early Christian philosophy; early medieval thought; St. Thomas Aquinas and the rise of scholasticism; and philosophical thought in the Renaissance.

**PHIL 3120 (CI)** Early Modern Philosophy .....3  
Philosophers and philosophical disputes in Western Europe from 1400-1750. Figures and topics may include: Bacon, Hobbes, Descartes, Locke, Hume, nominalism, empiricism, rationalism, religion, politics, and morals.

**PHIL 3700 (DHA)** Philosophy of Religion (F) .....3  
Problems in defining "religion" and the existence of God; the problem of evil; the immortality of the soul; religious experience; faith; alternatives to theism; religious language.

**PHIL 3710** Philosophies of East Asia (F) .....3  
Study of three Asian philosophies: Confucianism, Taoism, and Buddhism. Focus on appreciating the merits of each system of thought. Emphasis on class discussion and participation.

**PHIL 3720** Philosophical Theology After Kant (F) .....3  
Explores attempts to reconstruct the reasonable basis of religion in the two centuries after the Enlightenment.

**PHIL 3730 (CI)** Philosophy of the New Testament .....3  
Historical and intellectual context of the development of the New Testament. Character, ideas, and historical setting of the various documents.

**PHIL 4300** Epistemology .....3  
Study of foundations of knowledge and belief systems, and related topics in epistemology, including perception, certainty, and skepticism.

In consultation with the program advisor, students may receive approval to fulfill division elective requirements with courses other than those shown above.

## Minor in Religious Studies

The minor in Religious Studies requires 15 credits. Students must earn a grade of C or better in all courses counted toward the minor. Students must complete the following courses.

**RELS 1010** Introduction to Religious Studies (required).....3  
Historical and comparative survey of the principal beliefs and practices of the world's religions, as well as an exploration of their interplay with the cultures in which they exist. Following general introduction to the study of religion, course includes units on Hinduism, Buddhism, Chinese and Japanese religions, Islam, Judaism, Christianity, and the "new religions" in America.

In addition to the RELS course listed above, students must also complete 12 additional credits, with *at least one* upper-division course chosen from each of the following three areas of approach: Cultural Inquiry, Scientific Inquiry, and Doctrinal Inquiry.

## Sample Four-year Plan for Religious Studies Major

A suggested semester-by-semester four-year plan for students working toward a bachelor's degree in Religious Studies can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Course Descriptions

Religious Studies (RELS), page 650

## Secondary Education Program, School of Teacher Education and Leadership

**Associate Dean/Department Head of School of Teacher Education and Leadership (TEAL):** Martha T. Dever

**Location:** Emma Eccles Jones Education 385

**Phone:** (435) 797-2225

**FAX:** (435) 797-0372

**E-mail:** teal@usu.edu

**WWW:** <http://www.teal.usu.edu/htm/seced/>

**Associate Department Head, Doctoral Program:**

Deborah A. Byrnes, Education 399, (435) 797-0396,

deborah.byrnes@usu.edu

**Associate Department Head, Secondary Education Program:**

Martha L. Whitaker, Education 384, (435) 797-0384,

martha.whitaker@usu.edu

**Director, Secondary Education Student Teaching:**

Mary Bedingfieldsmith, Education 330C, (435) 797-0958,

mary.bedingfieldsmith@usu.edu

**Undergraduate Advisor:**

Shelly Wiegand, Education 375, (435) 797-0383,

shelly.wiegand@usu.edu

**Degrees Offered:** Second Bachelor of Science (BS), Second Bachelor of Arts (BA), Master of Science (MS), Master of Arts (MA), Master of Education (MEd), and Educational Specialist (EdS) in Secondary Education; BS and BA in Composite Teaching—Social Studies. The School of TEAL administers the Doctor of Education (EdD) and Doctor of Philosophy (PhD) programs, with a Curriculum and Instruction specialization.

**Graduate Concentrations:** *MEd*—Administration and Leadership (admission to A/SC program required); Gifted and Talented; English as a Second Language (MEd only); Second Language Teaching; English/Language Arts; Mathematics; Reading; Science; Social Studies; *PhD/EdD*—Early Childhood Education; Reading/Writing; Schooling, Culture, and Society; Instructional Leadership

## Undergraduate Programs

### Objectives

The Secondary Education Program coordinates state-approved programs for secondary teacher licensure across campus. The program offers the Secondary Teacher Education Program (STEP), a sequence of courses and field experiences designed to prepare students for teaching careers in secondary schools. The STEP program is fully accredited by the Utah State Board of Education and is a member of the Teacher Education Accreditation Council. Students who successfully complete the program are recommended for secondary licensure in the State of Utah, enabling them to teach in grades 6-12.

### Requirements

#### Program Entrance Requirements

In addition to meeting the admission requirements for the University, students in good standing must have a minimum entrance GPA of 2.75 and maintain that GPA in order to student teach. Students must complete all requirements of the premajor prior to being admitted to the full major. All students must be admitted to the teacher education program. See details below.

### Admission to Teacher Education

Prior to enrolling in STEP courses, students must be admitted to the teacher education program. Criteria for admission include completion of a minimum of 60 semester credits, and (1) minimum ACT scores, (2) University Studies requirements, (3) a speech and hearing test, (4) successful completion of the Teacher Education Writing Exam, (5) recommendations from advisors in major and minor fields, (6) successful completion of Computer and Information Literacy (CIL) exams, and (7) completion of fingerprinting for a background check (a legislative mandate). Application forms are available from advisors; from the Office of Graduation, Educator Licensing, and Accreditation, Room 103, Emma Eccles Jones Education Building; and from the Secondary Education Program, Room 385, Emma Eccles Jones Education Building.

Students must submit copies of University transcripts, including transfer coursework, verifying a minimum total GPA of 2.75. Verification of fingerprinting for criminal background check must also be submitted at this time. Application for initiating the background check process with the Utah State Office of Education can be accessed online at the following site:

<https://secure.utah.gov/elr/ebc/welcome.html>

Students are required to attend an orientation meeting prior to beginning the program. Questions about admission requirements may be directed to the Secondary Education advisor.

### Bachelor's Degree in Social Studies Composite Teaching

Students who are accepted in good standing by the University and who have a minimum total GPA of 2.75 may be admitted to the Social Studies Composite Teaching Major. In order to graduate with the Social Studies Composite Teaching degree, students must (1) maintain a minimum 2.75 total GPA, (2) earn a grade of C or better in all courses in the major, (3) complete the Secondary Teacher Education Program (STEP), and (4) meet all requirements for the Secondary Teacher License (see below).

For the bachelor's degree, students must complete: (1) University Studies requirements, (2) courses required for the Social Studies Composite Teaching Major (see list below), (3) The Secondary Teacher Education Program (STEP), and (4) electives. Students must complete each course in the Social Studies Composite Teaching Major with a minimum grade of C. Upon completing all requirements for graduation, students are eligible for a secondary teaching license from the Utah State Office of Education (grades 6-12). Students with the Social Studies Composite Teaching Major graduate from the School of TEAL. Courses in the Social Studies Composite Teaching Major are provided by various departments. Students should check regularly with these departments and the Secondary Education advisor for changes and substitutions.

Students must complete a total of 61 credits selected from various social science courses listed below. The number of credits and course choices are listed after the area in which they must be completed.

#### A. History (30 credits)

The History requirement is met by completing the *History Teaching Minor*, plus additional courses approved by the student's advisor. Requirements for the History Teaching Minor can be found by clicking on the History link at: <http://www.usu.edu/majorsheets/>

## Secondary Education Program, School of Teacher Education and Leadership

### B. Geography (16-19 credits)

<b>GEOG 1000 (BPS)</b> Physical Geography (F,Sp,Su).....	3
<b>GEOG 1300 (BSS)</b> World Regional Geography (F).....	3
<b>GEOG 1400 (BSS)</b> Human Geography (Sp).....	3
<b>GEOG 3850</b> Map, Air Photo, and GIS Interpretation (F).....	4
<b>GEOG 4200 (CI)</b> Regional Geography (Utah) (F,Sp,Su).....	3
<b>GEOG 4200 (CI)</b> Regional Geography (International Course) (optional) (F,Sp,Su) .....	(3)

**Note:** Students who complete GEOG 4200, Regional Geography (International Course), in addition to the other Geography courses listed above, qualify to receive a Geography Teaching Minor.

### C. Economics (3 credits)

<b>ECN 1500 (BAI)</b> Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
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### D. Political Science (6 credits)

<b>POLS 1100 (BAI)</b> United States Government and Politics (F,Sp).....	3
<b>POLS 2200 (BSS)</b> Comparative Politics (F,Sp) (3 cr) or <b>POLS 3130 (DSS)</b> United States Legislative Politics (Sp) (3 cr).....	3

### E. Psychology/Sociology (6 credits)

<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) .....	3
<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp).....	3

### Secondary Teaching License (grades 6-12)

To obtain a teaching license, undergraduate students must complete (1) 30 credits of University Studies requirements, including written communications, (2) an approved composite teaching major or approved teaching major and teaching minor (see below), and (3) the Secondary Teacher Education Program (STEP). The Secondary Education advisor will assist returning students who already have an undergraduate degree with program planning for licensure. These students occupy "Second BS" or "Second BA" status while pursuing licensure. They also may apply for a second bachelor's degree in conjunction with teacher licensure. Consult the Admissions Office for details.

All students should note that secondary teacher licensure is not automatic upon completion of the program. In order to receive Utah licensure, students must apply for the Basic Teaching License. Applications are available in the Office of Teacher Education, Graduation, and Educator Licensing, Emma Eccles Jones Education Building, Room 103.

### Special Education Dual Licensure

Students can be licensed in both special education and in a secondary subject area through a dual licensure program offered jointly by two departments. Early in their programs, students should consult with undergraduate advisors in the Secondary Education Program and the Department of Special Education and Rehabilitation.

### ESL Teaching Endorsement or Minor

The School of Teacher Education and Leadership offers a K-12 English as a Second Language (ESL) endorsement and minor. Elementary education majors and those already in possession of a teaching certificate complete 18 credits to obtain the ESL Endorsement (TEAL 4730 or LING 4100; SCED 4710; TEAL 4745, 4760, 4770, and 4780). Those already possessing a teaching certificate take the 6000-level versions of these courses. The ESL Minor for secondary education students is 24 credits and, in addition to the courses needed for the endorsement, requires LING 4400, a clinical field experience (SCED 3300 and 4300; or LING 3300 and 4300), and student teaching (SCED 5630). (**Note:** Secondary Education majors should complete SCED 3210 prior to taking SCED 4710.)

### Composite Majors, Teaching Majors, and Teaching Minors

Secondary Teacher Licensure requires that students complete a composite teaching major or a combination of a single-subject teaching major and teaching minor. Students are strongly encouraged to meet as soon as possible with advisors in their declared teaching major and minor. The following composite teaching majors, single-subject teaching majors, and teaching minors are approved for Utah State University.

### Composite Teaching Majors (46 credits minimum)

Agricultural Education, Art Education, Biological Science, Earth Science, Engineering and Technology Education, Family and Consumer Sciences Education, Music Education, Mathematics and Statistics Education, and Social Studies Education.

### Teaching Majors (30 credits minimum)

Chemistry, English, Geography, Health Education, History, Mathematics, Modern Languages, Physical Education (K-12), Physics, Political Science, Psychology, Sociology, and Theatre Arts.

### Teaching Minors (16 credits minimum)

Chemistry, Economics, English, Geography, Health Education, History, Mathematics, Modern Languages, Physical Education Coaching, Physics, Political Science, Psychology, Sociology, Speech Communication, and Theatre Arts.

### Secondary Teacher Education Program (STEP)

#### Three-Level Program (35 credits)

Secondary Education coordinates a state-approved program to complement the teaching majors and minors in 21 departments. The framework is organized into three sequential levels, each taken during a different semester. Students should plan to complete the STEP Program during their junior and senior years after most or all of the major and minor coursework has been completed. *All three levels of the STEP are offered during fall and spring semesters, but not during summers. Levels of the STEP are taken as a package.* All courses in the STEP Program must be completed with a minimum grade of C-.

As outlined below, Level 1 and Level 2 courses are offered by the School of TEAL and other cooperating departments. Teaching Methods courses are offered by many departments across campus. Students should refer to the requirement sheets of their composite teaching major, or their teaching major and minor, to determine which methods courses they are required to complete on Levels 1 and 2 to prepare for student teaching at Level 3. Student teaching in a composite teaching major, or in at least one teaching major and one teaching minor, is required.

#### A. Level 1 (15-week courses)

<b>INST 3500</b> Technology Tools for Secondary Teachers (F,Sp,Su).....	1
<b>SCED 3100</b> Motivation and Classroom Management (F,Sp) .....	3
<b>SCED 3210 (CI/DSS)</b> Educational and Multicultural Foundations (F,Sp).....	3
<b>SCED 3300</b> Clinical Experience I (30 hours minimum in field).....	1
Special Methods I <sup>1</sup> (major or minor) .....	3

# Secondary Education Program, School of Teacher Education and Leadership

## B. Level 2 (15-week courses)

SPED 4000 Education of Exceptional Individuals (F,Sp,Su) (may be taken anytime).....	2
SCED 4200 (CI) Reading, Writing, and Technology (F,Sp) .....	3
SCED 4210 Cognition and Evaluation of Student Learning (F,Sp) .....	3
SCED 4300 Clinical Experience II (30 hours minimum in field).....	1
Special Methods II <sup>2</sup> (major or minor).....	3

## C. Level 3 (includes 13 weeks of student teaching and 10 weeks of Student Teaching Seminar)

Student Teaching Seminar <sup>3</sup> (10 weeks).....	2
Student Teaching <sup>4</sup> (13 weeks, full-time) .....	10

<sup>1</sup>The Special Methods I course is taught by various departments under various course numbers. Course title varies among departments.

<sup>2</sup>The Special Methods II course is taught by various departments under various course numbers. Course title varies among departments.

<sup>3</sup>The Student Teaching Seminar course is taught under course number 5500 in various departments. Course title varies among departments.

<sup>4</sup>The Student Teaching course is taught under course number 5630 in various departments. Course title varies among departments.

## Clinical Experience

Students must enroll for either Clinical Experience I or Clinical Experience II concurrent with their methods courses. Methods instructors, in concert with the Office of Field Experiences, set up and monitor these field activities in middle and high school settings. The clinical experiences provide a classroom context for understanding STEP and methods courses. A clinical experience fee of \$50 is assessed at each of the two levels. This fee provides a stipend to classroom teachers who work with clinical experience students in the public schools. Students should refer to the requirement sheet for their composite teaching major or their teaching minor to determine which methods courses they should take.

## Student Teaching

Students must attend the Student Teaching Application Session (STAS) one year in advance of their student teaching semester. Applications for student teaching and each semester's deadlines will be discussed at the STAS. Information concerning the Praxis II and the content minor test, which must be taken before student teaching, will also be discussed. Students must complete 80 percent of their teaching major/minor (or composite major) requirements prior to student teaching.

Students should be financially prepared to live off campus, if necessary, during the 13-week block of student teaching. Because student teaching requires a major commitment of time and energy, it should be planned with care. Students are urged to forego outside employment, if possible, during the student teaching experience.

Only the courses approved for the semester may be taken during student teaching.

## Suggested Four-year Course of Study for Social Studies Composite Teaching Major

A suggested semester-by-semester four-year plan for students working toward the Social Studies Composite Teaching Major can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Assessment

The Secondary Education Program is committed to principles and practices of continual assessment of its programs and its students. Information about current assessment tools that are being used by the program can be found at:

[http://secondaryeducation.usu.edu/a\\_home.php](http://secondaryeducation.usu.edu/a_home.php)

## Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in honors. Through original, independent work, honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For detailed information about requirements for teaching majors and minors, students should see the major requirement sheet(s) for the subject area(s) in which they plan to seek licensure or receive a teaching minor. These requirement sheets can be found online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admission Requirements

The School of TEAL assists in the preparation of graduate students seeking the MEd, MA, and MS degrees, as well as the EdD and PhD degrees. Students desiring information concerning the various graduate programs should contact the department head. The application for admission to a graduate program is made through the School of Graduate Studies. See *Graduate Admission Procedures* (pages 36-37).

Students applying to a master's degree program may take either the Miller Analogy Test (MAT) or the Graduate Record Exam (GRE). Students applying to a doctoral degree program should take the GRE. Scores at the 40th percentile or above are required for admission. In addition, students must have at least one year of teaching experience (or comparable professional experience) and a valid secondary teaching license.

All students applying to the doctoral degree program (Curriculum and Instruction specialization) participate in oral interviews with the Curriculum and Instruction Management Committee. A sample of academic writing should be included as part of the doctoral-level admission folder.

## Secondary Education Program, School of Teacher Education and Leadership

Master's applications are considered on a rolling basis. Students applying for doctoral programs should consult the director of the Interdepartmental Doctoral Program for information about application deadlines. *Application folders will be not be considered until all required information is received by the School of Graduate Studies and sent to the department.*

### Master's Degree Programs

Secondary Education master's degree programs provide coursework and professional experiences for those preparing to become master teachers, teacher-leaders, supervisors, or curriculum specialists. Each program provides coursework in education, with associated work in a specialized subject matter, which is the teacher's area of concentration. Typically, the area of concentration derives from the teacher's ongoing work with middle school or high school students.

Areas of concentration in Secondary Education include the following: Administration and Leadership (admission to A/SC program required); Gifted and Talented; English as a Second Language (MEd only); Second Language Teaching; English/Language Arts; Mathematics; Reading; Science; and Social Studies. Two University departments—Art and Management Information Systems—also participate in master's degree programs sponsored by Secondary Education. Admission to these fields of study requires approval of the cooperating department. In planning areas of concentration, students work with a faculty advisor and select graduate courses from the University-wide curriculum.

#### MEd Degree Plan B (36 credits)

The MEd Plan B offers a Portfolio Project Option or Creative Project Option which culminates in the presentation of the project in a final exam setting. Students take a common core of courses from college and department curricula, then courses in areas of concentration in relation to their teaching specialties. The research course for the MEd focuses on issues of application as well as action research. Creative projects are diverse and range from action research to curriculum development. The professional portfolio project provides the context for a personal knowledge base. Although portfolios share certain structural features, each student's portfolio is unique.

#### MEd Degree Plan C (40 credits)

The MEd Plan C is a coursework-only program. Students take a common core of courses from college and department curricula, then courses in areas of concentration in relation to their teaching specialties; additional coursework is taken in the area of concentration. At the conclusion of the program, a culminating experience to meet the needs of the student is developed. Options for the experience can be an interview with the advisor, oral comprehensive examination under the supervision of the advisor, written comprehensive examination under the supervision of the advisor, or other culminating experience developed by the student and advisor and approved by the department head.

#### MS and MA Degrees Plan A (30 credits)

The MS/MA option culminates in a formal defense of a thesis. This option is for teachers whose long-term goals require a traditional, research-oriented degree. The MS thesis involves either an experimental or qualitative research study. The MA thesis involves development of a scholarly literature review. The MA degree also requires foreign language competency.

#### Educational Specialist Degree (EdS)

The EdS is a 36-42 credit post-masters degree designed to enable experienced educators to specialize and improve their professional competence in specific areas or fields. The EdS degree meets the

advanced study needs of persons seeking leadership roles in public education, junior colleges, and small private and state colleges. The coursework requirements extend competencies for individuals serving in such positions as program developers, trainers, curriculum specialists, supervisors, instructional leaders, and college instructors. The EdS is also related to certification needs of some educational leaders. Areas of concentration in the School of TEAL are: Instructional Leadership; Supervision and Leadership; Schooling, Culture, and Society; Engineering and Technology Education; Teaching and Learning in Higher Education; and Reading and Writing. The EdS is especially appropriate for those individuals who wish preparation beyond the master's degree level, but who are not interested in doctoral work with its greater emphasis on developing proficiencies in conducting independent research.

### Doctoral Degree Programs

The School of TEAL administers the Doctoral Program in Education, which includes the Doctor of Philosophy (PhD) and the Doctor of Education (EdD). Areas of concentration include: Early Childhood Education; Reading/Writing; Schooling, Culture, and Society; and Instructional Leadership. For information about admission requirements, procedures to follow, and research sponsored, as well as other information, visit: <http://www.coe.usu.edu/idp/index.php>

### Financial Assistance

Departmental support or grant support is available to doctoral-level and master's level students pursuing full-time study on campus. Such financial support typically is through assistantships, which carry half-time teaching, research, or supervisory obligations. Typical assistantships carry forward up to four years. Awards are made on a competitive basis. Students who wish to be considered for financial aid should apply to the School of TEAL no later than February 1 for the following academic year. Acceptance to graduate study does not guarantee financial assistance.

## Secondary Education Program Faculty

#### Professor

*Barry M. Franklin*, curriculum policy, theory, and history

#### Professors Emeritus

*Ross R. Allen*, mathematics education, comparative education

*Eldon M. Drake*, journalism, general student teaching

*Richard S. Knight*, social studies specialist

*Izar A. Martinez*, administration, research methods, measurement/evaluation

*Walter L. Saunders*, science specialist

*James P. Shaver*, social studies, former School of Graduate Studies Dean

*William J. Strong*, content area reading, Utah Writing Project Director

#### Associate Professor Emeritus

*Varnell A. Bench*, extension, administration, supervision

#### Associate Professors

*Kay Camperell*, content area reading/writing, learning theory, literacy education

*Martha L. Whitaker*, Associate Department Head for Secondary Education Program

## **Secondary Education Program, School of Teacher Education and Leadership**

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### **Clinical Associate Professors**

*Steven Laing*, Coordinator of Administrative/Supervisory  
Certificate Program; educational leadership  
*Susan Turner*, instructional leadership

### **Assistant Professors**

*Todd Campbell*, science  
*George G. Hruby*, literacy/reading  
*Kimberly Lott*, science  
*Patricio Ortiz*, English-as-a-second-language  
*Sherry Marx*, ESL/bilingual/multicultural

### **Lecturers**

*Barbara Cangelosi*, classroom management  
*Fawn C. Groves*, multicultural education

### **Director, Secondary Education Student Teaching**

*Mary Bedingfieldsmith*

### **Undergraduate Advisor**

*Shelly Wiegand*

### **RCDE Faculty**

*Vini Exton*, assistant professor—Uintah Basin/Vernal  
*Marilyn Hetzel*, lecturer—Uintah Basin/Roosevelt  
*Gary Ockey*, assistant professor—Ephraim  
*Janey Stoddard*, RCDE Advising Coordinator  
*David Vernon*, lecturer—Salt Lake City

## **Course Descriptions**

Secondary Education (SCED), pages 651-652  
Teacher Education and Leadership (TEAL), pages 667-671

# Academic Service-Learning Program and Certificate

**Coordinator:** Robert H. Schmidt  
**Location:** Taggart Student Center 326  
**Phone:** (435) 797-7947  
**FAX:** (435) 797-2919  
**E-mail:** robert.h.schmidt@gmail.com

**Service-Learning Scholar Advisor:** Lisa Vaughn  
**Location:** Taggart Student Center 326  
**Phone:** (435) 797-1740  
**FAX:** (435) 797-2919  
**E-mail:** lisa.vaughn@usu.edu

**WWW:** <http://www.usu.edu/asusu/servicecenter/learning/>

## Program Description

The Academic Service-Learning Program provides a much-needed and desired academic component complementing the extensive public service efforts of many USU students. It supports broader state and national movements promoting more civic engagement among college and university students. It also supports USU's undergraduate educational mission, which is to prepare citizen scholars "...who participate and lead in local, regional, national, and global communities."

Service-Learning is a well-researched and highly effective teaching pedagogy, which incorporates community service into the course curriculum. Academic Service-Learning is a credit-bearing educational experience where students: (1) gain a broader understanding of course content, (2) earn a deeper appreciation of the discipline, (3) help meet community needs, (4) reflect on service activities, and (5) develop an enhanced sense of civic responsibility. Many opportunities for service-learning are available for USU students. For a current list of SL-designated courses, contact the Service-Learning Coordinator.

The program is housed organizationally within the Office of the Provost. The program's faculty and staff work very closely with the ASUSU Service Vice President, the Val R. Christensen Service Center program directors, the Student Involvement and Leadership Center, and the Vice President for Student Services. The Service-Learning Coordinator is assisted by a steering committee consisting of faculty, students, and staff.

## Certificate

A Service-Learning Certificate, which is recorded on a student's official transcript, is awarded to students who participate in the Service-Learning Scholars Program. This certificate enables employers and graduate programs to see evidence of a student's determination to go the extra mile. As Service-Learning Scholars, students will also be recognized at graduation with a banquet in their honor, cords to wear during commencement, and their names in the graduation program.

## Admission Requirements

Service-Learning Scholars at USU are an elite group of students dedicated to making a difference in their community. Each year, 25 students will be admitted to the program. Admission to the program is competitive and is limited to a maximum of 100 students at any one time. In order to gain admittance to the program, students must submit an application, have a 3.0 or higher grade point average, and submit a written essay detailing their interest in Service-Learning and their dedication to community engagement. Applications may be found on the Service-Learning website.

## Certificate Requirements

To receive a Service-Learning Certificate, a student must:

1. Apply for and be accepted to the Service-Learning Scholars Program. Applications may be found on the Service-Learning website.
2. Earn a *minimum* of 9 SL designated credits (with a grade of B or better in each course).
3. Perform a *minimum* of 400 service hours.
4. Develop and complete an approved capstone project.
5. Maintain and present a reflective portfolio.

The 9 credits must come from an approved list of Service-Learning courses. Course adaptations will be considered by the Service-Learning Coordinator (for example, an instructor may contract with one student in a non-SL course to complete the SL requirement). For answers to any questions, as well as an up-to-date list of approved SL courses and program applications, students should contact the Service-Learning Coordinator.

# Interdepartmental Program in Social Sciences

**Degree Coordinator:**

Yolanda Flores Niemann, Dean of College of Humanities,  
Arts, and Social Sciences

**Location:** Main 338**Phone:** (435) 797-1195**Degree offered:** Master of Social Sciences (MSS)**Primary Disciplines:** History, Political Science, and Sociology**Secondary Disciplines:** Anthropology; Business Administration; Instructional Technology; Environment and Society; Family, Consumer, and Human Development; History; Political Science; Psychology; Social Work; and Sociology

## Graduate Program

### Administration

The program is administered by a committee of the department heads (Management Committee) from the three primary disciplines or their designees. The committee is chaired by annual rotation by one of the members of the committee, and reports to the Degree Coordinator. The Management Committee reviews policy and develops recommendations which are submitted to the Degree Coordinator for approval.

### Degree Description

The social sciences are disciplines that have as a common objective the understanding of human behavior and social relationships. The MSS offers multidisciplinary graduate training for candidates desiring in-depth applied understanding of human performance, human environments, and/or the structuring of social, political, and economic systems. Students in History and Sociology typically follow the Plan B option, which requires a minimum of 30 credits. A minimum of 15 credits are required in a primary discipline, plus a minimum of 15 credits from one of the following two tracks: *Track A:* a minimum of 15 credits from two approved primary disciplines, with at least two courses in each secondary discipline. *Track B:* a minimum of 15 credits from an approved secondary discipline and a cluster, with at least two courses in the secondary discipline and two courses in the cluster. Courses counted in a cluster must be outside the selected primary discipline and secondary discipline. Three of the 30 credits required for the Plan

B option must be thesis credits, but no more than 3 credits of thesis can be counted toward a degree. Departments may impose more rigorous requirements. A maximum of 3 credits may be earned either from readings/conferences or from independent research.

The MSS degree is primarily intended to prepare degree recipients for employment or advancement in social science-related occupations. Students interested in pursuing doctoral work should consider a Plan A Master of Science program.

### Admission Requirements

See general admission requirements, pages 36-37. In addition, the faculty of each discipline determines whether to recommend to the graduate dean the acceptance of applicants. For further information, contact the Graduate Coordinator in the department of the proposed primary discipline.

### Degree Requirements

#### Student Supervision

For each student admitted, a supervisory committee is ordinarily appointed consisting of at least one faculty representative from the student's primary discipline and (a) one from each of the secondary disciplines, or (b) one from a secondary discipline and one from a discipline associated with the cluster. Policies governing student supervision may vary from specialization to specialization.

#### Plan B Research Paper

Each Plan B student must submit a research paper for thesis credit in accordance with School of Graduate Studies and departmental requirements. Ordinarily, the Plan B paper is written in the primary discipline, but in some cases, with the approval of the student's supervisory committee, it may be written in one of the secondary disciplines. Information specific to each primary discipline may be obtained by contacting the sponsoring department.

### Further Information

Candidates interested in pursuing this degree program may obtain specific information by contacting the head of one of the participating departments, the School of Graduate Studies, or the dean of Humanities, Arts, and Social Sciences.



# Department of Sociology, Social Work and Anthropology

**Department Head:** Richard S. Krannich

**Location:** Main 224

**Phone:** (435) 797-1230

**FAX:** (435) 797-1240

**E-mail:** ann.johns@usu.edu

**WWW:** <http://www.usu.edu/sswa/>

## **Undergraduate Program Directors:**

### **Sociology:**

E. (Eddy) Helen Berry, Main 224J, (435) 797-1245,  
eddy.berry@usu.edu

### **Social Work:**

Terry L. Peak, Main 239D, (435) 797-4080, terry.peak@usu.edu

### **Anthropology:**

Bonnie L. Pitblado, Main 245F, (435) 797-1496,  
bonnie.pitblado@usu.edu

## **Sociology Graduate Program Director:**

John C. Allen, Main 224F, (435) 797-0310  
john.allen@usu.edu

## **Social Work Graduate (MSW) Program Coordinator:**

Derrick R. Tollefson, Main 239, (435) 722-1752  
derrick.tollefson@usu.edu

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), Master of Arts (MA), and Doctor of Philosophy (PhD) in Sociology; BS and BA in Social Work; Master of Social Work (MSW); BS, BA, and MS in Anthropology; participates in Master of Social Sciences (MSS)

**Graduate Specializations:** *PhD in Sociology*—Demography, Environmental Sociology/Sociology of Natural Resources, Social Problems and Inequality, and Social Change and Development; *MS in Anthropology*—Archaeology and Cultural Resource Management

## **Undergraduate Programs**

### **Objectives**

The department offers educational programs for students to prepare for positions in business, social welfare, teaching, research, personnel, government service, social services, law enforcement, and industry, as well as providing liberal and general education for all interested students. The department offers a wide range of courses for the study of social, cultural, and behavioral dynamics. The department also provides University Studies, Liberal Arts, and other service courses for students from all majors.

### **Requirements**

#### **Departmental Admission Requirements**

New freshmen admitted to USU in good standing qualify for admission to the sociology and anthropology majors, as well as to the pre-social work major. Undeclared and transfer students from other USU majors or other institutions must have a minimum 2.5 overall GPA.

For admission to the sociology major, students must additionally have earned a grade of C or better in SOC 1010 (effective Fall Semester 2005). For admission to the social work major, transfer students must have earned a minimum 2.75 GPA in all social work classes. Applicants to the social work major must have completed the basic social work core curriculum, must have a minimum 2.5 overall GPA and a minimum 2.75 GPA in social work classes, must have completed SW 1010 with a grade of C+ or better, and must have completed an application form (available from the department).

## **Departmental Honors (Available in Sociology and Anthropology)**

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## **Additional Information**

Major requirement sheets, which provide detailed information about requirements for majors and minors within the Sociology, Social Work and Anthropology Department, can be obtained from the department, or accessed online at: <http://www.usu.edu/majorsheets/>

## **Sociology**

**Undergraduate Program Director:** E. (Eddy) Helen Berry  
**Program Office:** Main 224, (435) 797-1230

The study of the human individual and human groups is central to sociology. Sociology offers a broad foundation for understanding human behavior on an individual and group basis, and encourages the development of skills necessary for establishing favorable societal conditions for human development.

Students learn to systematically describe and explain group behavior, including the effects of one group on another and of groups upon individual behavior. Required sociology classes deal with how people in different societies organize and control their societies; critical issues, such as race, class, and gender, as they have developed through history; and research and statistical methods for analyzing sociological data.

Upon completion of the prescribed program for a major in sociology, the student should be able to:

1. Demonstrate knowledge essential for understanding society from a sociological perspective;
2. Identify and critically evaluate the contributions of sociologists, social scientists, and scholars;
3. Identify and critically evaluate the forces and institutions that influence his or her life as a member of society;
4. Identify, comprehend, and critically evaluate the influences of race, class, gender, age, and disability on a member of society;

# Department of Sociology, Social Work and Anthropology

- Pursue careers in sociological areas, business, government, and/or graduate study; and
- Apply the methods and concepts of sociology to the analysis of social issues, problems, and conflicts in preparation for participation as agents of creative social change.

Students select courses from three different areas. **Social Problems** classes focus on criminology and deviance, retirement and other aspects of aging, the causes and prevention of juvenile delinquency, and the cultural characteristics of various social groups. **Groups and Institutions** courses look at collective behavior, the organization of communities, and the development of gender roles, as well as economic systems, educational systems, and social inequality. **Population and Environment and Development** courses deal with the effects of the environment and human behavior and the consequences of different patterns of population growth and settlement. A Law and Society Area Studies Certificate is available. A teaching minor in sociology is available for students wishing to teach in secondary schools.

Surveys of graduates indicate that sociology majors pursue a wide range of occupations. About one-third are employed in the professional sector, while close to one-fourth are in service occupations. In addition, 26 percent are involved in sales or management/administration. In terms of specific job titles, social service is a popular option, as are retail sales and teaching. Other frequent job titles include: vocational rehabilitation counselor, research analyst, data coordinator, management analyst, district sales manager, parole officer, juvenile probation officer, social services director, civil service test examiner, personnel director, insurance salesman, and correctional service officer. A variety of government and business positions are also expanding for sociology majors with the new emphasis on a liberal arts education. The growing awareness of the value of sociological perspectives for problem-solving continues to provide an increasing range of opportunities for employment in a variety of work settings.

## Departmental Graduation Requirements

**Minimum GPA for Admission:** 2.5, Overall; 2.5, USU  
**Additional Matriculation Requirement:** Complete SOC 1010 with grade of C or better  
**Minimum GPA for Graduation:** 2.5, major; 2.0, USU; 2.0, Overall  
**Minimum Grade Accepted:** C in SOC 1010; C- in major courses

Sociology majors must meet the following course requirements:

- Complete the general requirements of the University. Majors are expected to take STAT 1040 (QL) Introduction to Statistics to fulfill the quantitative literacy requirement for University Studies.
- Complete a minimum of 36 credits of sociology coursework. At least fifty percent of the sociology coursework must be completed in the USU Sociology program. Sociology majors must maintain a minimum GPA of 2.5 in sociology courses and earn a grade of C or better in SOC 1010 (BSS) Introductory Sociology (effective Fall Semester 2005) and a C- or better in all other courses to be counted toward the major.
- A minor outside the program is encouraged but not required.
- Complete the following required courses (18 credits):
 

<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp)	3
<b>SOC 3010</b> Social Inequality (F,Sp)	3
<b>SOC 3110 (CI)</b> <sup>1</sup> Methods of Social Research (F,Sp)	3
<b>SOC 3120 (QI)</b> <sup>2</sup> Social Statistics I (F,Sp,Su)	3
<b>SOC 4010</b> Contemporary Sociological Theory (F,Sp)	3

### Capstone Course:

**SOC 4600**<sup>3</sup> Senior Research Capstone Seminar (F,Sp) (3 cr) **or**  
**SOC 4720** Applied Community Development (Sp) (3 cr)..... 3

- Choose a minimum of 18 credits from the following sociology elective courses. At least 3 credits must come from each of the three specialty areas listed below.

#### a. Social Problems

**SOC 1020** Social Problems (F,Sp)..... 3  
**SOC 3410** Juvenile Delinquency (F,Sp)..... 3  
**SOC 3420** Criminology (F,Sp)..... 3  
**SOC 3430** Social Deviance (F)..... 3  
**SOC 3750** Sociology of Aging (F)..... 3  
**SOC 4420 (CI)** Criminal Law and Justice (Sp)..... 3

#### b. Groups and Institutions

**FCHD 2400 (BSS)** Marriage and Family Relationships (F,Sp)..... 3  
**SOC 3320** Sociology of Work and Organization (Sp)..... 3  
**SOC 3330** Medical Sociology (F)..... 3  
**SOC 3500** Social Psychology (F,Sp) (3 cr) **or**  
**PSY 3510 (DSS)** Social Psychology (F,Su) (3 cr)..... 3  
**SOC 4330** Religion, Science, and Society (Sp)..... 3  
**SOC 4350** Political Sociology (Sp)..... 3  
**SOC 4370** Sociology of Gender (F)..... 3

#### c. Population, Environment, and Development

**SOC 3200 (DSS)** Population and Society (F,Sp)..... 3  
**SOC 3600** Sociology of Urban Places (F)..... 3  
**SOC 3610 (DSS)** Rural Sociology (F)..... 3  
**SOC 4620 (DSS)** Sociology of the Environment and Natural Resources (Sp)..... 3  
**SOC 4710** Asian Societies (Sp)..... 3  
**SOC 4720/6720** Applied Community Development (Sp)..... 3  
**SOC 4730** Women in International Development (Sp)..... 3  
**SOC 5650/6650** Developing Societies (F)..... 3

<sup>1</sup>Prerequisites: Six credits of departmental courses.

<sup>2</sup>Prerequisites: Six credits of departmental courses; and STAT 1040 or equivalent.

<sup>3</sup>Prerequisites: SOC 1010, 3010, 3110, 3120, 4010, or permission of instructor.

## Sample Four-year Plan for Sociology Major

A sample semester-by-semester four-year plan for students working toward a bachelor's degree in Sociology can be found at:  
<http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Sociology and Social Work Dual Major

Sociology majors desiring additional preparation for employment in the social services may complete a dual major in sociology and social work. With the help of advisors, students who will seek positions in other special areas could include appropriately related courses.

## Minor

Students minoring in sociology must complete a minimum of 12 credits in sociology courses. Sociology minors must maintain a minimum GPA of 2.5 in sociology courses. They must also earn a grade of C or better in SOC 1010 or SOC 1020, and a C- or better in all courses to be counted toward the minor. At least 50 percent of coursework for the minor must be completed at USU. None of the credits counted toward the minor may be taken *pass-fail*.

**SOC 1010 (BSS)** Introductory Sociology (F,Sp) (3 cr) **or**  
**SOC 1020** Social Problems (F,Sp) (3 cr)..... 3  
 Additional credits with a SOC prefix..... 9

# Department of Sociology, Social Work and Anthropology

## Sociology Student Organization

**Alpha Kappa Delta (AKD)**, the sociology honor society, provides sociology undergraduates with a sense of community and an opportunity to build strong friendships outside of the classroom. Students are encouraged to become involved with AKD. For further information, contact Maki Hatanaka, [maki.hatanaka@usu.edu](mailto:maki.hatanaka@usu.edu).

## Teaching License

Sociology is defined as an approved teaching major in Utah secondary schools by the State Board of Education. The sociology major must complete a minor in a subject that is required in Utah high schools. In addition to completing the courses required for the sociology major, the sociology teaching major must also complete the required teaching licensure courses in education. Students can also elect sociology as an approved teaching minor.

## Law and Society Area Studies Certificate

The Department of Sociology, Social Work and Anthropology sponsors an interdisciplinary program emphasizing the study of the relationship between law and society. Students must complete a minimum of 24 credits, chosen from a selected list of courses, in at least three disciplines. A minimum 3.0 GPA must be maintained in these courses.

The selected courses are:

<b>ECN 5500</b> Public Finance (prereq: ECN 1500).....	3
<b>FCHD 3100</b> Abuse and Neglect in Family Context (F,Sp) (prereq: Sophomore standing, FCHD 1500, 2400) (3 cr) or	
<b>PSY 3120</b> Abuse, Neglect, and the Psychological Dimensions of Intimate Violence (F,Su) (prereq: PSY 1010) (3 cr).....	3
<b>JCOM 4030 (DSS)</b> Mass Media Law (F,Sp).....	3
<b>MGT 2050</b> Legal and Ethical Environment of Business (F,Sp,Su).....	3
<b>MGT 3810</b> Employment Law and Policy Development (F,Sp).....	3
<b>PHIL 1120 (BHU)</b> Social Ethics (F).....	3
<b>PHIL 3520 (DHA)</b> Business Ethics.....	3
<b>POLS 3120</b> Law and Politics (F).....	3
<b>POLS 3130</b> United States Legislative Politics (Sp).....	3
<b>POLS/ECN 3170</b> Law and Economics (Sp).....	3
<b>POLS 3320</b> The Foundations of American Constitutionalism.....	3
<b>POLS 3810 (DSS)</b> Introduction to Public Policy (F).....	3
<b>POLS 4120</b> American Constitutional Law (F,Sp).....	3
<b>POLS 4130</b> Constitutional Theory (Sp) (prereq: POLS 1100).....	3
<b>POLS 4810</b> Politics and Public Policy (F).....	3
<b>POLS 5130</b> Law and Policy (Sp).....	3
<b>SOC 1020</b> Social Problems (F,Sp).....	3
<b>SOC 3410</b> Juvenile Delinquency (F,Sp).....	3
<b>SOC 3420</b> Criminology (F,Sp).....	3
<b>SOC 3430</b> Social Deviance (F).....	3
<b>SOC 4420 (CI)</b> Criminal Law and Justice (Sp).....	3
<b>SPED 5070</b> Policies and Procedures in Special Education (F).....	1-3
<b>SW 2100</b> Human Behavior in the Social Environment (Sp) (prereq: SW 1010).....	3
<b>SW 5350 (CI)</b> Social Welfare Policy (F).....	3

Only 12 credits may be selected from a single discipline. The Law and Society Area Studies certificate is pursued in conjunction with a major. Credits may be applied to the major, as well as to the area studies requirements. A student's transcript will reflect the Law and Society Area Studies certificate upon completion of requirements for a degree.

For further information, contact Dr. Jason Leiker, (435) 797-7123, in the Sociology, Social Work and Anthropology Department.

## Gerontology Program

The Department of Sociology, Social Work and Anthropology is one of several departments sponsoring an interdisciplinary gerontology program, which prepares students for careers in the field of aging. Students may earn a certificate in gerontology by completing a selected list of course requirements, including supervised field practicum in a gerontological setting.

More information concerning the gerontology certification program may be obtained from the Department of Family, Consumer, and Human Development.

## American Studies Major

The Department of Sociology, Social Work and Anthropology is one of several departments offering an area of concentration for the American Studies program. Students who wish to focus their work in American culture should refer to the American Studies program description (pages 263-265).

## Social Work

**Program Director:** Terry L. Peak

**Program Office:**

Main 239, (435) 797-1286; or Main 224, (435) 797-1230

Utah State University's Social Work Program offers a baccalaureate degree in social work. The program is accredited by the Council on Social Work Education (CSWE) and meets requirements established by the State of Utah for licensure of social service workers.

The Social Work Program provides a learning environment for those who seek to acquire the knowledge and skills needed to bring about meaningful social change in individuals, groups, communities, organizations, and society. The program provides grounding in the fundamental generalist skills, knowledge, and values of social work, such as critical thinking, clarification of personal values, awareness of diversity, professional use of self, and communication and interpersonal relationship skills.

Social Work at Utah State University recognizes the historic importance of social welfare in balancing the country's economic and social structure. The program is committed to the resolution of contemporary human social problems, such as poverty, racism, discrimination, and economic injustice.

## Program Goals

There are two fundamental goals that guide the Social Work Program:

- 1. To prepare students for employment as generalist social workers through education in a professional foundation curriculum and selected liberal arts education coursework.**
- 2. To prepare students for advanced education, as well as responsible citizenship in the areas of service and research.**

The program is based on a generalist conception of social work and a problem-solving, empowerment, and strengths model of practice. The social work sequence stresses problem solving at the interface of person and environment, which requires that students develop a repertoire of generalist practice skills. The program inculcates in students the knowledge, skills, understanding, and values necessary to perform multi-level assessments and interventions utilizing a theoretical knowledge base. The program is committed to building a student's education on a solid base that includes a liberal arts perspective vital to the development of a social worker.

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The program endeavors to prepare students for advanced standing in graduate professional programs and to provide a solid academic base for continuing education. To accomplish this, the program facilitates the development of the profession's knowledge, values, and skills; provides a well-rounded liberal arts educational foundation; and teaches good study habits, written and oral communication skills, and the ability to think critically.

The program also endeavors to maintain a campus environment that will foster a sense of community and social responsibility. To accomplish this, the program provides opportunities for service learning, social development, and educational research forums through the state-affiliated National Association of Social Workers student organization and the Social Work Phi Alpha Honor Society.

## Code of Conduct

During academic and field training, students are required to abide by the Code of Ethics and standards of conduct specified by the National Association of Social Workers (NASW) and the Utah State Board of Social Work Examiners. Failure to do so may result in dismissal from the Social Work Program. A more complete discussion of Social Work Program policies can be accessed at:

<http://www.usu.edu/sswa/sw.htm>

## Licensure

In the State of Utah, graduates with a bachelor's degree in Social Work are eligible to be licensed as social service workers upon graduation. Students may obtain further information on licensure from:

Department of Commerce  
Division of Occupational and Professional Licensing  
160 East 300 South  
PO Box 146741  
Salt Lake City UT 84114-6741  
Tel. (801) 530-6628  
Fax (801) 530-6511  
<http://www.dopl.utah.gov>

## Social Work Major

### Liberal Arts Foundation

All students pursuing an undergraduate degree at Utah State University must meet requirements designed to assure a broad, liberal arts foundation. Cross-cultural and cross-disciplinary perspectives are vital to a student's development as a social worker. The University Studies program, which is described in detail in this catalog (see pages 67-75), is required of all majors. Majors are expected to take STAT 1040 (QL), Introduction to Statistics, to fulfill the quantitative literacy requirement for University Studies. In addition to fulfilling University Studies requirements, majors will need to complete specific liberal arts courses, listed in the Social Work Program requirements, some of which fulfill both University Studies and Social Work Program requirements. Social Work majors must complete STAT 1040 (Introduction to Statistics) and SOC 3120 (Social Statistics I) to graduate.

### Program Admission Requirements

The following regulations apply for admission to the Social Work Program: (1) New freshmen admitted to USU in good standing qualify for admission to the Social Work Major. (2) Transfer students from other institutions must obtain a minimum overall GPA of 2.5 and a minimum overall GPA of 2.75 in social work classes. (Refer to the

*USU Social Work Program Transfer of Credit Policy.*) (3) Students transferring from other USU majors must complete the Social Work Major course of study and must obtain a minimum overall GPA of 2.5 and a minimum overall GPA of 2.75 in social work classes. (4) Students must apply for and meet criteria for advanced standing, in order to continue on in upper-division social work practice courses and field practicum courses. (5) Students are responsible for reviewing and knowing the requirements for the Social Work degree. (6) All courses required for the Social Work degree must be taken for a letter grade. (7) The Social Work Program does **not** grant social work course credit for life experience or work experience.

## Social Work Major

**Minimum GPA for Admission:** 2.75, major; 2.5, USU; 2.5, Career

**Additional Matriculation Requirements:** Students must apply for Advanced Standing in the Social Work major at the end of their sophomore year. Application requirements include: a C or better (C+ in SW 1010) in all prerequisite Social Work courses and specific University Studies courses, an essay, and a passing score (70 percent or higher) on the Advanced Placement Test (APT). At the end of the junior year, social work majors apply for the practicum, which requires a passing score (70 percent or higher) on the Generalist Practice Test (GPT) and a B- or better in all practice classes.

**Minimum GPA for Graduation:** 2.75, major; 2.0, USU; 2.0, Career

**Minimum Grade Accepted:** C+ in SW 1010; B- in SW 3050, 4150, and 4160; C in remaining major courses

Students may declare Social Work as their major at any time. All course offerings in social work are open to all Social Work majors, with the exception of the practice courses (SW 3050 Practice I, SW 4150 Practice II, and SW 4160 Practice III) and the field practicum courses (SW 4870 Beginning Field Practicum and SW 5870 Advanced Field Practicum), which require admission to advanced standing. Social work students are expected to take courses in sequence, in order to have the professional foundation knowledge required for each class. Maintenance of a high grade point average is important as students progress through the major and continue on to graduate school. Requirements for the Social Work major are as follows:

### First year:

<b>SW 1010<sup>4</sup></b> Introduction to Social Welfare (F,Sp).....	3
<b>ANTH 1010 (BSS)</b> Cultural Anthropology (F,Sp).....	3
<b>BIOL 1010 (BLS)</b> Biology and the Citizen (F,Sp,Su).....	3
<b>ENGL 1010 (CL1)</b> Introduction to Writing: Academic Prose (F,Sp,Su) .	3
<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp)...	3
<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) .....	3
<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp) .....	3
<b>STAT 1040 (QL)<sup>5</sup></b> Introduction to Statistics (F,Sp,Su).....	3

<sup>4</sup>Students must take SW 1010 before taking SW 2100 and 2400.

<sup>5</sup>Students must complete STAT 1040 as a prerequisite to SOC 3120 and to fulfill Social Work major requirements.

### Second year:

<b>ENGL 2010 (CL2)</b> Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su).....	3
<b>SW 2100<sup>6</sup></b> Human Behavior in the Social Environment (Sp) .....	3
<b>SW 2400<sup>6</sup></b> Social Work with Diverse Populations (Sp) .....	3
One elective enrichment course.....	3
Students should apply for advanced standing during their second year.	

<sup>6</sup>Since SW 2100 and 2400 are only offered during spring semester each year, students should plan accordingly.

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## Third year:

<b>SW 3050</b> <sup>7</sup> Practice I (F).....	3
<b>SW 4100</b> Social Work Research (F).....	3
<b>SW 4150</b> Practice II (Sp).....	3
<b>SW 4160</b> Practice III (Sp).....	3
<b>SOC 3120 (QI)</b> <sup>8</sup> Social Statistics I (F,Sp,Su).....	3
Two elective enrichment courses .....	6

Students should apply for the practicum during their third year.

<sup>7</sup>Prior to taking SW 3050, students must apply for advanced standing, to qualify to enroll in practice courses.

<sup>8</sup>STAT 1040 (Introduction to Statistics), plus 6 credits in Social Work and/or Sociology courses, are prerequisites for this course. STAT 1040 and SOC 3120 must be completed in order to graduate with a social work degree.

## Required Elective Enrichment Courses

Nine credits of electives are to be chosen during the second and third years, prior to the practicum year. At least two electives are to be taken in Social Work, and one upper-division elective can be taken outside of Social Work.

<b>SW 3350</b> Child Welfare .....	3
<b>SW 3360</b> Adolescents: Theories, Problems, and Issues.....	3
<b>SW 3450</b> School Social Work (Sp).....	3
<b>SW 3550</b> Social Gerontology (Sp).....	3
<b>SW 3650</b> Mental Health.....	3
<b>SW 3750</b> Medical Social Services.....	3
<b>SW 3850</b> Spirituality and Social Work (F) .....	3
<b>SW 4900</b> Topical Issue Seminar.....	3
<b>SW 5550</b> Family Violence: Interpersonal and Intergroup Conflict (F) .....	3

## Optional Elective (does *not* fulfill elective requirement)

<b>SW 4950</b> <sup>9</sup> Directed Readings (F,Sp) .....	1-5
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## Fourth year:

<b>SW 4870</b> <sup>10</sup> Beginning Field Practicum (F).....	6
<b>SW 5350 (CI)</b> Social Welfare Policy (F) .....	3
<b>SW 5870</b> Advanced Field Practicum (Sp) .....	6

<sup>9</sup>SW 4950 requires a plan of study, approved by a social work faculty member, at least one semester prior to registration. This course is *not* considered to be a required elective.

<sup>10</sup>Prior to enrolling in Beginning Field Practicum, students must apply for admission to the Field Practicum and must have advanced standing status.

## Sample Four-year Plan for Social Work Major

A sample semester-by-semester four-year plan for students working toward a bachelor's degree in Social Work can be found at:

<http://www.usu.edu/degreepans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Procedures for Advanced Standing in the Social Work Major

In order to be considered for advanced standing, students must turn in a completed application form by March 1 of the academic year.

Applications for admission can be obtained in the Social Work Office, Main 239. At the end of spring semester, when the criteria for advanced standing have been met, eligible students will be ranked according to their grade point average, personal statement, performance on the advanced placement test, and faculty evaluation. The highest ranking students will receive advanced standing, which will allow them to enroll in upper-division practice courses. **Only those students who have completed first- and second-year requirements by the end of spring semester of the application year will be considered for advanced standing.** The primary reasons for this evaluation are:

(1) to maintain a high-quality educational experience for students in upper-division practice courses, and (2) to maintain the status of

full accreditation by the Council on Social Work Education. Students will receive notification of acceptance in June of the application year. Students who *do not* receive advanced standing are *not allowed* to enroll in upper-division practice courses; they may retake courses to improve their GPA and reapply for advanced standing during the following year.

## Leave of Absence

After admission to Advanced Standing, students may request a leave of absence from the Social Work program. They must contact the program and reapply in March of the year preceding the requested reinstatement.

To be considered for advanced standing, students must meet the following minimum criteria:

- Completion of the following courses with a C or better:
 

<b>ANTH 1010 (BSS)</b> Cultural Anthropology (F,Sp).....	3
<b>BIOL 1010 (BLS)</b> Biology and the Citizen (F,Sp,Su) .....	3
<b>ENGL 1010 (CL1)</b> Introduction to Writing: Academic Prose (F,Sp,Su) .....	3
<b>ENGL 2010 (CL2)</b> Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su).....	3
<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp).....	3
<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) .....	3
<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp).....	3
<b>SW 2100</b> Human Behavior in the Social Environment (Sp) .....	3
<b>SW 2400</b> Social Work with Diverse Populations (Sp) .....	3
- Completion of SW 1010 (Introduction to Social Welfare) with a grade of C+ or better.
- Junior status (61-90 credits) upon application.
- Maintenance of a minimum overall GPA of 2.5 and a minimum GPA of 2.75 in social work classes.
- No *Pass-D-Fail* grades in courses required for the major.

Students applying for advanced standing will be evaluated on the following criteria:

- Social Work GPA of 2.75 or higher and minimum overall GPA of 2.5.
- Personal statement and self-assessment that includes commitment to and enthusiasm for extracurricular and volunteer activities, career goals, interests, aspirations, and congruence with the NASW values and purposes.
- Quality of written material.
- A satisfactory score (70 percent or higher) on the Advanced Placement Test (APT).
- Faculty evaluation, as indicated by participation, class attendance, and use of self in the classroom and in program-associated activities.

Students should also be aware that if there are any personal data, such as that included on the application for state licensure, which indicate a potential threat to the public safety and welfare, a student may be denied advanced standing in the program. Students turned down for advanced standing will be assisted in finding a more suitable major or may reapply during the following year.

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To maintain advanced standing and eligibility for graduation as a Social Work Major, a student: (1) must obtain a *B-* or better in SW 3050 (Practice I), SW 4150 (Practice II), and SW 4160 (Practice III); (2) must have completed SW 1010 (Introduction to Social Welfare) with a *C+* or better; (3) must maintain a minimum overall GPA of 2.5 or better and a minimum 2.75 GPA in the Social Work Major; (4) must receive a grade of *C* or better in all other courses required for the major; (5) must not repeat more than once, to improve a grade, any course required for the major; and (6) must not receive a *Pass-D-Fail* grade for any course required for the major.

## Procedures for Admission to Field Practicum

Students must complete 480 clock hours of supervised field practicum and integrative seminar coursework. The field practicum courses are SW 4870 (Beginning Field Practicum) and SW 5870 (Advanced Field Practicum). Students may register for SW 4870 only after making application with the practicum director. Application must be made during the spring semester of the academic year prior to enrollment in the practicum, and is due by February 20. Applications are available in Main 239. No applications for the practicum will be accepted from students who will not complete all required coursework by the end of spring semester.

The following are eligibility criteria for admission to the field practicum:

1. Senior status (92-120 credits completed) by the end of the spring semester in which the student applies. Only those students who are candidates for the baccalaureate degree in social work may be admitted to the field practicum.
2. Completion of University Studies program (including Depth Education requirements) and all social work courses, with the exception of SW 5350 (Social Welfare Policy).
3. A grade of *B-* or better in SW 3050 (Practice I), SW 4150 (Practice II), and SW 4160 (Practice III).
4. A grade of *C* or better in all courses required for the major and a grade of *C+* or better in SW 1010 (Introduction to Social Welfare).
5. No *Pass-D-Fail* grades received in courses required for the major.
6. Demonstration of appropriate professional, moral, and ethical character, and must abide by the National Association of Social Work (NASW) code of ethics.
7. Maintenance of an overall minimum GPA of 2.5 and a 2.75 minimum GPA in the Social Work Major.
8. A satisfactory score (70 percent or higher) on the Generalist Practice Test (GPT).

Students should also be aware that if there are any personal data, such as that included on the application for state licensure, which indicate a potential threat to the public safety and welfare, a student may be denied continuation in the program. If a student is denied admission to the practicum, the faculty will review his or her file upon request.

Students entering the practicum cannot ordinarily begin their placement earlier than the start of fall semester. If they do so, this practice falls outside of the Social Work Program's responsibility, and any accrued hours will not count toward the practicum.

## Transfer of Credit Policy

Students who transfer to the USU Social Work Program are required to complete an application for transfer credit. Students may substitute certain social work classes taken at other Council of Social Work Education (CSWE) accredited programs for USU courses. Course approval must be sought from the student's advisor. When petitioning for a substitution, the student is responsible to meet with an advisor and fill out a transfer of credit form, available in Main 239. Social work courses taken ten or more years ago *cannot* ordinarily serve as substitutes. Courses taken in a department or program *not accredited* by the CSWE *cannot* ordinarily serve as substitutes for the USU Social Work courses *unless* they have been covered in an articulation agreement.

The following regulations apply to transfer students: (1) A transfer credit application, with official transcripts from all institutions previously attended, must be submitted. (2) The transcripts must reflect a cumulative grade point average of at least 2.5 (on a 4.0 scale) and a 2.75 GPA in all social work courses. (3) The credentials of students seeking transfer to the Utah State University Social Work Program will be evaluated on an individual basis. (4) University Studies Depth Education requirements must be completed by **all** students, including transfer students who have earned an associate degree.

The following courses, or their equivalents, will be considered for transfer credit:

<b>ANTH 1010 (BSS)</b> Cultural Anthropology (F,Sp).....	3
<b>BIOL 1010 (BLS)</b> Biology and the Citizen (F,Sp,Su).....	3
<b>ENGL 1010 (CL1)</b> Introduction to Writing: Academic Prose (F,Sp,Su) .	3
<b>ENGL 2010 (CL2)</b> Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su).....	3
<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp) ...	3
<b>PSY 1010 (BSS)</b> General Psychology (F,Sp,Su) .....	3
<b>SOC 1010 (BSS)</b> Introductory Sociology (F,Sp).....	3
<b>STAT 1040 (QL)</b> Introduction to Statistics (F,Sp,Su) .....	3
<b>SW 1010</b> Introduction to Social Welfare (F) .....	3
<b>SW 2100</b> Human Behavior in the Social Environment (Sp) .....	3
<b>SW 2400</b> Social Work with Diverse Populations (Sp) .....	3

Students transferring from junior colleges will be required to apply for advanced standing and take upper-division social work courses at USU. Only those social work courses taken within the last ten years will be considered. Students transferring credits from CSWE accredited programs must apply for advanced standing, arrange to take the Advanced Placement Test (APT) during spring semester before they arrive on campus, and take the following courses with the USU Social Work Program:

<b>SW 3050</b> Practice I (F) .....	3
<b>SW 4150</b> Practice II (Sp).....	3
<b>SW 4160</b> Practice III (Sp).....	3
<b>SW 4870</b> Beginning Field Practicum (F) .....	6
<b>SW 5350 (CI)</b> Social Welfare Policy (F) .....	3
<b>SW 5870</b> Advanced Field Practicum (Sp) .....	6

Social Work faculty members review applications for advanced standing to qualify students to enroll in upper-division practice classes. Advanced standing is based on the following criteria: (1) completion of FCHD 1500 (BSS); ENGL 1010 (CL1), 2010 (CL2); ANTH 1010 (BSS); BIOL 1010 (BLS); SOC 1010 (BSS); PSY 1010 (BSS); and SW 2100, 2400 with a grade of *C* or better; (2) completion of SW 1010 with a grade of *C+* or better; (3) junior status (61-90 credits); (4) maintenance of a minimum overall GPA of 2.5 and a minimum GPA of 2.75 in social work classes; (5) a passing score on the Advanced Placement Test (APT), which is a score of 70 percent or higher; and (6) no *Pass-D-Fail* grades received in courses required for the major.

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Students transferring to USU should obtain and complete a copy of the social work advanced standing application and send the application to the Social Work Program by March 1, prior to the fall semester in which they intend to transfer.

Students transferring to USU should be advised that social work education is a professional program designed to prepare competent and effective social work professionals. Coursework is based upon a specific body of knowledge, values, and professional skills. Therefore, if students have not completed the required criteria for advanced standing, completion of their educational program could take additional time. For more information about the Social Work Program, call (435) 797-1286, or visit the Social Work website at:  
<http://www.usu.edu/sswa/sw.htm>

## Social Work Student Organizations

The Social Work Program recognizes the importance of students having opportunities to learn and socialize outside of the classroom. Students are encouraged to be become involved with the NASW student organization, as well as the USU Social Work Program Theta Gamma chapter of the Phi Alpha Honor Society. Information is available in Main 239.

## Social Work Program Outcomes

Social Work Program outcomes are available for review at:  
<http://www.usu.edu/sswa/sw.htm>

## Anthropology

**Program Director:** Bonnie L. Pitblado

**Program Office:**

Main 245F, (435) 797-1496; (435) 797-0219; or Main 224,  
(435) 797-1230

Anthropology is the integrated study of humans in all their aspects. It offers a broad framework for understanding humans as individuals and as members of widely varying societies through courses dealing with the biological evolution of humans, prehistoric culture change, and present diversity of cultures and human populations. Two parallel goals of the discipline are to explore and develop an appreciation for human diversity and the shared legacy of our common humanity.

Anthropology includes the following subspecialties: cultural anthropology, biological anthropology, archaeology, and linguistics. Major requirements are designed both to encourage broad exploration across anthropology and more in-depth learning of one subspecialty. Students who major in anthropology examine a wide range of peoples and cultures, both past and present. They study lifeways as different as the hunter-gatherers of Ice-Age Europe, tribal horticulturalists of lush interior Amazonia, and the diverse ethnic neighborhoods of modern U.S. cities. They explore both the biological and cultural basis of human behavior, and examine how it is manifested in individuals and groups. Anthropology courses use both scientific and humanistic approaches to the study of humankind, in all its complexity. Courses emphasize critical reasoning, oral and written communication skills, and the expansion of thinking beyond the familiar.

The contemporary social science student lives in a world of diminishing cultural and national barriers. In this setting, a major in anthropology can lead to a wide variety of careers. Anthropologists are on the staff of leading medical, business, law, public affairs, and other professional schools, and have played critical roles in international ventures, public

health programs, community development activities, and minority and migrant social actions. Additionally, anthropology serves applied interests in international development, archaeology and cultural resource management, cross-cultural health care, and osteology/forensics. With first-hand experience in every region of the country and around the world, anthropologists bring a unique understanding of specific social and ethnic groups and of the biological, ecological, and cultural factors that influence human behavior.

Special features of the anthropology program include smaller classes, individualized attention, opportunities for laboratory, museum, and field work, and the opportunity of working in teaching assistant positions. All these features give anthropology majors choices and experiences unavailable to undergraduates in most programs. The Anthropology Museum and Field Schools provide additional hands-on learning opportunities. Anthropology participates in the Department of Geology emphasis in Geoarchaeology, the American Studies Program, and the Folklore Program in the Department of English.

Anthropology leads to a variety of "real-world" jobs. Anthropology graduates are: lawyers, nurses, health care administrators, travel consultants, teachers of all kinds, cultural resource professionals, agency and program administrators, and technical writers. They work for museums, government land management, environmental and Foreign Service agencies, Indian tribes, and are common in both the government and private sectors of the environmental-cultural heritage management industry. They can be found in public and private foundations, bureaus, and agencies for the arts, humanities, sciences, and tourism.

Graduate study in anthropology opens the world of practicing anthropology. Not limited to college teaching, anthropologists with graduate degrees can be found in a variety of private sector and government agency positions.

For students seeking a dual major, an Anthropology major can complement a major in American Studies, Biology, Geology, Geography, History, Languages, and Political Science. It also pairs well with majors in Natural Resources, because cultural resource and Native American issues are important to many positions in private firms and government agencies concerned with land management and the environment. Majors with an interest in museums may pursue a 24-credit "Museum Studies" certification, also administered by the Anthropology Program.

## Major Requirements

**Minimum GPA for Admission:** 2.5, Career

**Minimum GPA for Graduation:** 2.5, major requirements, including BS and BA required courses; 2.0, Career

**Minimum Grade Accepted:** C in major requirements, including BS and BA required courses

A minimum of 39 credits is required for the anthropology major. All students must take five required courses, including an introduction to program resources, a three-semester sequence in the basic areas of anthropology, and an upper-division level course in the history of anthropology. The anthropology major also requires exposure across the breadth of the discipline. To achieve this, students select courses from topical and area clusters at the upper-division levels culminating in a final capstone course. Additional graduation requirements include:

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## Anthropology Tracks

Each student must select a track from among the three specialties in anthropology listed below and complete a minimum of three upper-division courses (these may include ANTH 2010 and 2330) and the capstone course in that specialization. Capstone courses are offered every other year, so students should schedule their coursework accordingly.

1. Cultural/Applied Anthropology
2. Biological/Biomedical Anthropology
3. Archaeology/Cultural Resource Management

## Methods Component

Majors must complete one "Methods" course (3 credits) in anthropology. The course chosen to meet this requirement may also count toward other anthropology major requirements.

A minimum of 16 credits of the anthropology course credits counting toward the major must be Utah State University courses. Credits from distance and residence center courses are subject to departmental approval for application toward the anthropology major, with the exception of those listed below.

Students majoring in anthropology must maintain a minimum 2.5 overall GPA in anthropology courses. A grade of C or better must be attained in *all* courses counted for the major, including foreign language and statistics courses. In addition, majors must complete the general requirements of the University in consultation with the student's HASS advisor, and complete the following major courses:

## Required Courses (13 credits)

ANTH 1010 (BSS) Cultural Anthropology (F; or F,Sp,Su online)	3
ANTH 1020 (BLS) Biological Anthropology (F)	3
ANTH 1030 (BSS) World Archaeology (F; or Sp online)	3
ANTH 1099 Resources in Anthropology at USU (F)	1
ANTH 4980 History and Theories of Anthropology (F,Sp)	3

## Anthropology Tracks

### 1. Cultural/Applied Anthropology (6 credits minimum/12 for Cultural/Applied Track)

ANTH 2010 (BSS) Peoples of the Contemporary World (Sp)	3
ANTH 3110 North American Indian Cultures (F) (Distance)	3
ANTH 3130 (CI) Peoples of Latin America (F)	3
ANTH 3150 Applied Anthropology Survey: History, Uses, Methods, and Careers (Methods) (F,Sp)	3
ANTH 3160 (DSS) Anthropology of Religion (F)	3
ANTH 4110/6110 (DSS) Southwest Indian Cultures, Past and Present (Sp) (Distance)	3
ANTH 4120 (CI/DSS) Anthropology of Childhood (Methods) (Sp)	3
ANTH 5100/6100 (DSS) Anthropology of Sex and Gender (F)	3
ANTH 5130/6130 Ethnographic Field School (Methods) (Su)	3-6
ANTH 5190/6190 Applied Anthropology Practicum	1-5

### Cultural Applied Capstone:

ANTH 4990 Contemporary Issues in Anthropology (Sp)	3
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### 2. Biological/Biomedical Anthropology (6 credits minimum/12 for Biological/Biomedical Track)

ANTH 3200 (CI/DSS) Perspectives on Race (Sp)	3
ANTH 3250 Osteology (Methods) (F)	3
ANTH 4230 (DSS) Medical Anthropology: Matter, Culture, Spirit, and Health (Sp)	3
ANTH 4800 ST: Evolution of Disease (F)	3
ANTH 5210 Physical Anthropology Lab (Methods)	1-3

### Biological/Biomedical Anthropology Capstone:

ANTH 5250/6250 (QI) Problems in Bioarchaeology (Methods) (Sp)	3
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### 3. Archaeology/Cultural Resource Management (6 credits minimum/12 for Archaeology/CRM Track)

ANTH 2330 Principles of Archaeology (required for Archaeology Track) (Sp)	3
ANTH 3300 (DSS) Archaeology in North America (Sp)	3
ANTH 3350 (DSS) Archaeology of Ancient Civilizations (Sp)	3
ANTH 3360 Utah Archaeology (F)	3
ANTH 3370 Archaeology of Prehistoric Europe (F) (Distance)	3
ANTH 5320/6320 Zooarchaeology (Methods) (Sp) (Brigham City)	3
ANTH 5330/6330 Geoarchaeology (Methods) (Sp)	3

### Archaeology/CRM Capstone:

ANTH 5380/6380 Peopling of the New World (Sp)	3
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## Departmental Electives

(These do not count toward minor requirements.)

Note: Methods courses require permission of instructor.

ANTH 2210 (BHU) Introduction to Folklore (F,Sp)	3
ANTH 2720 Survey of American Folklore (Sp)	3
ANTH 3310 (CI) Introduction to Museum Studies (Methods) (Sp)	3
ANTH 3550 (DHA) Culture of East Asia (online)	3
ANTH 4100 The Study of Language (F,Sp)	3
ANTH 4370 Archaeology and Paleoenvironments Field Trip (F)	2
ANTH 4800 Topics in Anthropology	1-3
ANTH 5300/6300 Archaeology Field School (Methods) (Su)	3-5
ANTH 5310/6310 Archaeology Lab (Methods) (F,Sp,Su)	1-3
ANTH 5650/6650 (DSS) Developing Societies (Sp) (Distance)	3
ANTH 5700 Folk Narrative (Sp)	3
ANTH 5800 Museum Development (Methods) (F,Sp,Su)	1-3
ANTH 5900 Independent Studies	1-3
ANTH 5980 Senior Project	1
SOC 4730 Women in International Development (Sp)	3

Students planning to receive a BA degree must complete two years training or equivalent in a foreign language approved by the Languages, Philosophy, and Speech Communication Department or one year or equivalent in each of two foreign languages approved by the Languages, Philosophy, and Speech Communication Department.

Students planning to receive a BS degree must complete STAT 1040 (Introduction to Statistics), and two courses selected from a list of courses approved by the Anthropology Program.

Anthropology majors are encouraged to complete both the foreign language and statistics requirements.

## Sample Four-year Plan for Anthropology Major

A sample semester-by-semester four-year plan for students working toward a bachelor's degree in Anthropology can be found at:

<http://www.usu.edu/degreeplans/>

Students should consult with both their major advisor and their HASS advisor to develop a plan of study tailored to their individual needs and interests.



# Department of Sociology, Social Work and Anthropology

## Minor Requirements

A minimum of 18 credits is required for the anthropology minor. A minimum of 12 anthropology credits counting toward the minor must be Utah State University courses. Credits from distance and residence center courses are subject to departmental approval for application toward the anthropology minor. Students must maintain a minimum 2.5 overall GPA in anthropology courses. A grade of C or better must be attained in *all* courses counting toward the minor.

## Required Courses (9 credits)

**ANTH 1010 (BSS)** Cultural Anthropology (F; or F,Sp,Su online).....3  
**ANTH 1020 (BLS)** Biological Anthropology (F).....3  
**ANTH 1030 (BSS)** World Archaeology (F; or Sp online) (3 cr) or  
**ANTH 2330** Principles of Archaeology (Sp) (3 cr).....3

## Breadth-in-Anthropology Structured Track Electives (Groups 1, 2, or 3) (9 credits minimum)

In addition to the required courses, students must complete a minimum of 9 credits (ANTH 2010, 3000-5000 level courses) in anthropology from the **Structured Track Electives** in: (1) Cultural/Applied Anthropology; (2) Biological/Biomedical Anthropology; or (3) Archaeology/Cultural Resource Management. **Departmental electives do not count toward minor requirements.**

## Sociology Graduate Program

**Graduate Program Director:** John C. Allen  
**Program Office:** Main 224F, (435) 797-0310

The Department of Sociology, Social Work and Anthropology offers graduate work leading to the MS, MA, and PhD degrees in Sociology. The department also administers an interdisciplinary Master of Social Sciences (MSS) degree with emphasis in International Rural and Community Development.

The Graduate Program in Sociology provides a unique integrative and reinforcing combination of demographic, organizational, political-economic, and social psychological orientations to major domestic and global issues. At the graduate level, the department is particularly strong in four areas: Demography, Natural Resource and Environmental Sociology, Social Problems and Inequality, and Social Change and Development. Graduate students have the opportunity to merge basic foundation coursework in sociological theory and research methods with more specialized training in selected specialty areas and apprenticeship roles in both basic and applied research projects. Sustained personal interaction between faculty and students is a hallmark and strength of the program.

The Graduate Program in Sociology has developed a *Graduate Program Handbook* that provides more details about the application process, financial assistance decisions, and graduation requirements. An electronic copy of this handbook is available on the departmental website: <http://www.usu.edu/sswa/grad.htm>

The typical graduate application has five main components:

1. A formal application form, available from the School of Graduate Studies;
2. Transcripts from the applicant's undergraduate and graduate studies;
3. Test scores from the Graduate Record Examination (GRE) for all applicants, and the Test of English as a Foreign Language (TOEFL) and the Test of Spoken English (TSE) examinations for international students whose native language is not English;

4. Letters of reference from faculty or scholars who can attest to the applicant's abilities to succeed in graduate school; and
5. A letter of intent providing background about the applicant's training, interests, and experiences, as well as an overview of the applicant's career goals and specific reasons why graduate training in sociology is important to the applicant.

All application materials should be sent directly to the School of Graduate Studies, 0900 Old Main Hill, Utah State University, Logan UT 84322-0900.

The department offers financial assistance to most graduate students enrolled in departmental programs. These funds are distributed through a competitive process, based on student qualifications, performance, and interests. Graduate assistants typically earn enough to cover basic costs of tuition and living expenses. In order to be considered for financial assistance for the following academic year, complete applications must be **received by USU no later than February 1**. Decisions on graduate student funding are usually based on an overall evaluation of all five components of the application.

Students must have scores on the verbal and quantitative portions of the Graduate Record Examination (GRE) at or above the 40th percentile. TOEFL scores are required for international candidates, with a minimum score of 600 (paper test) or 250 (computer-based test) deemed acceptable. The Test of Spoken English (TSE) is also strongly recommended, with a minimum score of 50 deemed acceptable. International applicants who are admitted without having taken the TSE will be required to take a test of spoken English fluency administered by the Intensive English Language Institute (IELI) at Utah State University prior to beginning their first semester in the Sociology Graduate Program. Dependent upon the test results, the student may be required to complete a program of English language training during the first semester of residence in the graduate program. For consideration for admission to the MSS degree program, applicants may submit either GRE or Miller Analogies Test scores.

Applications are screened throughout the year by the Graduate Program Executive Committee. No applications will be considered until all required information arrives in the School of Graduate Studies or a formal petition to review a nearly-complete file is made and approved.

Students with or without an undergraduate degree in sociology may enter the master's degree program. However, before matriculating, basic competencies in sociology that have not been acquired through prior courses or experience must be satisfied. Students entering the doctoral program must complete master's level prerequisites in sociological theory and research methods and statistics.

## PhD in Sociology

In addition to coursework in sociological theory and methods, doctoral students are expected to concentrate in and pass written comprehensive examinations in two of the following specialty areas. Specialty areas are distinct, but are also highly integrative. One line of integration involves the department's continuing emphasis on **Rural Sociology**, which links elements of all four specialty areas. The program is sufficiently flexible to permit students with a strong interest in an area other than the established specialty areas to elect that area as an emphasis area, rather than having a second specialization, with approval of the supervisory committee and the department head or his or her delegated representative. In this case, the student would select a series of courses in that area in consultation with his or her supervisory committee and the department head or his or her delegated representative.

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## Demography

The demography area of specialization is administered through the Population Research Laboratory. The orientation is twofold: (1) basic and policy-oriented research on sociological aspects of demographic structure and processes, including migration, marriage and fertility, morbidity, and mortality; and technical demographic topics such as population estimates and projections; and (2) the provision of demographic training to domestic and international students relevant to their respective settings. Research endeavors encompass a broad range of local, regional, national, and international projects in the areas of migration and population redistribution, family demography, life course and aging, health and disability, labor force, and population estimates and projections. Graduate coursework is provided in social demography, population theories and policy, and demographic methods, as well as through various special topic seminars.

## Environmental Sociology/Sociology of Natural Resources

The faculty in this area maintain an active research involvement in a wide variety of areas, such as natural resource development, land use changes, public participation in environmental planning, hazardous facility siting, recreation, risk assessment, population/environment relationships, public land management issues, and natural resource policy. Faculty have been engaged in cooperative research ventures with engineering, natural resource sciences, and other physical and social sciences faculty. Graduate curricula offerings are focused on the sociology of natural resources, environmental sociology, environmental problems and inequality, and social risk analysis.

## Social Problems and Inequality

This specialization is organized around analyses of the social and cultural processes through which social problems come to be recognized, with particular emphasis on race, class, and gender inequality.

Graduate courses in this area include theoretical foundations, as well as topical courses in the areas of criminology, health, gender, environmental justice, and work and occupations. Faculty members in this area have recently conducted extensive research on health risks and behavior, family and work conflict, peer court intervention in juvenile delinquency, and the gendered impacts of labor market restructuring.

Since the sociology program has a joint relationship with social work and anthropology, sociology graduate students have many opportunities to draw from the experience and applied research of these faculty as well.

## Social Change and Development

This specialization is designed to provide a broad foundation for students interested in examining the social, political, and economic dynamics and impacts of social change. Two major goals of this program are to: (1) give students the conceptual and analytical foundations enabling them to understand the dynamics and impacts of social change and development, and (2) convey specific skills required for effective performance in applied fields.

While some faculty and students have projects in urbanizing contexts, there is a strong focus on rural sociology. Faculty members have extensive domestic and international experience examining rural community development, demographic changes, labor market restructuring, agrarian transformations, political transitions and social movements, and land use changes.

## Core Courses

The core courses for the PhD degree in Sociology include the following:

<b>SOC 7010</b> Issues in Sociological Theory (Sp) .....	3
<b>SOC 7100</b> Advanced Survey Techniques (Sp) .....	3
<b>SOC 7110</b> Advanced Sociological Analysis (F) .....	3
<b>SOC 7150</b> Advanced Qualitative Methods in Sociology (Sp) .....	3

## MS and MA in Sociology

The main objective of this degree program is to provide a firm foundation in sociological theory and methods. Students also have the opportunity to take electives in any of the departmental specialty areas or outside the department. A minimum of 30 credits (including a research thesis) is required for the degree.

## Core Courses

The core courses for the MS and MA degrees in Sociology include the following:

<b>SOC 6010</b> Development of Sociological Theory (F) .....	3
<b>SOC 6020</b> Modern Social Theory (F) .....	3
<b>SOC 6100</b> Advanced Methods of Social Research (F) .....	3
<b>SOC 6150</b> Social Statistics II (Sp) .....	3

The ability to utilize a statistical package (or permission of instructor) is a prerequisite to SOC 6150 (Social Statistics II).

## MSS Sociology Specialization

This specialization enables interdisciplinary training in three related disciplines. The program requires a minimum of 35 credits, including 17 credits in a major discipline (Sociology); and either (1) a minimum of 9 credits in each of two minors or (2) a minimum of 9 credits in a minor and a minimum of 9 credits in a cluster. Two credits for the Plan B paper are included in the minimum 17 credits in Sociology. A minimum overall GPA of 3.0 is required. This is an applied degree. Individual options and plans of study can be arranged in consultation with the student's supervisory committee. At present, the degree is available with an emphasis in International Rural and Community Development.

## International Rural and Community Development

This emphasis is designed to prepare administrators, planners, and researchers for work in international settings. The emphasis is on social and community factors in development. The interdisciplinary curriculum in sociology of development, rural sociology, economic anthropology, political science, and the economics of development has been specifically designed to prepare practitioners and leaders for careers in applied social development. The coursework can be adapted to the individual career interest of each student. The program involves students both from abroad and from the United States.

## Core Courses

Individualized programs of study are prepared with the cooperation of the student and supervisory committee.

## Research

The graduate program's research agenda is focused within the framework of the department's specialty areas. Since the areas are integrative, research tends to involve collaborative participation by several faculty members. Several active research projects are supported by the Utah Agricultural Experiment Station. Research is

# Department of Sociology, Social Work and Anthropology

conducted at various levels, including international, national, regional, and state. The department has two active research units: (1) the Institute for Social Science Research on Natural Resources and (2) the Population Research Laboratory. Departmental research is supported by grants from federal and state agencies, local governments, private foundations, and the Utah Agricultural Experiment Station. Faculty members participate in many cross-campus research efforts, including the Women and Gender Research Institute, the USU Water Initiative, the Utah Water Research Laboratory, the Mountain West Center for Regional Studies, and the Natural Resources and Environmental Policy Program.

## Financial Assistance

Both departmental support and formal research grant support are available to graduate students and are awarded on a competitive basis. Some highly qualified departmental graduate students are also nominated to compete for University fellowships. Students who wish to be considered for financial aid must submit applications by February 1 for the coming academic year. Late applications are considered only if additional funds are still available.

Teaching assistantships are available through the department. Research assistantships are available through faculty members who have ongoing projects with the Utah Agricultural Experiment Station or who have research grants from the University, private companies, and federal or state agencies. University fellowships are available for exceptionally qualified students.

## Career Opportunities

Traditionally, persons with advanced degrees in sociology have been employed in college and university settings. Recent evidence has shown a greater variety of career paths. A survey conducted by the American Sociological Association showed that 21 percent of sociologists holding the doctoral degree were employed in the private sector; 31 percent were working in the nonprofit sector; 46 percent were working in federal, state, or local government agencies; and 12 percent were self-employed. USU sociology graduates have followed this pattern of diversity. They have secured appointments in a variety of academic, governmental, and private settings, both domestic and abroad. A sizeable number have achieved key leadership positions and high visibility in the profession.

## Social Work Graduate Program

**Graduate (MSW) Program Coordinator:** Derrik R. Tollefson  
**Program Office:** Main 239, (435) 797-1286

The Department of Sociology, Social Work and Anthropology offers graduate work leading to the Master of Social Work (MSW) degree. The mission of the MSW program is to serve the public by preparing graduates as professionals in advanced generalist practice and by equipping them with skills necessary for leadership roles within the social work profession. The MSW program emphasizes the advanced generalist practice knowledge and skills essential to the tasks of promoting social welfare, especially among vulnerable populations, in institutions such as education, health, employment, housing, and criminal justice. The program is dedicated to the development of professional social workers who understand the need to advocate for vulnerable populations, and to work toward the establishment of societies free from poverty, violence, oppression, and discrimination. Specifically, the MSW program prepares graduates to:

1. Understand the values, concepts, and skills that constitute the framework of generalist and advanced generalist practice.
2. Apply the knowledge and skills of a generalist and advanced generalist social work perspective to practice with systems of all sizes.
3. Understand biopsychosocial theory and the person-in-environment perspective as viewed within the context of agency practice, and as relating to legislative and policy issues.
4. Utilize evaluative methods in practice.
5. Practice with cultural competence.
6. Utilize advocacy and administrative skills as a means to promote social change in communities and organizations.

The Graduate Program in Social Work has developed an *MSW Program Handbook* providing more details about the application process, financial assistance decisions, and graduation requirements. An electronic copy of this handbook is available on the departmental website at: <http://www.usu.edu/sswa/grad.htm>

## Application Requirements

The MSW application has six main components:

1. A formal application form, available from the School of Graduate Studies;
2. Transcripts from the applicant's undergraduate and graduate studies;
3. Letters of reference from faculty members or scholars who can attest to the applicant's abilities to succeed in graduate school;
4. A written personal statement;
5. A resume; and
6. Passing scores from one or more of the following examinations (contact program coordinator for details):
  - a. Graduate Record Examination (GRE);
  - b. Miller Analogies Test (some students may not be required to submit test scores);
  - c. MSW Admissions Test; and
  - d. The Test of English as a Foreign Language (TOEFL) and the Test of Spoken English (TSE) examinations for international students whose native language is not English.

All applicants must have successfully completed a research methods or statistics course, as well as *at least one* introductory social or behavioral science course prior to enrolling in the program. TOEFL scores are required for international candidates, with a minimum score of 600 (paper test) or 250 (computer-based test) deemed acceptable. The TSE examination is also strongly recommended, with a minimum score of 50 deemed acceptable. International applicants who are admitted without having taken the TSE will be required to take a test of spoken English fluency administered by the Intensive English Language Institute (IELI) at Utah State University prior to beginning their first semester in the MSW Program. Dependent upon the test results, the student may be required to complete a program of English language training during the first semester of residence in the MSW program.

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Applications are screened by the MSW Admissions Committee beginning February 1 of the year before which a new cohort will be admitted. Full-time and part-time cohorts are admitted every two years and every three years, respectively. To determine when the next full-time and part-time cohorts will be admitted, contact the program coordinator. No application will be considered until *all* required information arrives in the School of Graduate Studies *or* until a formal petition to review a nearly complete file is made and approved. Students having an undergraduate degree in social work from a CSWE-accredited program may be permitted to substitute elective courses for select foundation year courses, provided they obtained their degree within five years of enrolling in the MSW program.

All application materials should be sent directly to: **School of Graduate Studies, 0900 Old Main Hill, Utah State University, Logan UT 84322-0900.**

## Degree Requirements

### Foundation Courses

The foundation courses for the MSW degree include the following:

<b>SW 6000</b> Principles and Philosophy of Social Work (F).....	3
<b>SW 6050</b> HBSE I: Individuals and Families in Their Environment (F)...	3
<b>SW 6100</b> Generalist Practice I: SW Practice with Individuals, Families, and Groups (F).....	3
<b>SW 6150</b> Generalist Practice II: SW Practice with Groups, Organizations, and Communities (Sp) .....	3
<b>SW 6200</b> Social Work Research Methods (F,Su).....	3
<b>SW 6250</b> HBSE II: Groups, Organizations, and Communities (Sp) .....	3
<b>SW 6300</b> Social Policy Analysis (Sp) .....	3
<b>SW 6400</b> Field Practicum I (F) (4 cr) <b>and</b>	
<b>SW 6450</b> Field Practicum II (Sp) (5 cr) .....	9
<b>Or</b>	
<b>SW 6475</b> Foundation Block Field Practicum (F,Sp,Su) .....	9

### Advanced Courses

The advanced courses for the MSW degree include the following:

<b>SW 6600</b> Policy and Administration (Sp).....	3
<b>SW 6650</b> Advanced Research Methods (Sp,Su).....	3
<b>SW 6700</b> Advanced Generalist Practice I: Individuals and Families (F) .....	3
<b>SW 6750</b> Advanced Generalist Practice II: Groups (Sp).....	3
<b>SW 6800</b> Law and Ethics for Social Workers (F,Su) .....	3
<b>SW 6850</b> Advanced Clinical Practice with Individuals and Families (Sp,Su).....	3
<b>SW 6900</b> Field Practicum III (F,Sp) (6 cr) <b>and</b>	
<b>SW 6950</b> Field Practicum IV (Sp) (6 cr) .....	12
<b>Or</b>	
<b>SW 6975</b> Advanced Block Field Practicum (F,Sp,Su) .....	12

### Elective Courses

Students having an undergraduate degree in social work from a CSWE-accredited program may be permitted to substitute elective courses for select foundation courses, provided they obtained their degree within five years of enrolling in the MSW program. Elective courses include the following (check with the Social Work program coordinator for information about availability):

<b>SW 6500</b> Advanced Child Welfare Practice in Rural Settings (F) .....	3
<b>SW 6550</b> Advanced Practice with Victims and Perpetrators of Family Violence (Sp,Su).....	3
<b>SW 6575</b> Social Work Practice with Substance Abusing Clients (F,Sp,Su) .....	3

<b>SW 6775</b> Forensic Social Work Practice (F,Sp,Su).....	3
<b>SW 6875</b> Clinical Practice with Women .....	3
<b>SW 6990</b> Independent Study (F,Sp,Su).....	1-3
<b>SW 6993</b> Research Project (F,Sp,Su) .....	1-3
<b>SW 6995</b> Special Topics on Social Work Practice (F,Sp,Su).....	1-3

## Financial Assistance

Some financial assistance is available. These funds are distributed through a competitive process, based on student qualifications, performance, and interests. In order to be considered for financial assistance for the next academic year, complete applications must be **received no later than February 1**. Decisions on graduate student funding are usually based on an overall evaluation of all six components of the application.

## Career Opportunities

There are many career opportunities for social workers, particularly for those having a Master of Social Work degree. MSW graduates practice in a wide variety of public and private agency settings, such as child welfare, youth services, mental health/counseling, schools, criminal justice, and medical settings such as hospitals and long-term care facilities, to name just a few. Social workers interact with diverse client populations and seek to improve quality of life, particularly for those who exist on the margins of society. Career opportunities are abundant as the job market for professional social workers is expanding, both locally and nationally.

An MSW degree can also unlock the door to upward career mobility. In the human services field, the MSW degree is more and more frequently required for supervisory or management-level positions. The MSW degree also brings higher salaries, as well as qualifying the graduate to pursue licensure as a Certified Social Worker (CSW) and/or a Licensed Clinical Social Worker (LCSW).

## Anthropology Graduate Program

**Graduate Program Director:** Steven R. Simms  
**Program Office:** Main 245, (435) 797-1277

The Department of Sociology, Social Work and Anthropology offers graduate work leading to the Master of Science degree in Anthropology with a Specialization in Archaeology and Cultural Resource Management.

Cultural Resource Management (CRM) archaeology provides industry and government agencies with an evaluation of heritage resources that by law must be "taken into account" prior to the alteration of our public landscapes. CRM is now an institutionalized element of the environmental management industry in the United States and in many other countries. Archaeologists identify and record all prehistoric and historic cultural resources, from ancient villages and camps, to pioneer cabins, 19th century gold mines, and human skeletons. Archaeologists help industry and agencies to find ways to protect what is of value by avoidance and occasionally by mitigation, and they facilitate land management. Federal and state laws and regulations govern the practice of archaeology by issuing permits, and a national Register of Professional Archaeologists certifies professional standards. The minimum degree requirement for the permits and the professional registry is a master's degree.

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Senior archaeologists working in CRM realize the need for graduate training to be more than applied archaeology. In order to produce career-path archaeologists, graduate training needs to include adequate knowledge of the scientific research contexts of archaeology, as well as experience in the conduct of research, to prepare students for careers, and not just as technicians in a transient labor force. The graduate program in Anthropology at Utah State University responds to the changing needs of archaeology and to recommendations of archaeologists in the CRM industry. The master's degree will also prepare students intending to pursue a PhD degree at another institution.

Following the recommendations of the 2006 SAA forum on graduate training in CRM, the program has been designed around the following performance goals:

1. The curricula should recognize the much broader scope of CRM and should incorporate business, ecology, and the legal/regulatory environment in which CRM archaeology exists.
2. Written and verbal communication skills should be gained.
3. Students should gain experience in the preparation of proposals and research design.
4. Basic applied field techniques, including survey, mapping, GPS, and sampling, should be taught.
5. Students should master basic applied techniques in data analysis, collections processing, and collections management.
6. Experience should be given in report preparation.
7. The graduate curricula should provide structured mentorships or internships with CRM companies and/or government agencies.

The Graduate Program in Anthropology has developed an *MS Anthropology Program Handbook* providing more details about the application process, financial assistance decisions, and graduation requirements. An electronic copy of this handbook will be posted on the Anthropology Program website during Spring 2009 at: <http://www.usu.edu/anthro/ms.htm/>

## Application Requirements

The MS Program in Anthropology application has six main components:

1. A formal application form, available online at: <http://www.usu.edu/graduateschool/>
2. Transcripts from the applicant's undergraduate and graduate studies
3. Letters of reference from faculty or scholars who can attest to the applicant's abilities to succeed in graduate school
4. A resume
5. A letter of intent providing background about the applicant's training, interests, and experiences, as well as an overview of the applicant's career goals and specific reasons why graduate training in archaeology and cultural resource management is important to the applicant

6. Test scores from the Graduate Record Examination (GRE) for all applicants, and the Test of English as a Foreign Language (TOEFL) and the Test of Spoken English (TSE) examinations for international students whose native language is not English

TOEFL scores are required for international candidates, with a minimum score of 600 (paper test) or 250 (computer-based test) deemed acceptable. The TSE examination is also strongly recommended, with a minimum score of 50 deemed acceptable. International applicants who are admitted without having taken the TSE will be required to take a test of spoken English fluency administered by the Intensive English Language Institute (IELI) at Utah State University prior to beginning their first semester in the MS program. Dependent upon the test results, the student may be required to complete a program of English language training during the first semester of residence in the MS Degree Program in Anthropology.

Students requesting financial support should apply *no later than* March 15. Applications to the program will be accepted through June 15. No application will be considered until all required information arrives in the School of Graduate Studies or until a formal petition to review a nearly complete file is made and approved.

All application materials should be sent directly to the School of Graduate Studies, 0900 Old Main Hill, Utah State University, Logan UT 84322-0900.

## Degree Requirements

A minimum of 33 credits is required for the MS degree. Six credits for the Plan A Thesis or Plan B Professional Paper/CRM Report are included in the 33 minimum credits. A minimum overall GPA of 3.0 is required.

### Core Courses (26 credits minimum)

The core courses for the MS degree in Anthropology with a Specialization in Archaeology and Cultural Resource Management include:

<b>ANTH 6300</b> Archaeology Field School (Su) (3 cr) <b>or</b>	
<b>ANTH 6700</b> Archaeology Internship (F,Sp,Su) (3 cr).....	3
<b>ANTH 6310</b> Archaeology Lab (F,Sp,Su).....	1-3
<b>ANTH 6340</b> Archaeology of the Western United States (F) .....	3
<b>ANTH 6350</b> Archaeological Theory (F) .....	3
<b>ANTH 6360</b> Research Design and Quantitative Methods in Archaeology (F) .....	3
<b>ANTH 6370</b> GIS in Archaeology (Sp).....	3
<b>ANTH 6390</b> Cultural Resources Management Policy (F).....	3
<b>ANTH 6410</b> Writing for Archaeologists (F,Sp) .....	3
Collections Management course (under development)	

### Elective Courses

<b>ANTH 6250</b> Problems in Bioarchaeology (Sp).....	3
<b>ANTH 6320</b> Zooarchaeology (Sp).....	3
<b>ANTH 6330</b> Geoarchaeology (Sp) .....	3
<b>ANTH 6380</b> Peopling of the New World (Sp).....	3
<b>ANTH 6420</b> Lithic Analysis (F) .....	1
<b>ANTH 6700</b> Archaeology Internship (F,Sp,Su) (if not taken in Core Courses).....	3
<b>ANTH 6900</b> Independent Studies.....	1-3
<b>GEO 6120</b> Advanced Geomorphology (Sp) .....	3
<b>GEO 6680</b> Paleoclimatology (Sp).....	3

### Thesis Preparation

<b>ANTH 6970</b> Thesis Research (F,Sp,Su).....	1-12
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# Department of Sociology, Social Work and Anthropology

## Museum Certificate Program

An additional opportunity is available to students enrolled in the master's degree program. The Museum of Anthropology is a teaching unit under the program's umbrella that already offers a certificate in Museum Studies. The certificate program is unique among offerings at Utah's public and private institutions, in that a certificate can be earned as a complement to a bachelor's, master's, or PhD degree in any field. The 24-credit certification program, which features supporting coursework from nearly two dozen departments and programs across the USU campus, educates students in museum administration, collections management and care, and interpretation and exhibition skills.

## Financial Assistance

Some financial assistance is available in the form of graduate assistantships. These funds are distributed through a competitive process, based on student qualifications, performance, and interests. In order to be considered for financial assistance for the next academic year, complete applications must be received no later than March 15. Decisions on graduate student funding are usually based on an overall evaluation of all six components of the application.

## Career Opportunities

Nationwide the CRM industry is valued at several billion dollars per year. By the late 1990s, "60-70 percent of the membership of the Society for American Archaeology (SAA), and the Society for Historical Archaeology are engaged in cultural resources management." (SAA Bulletin 1997:20). An inventory of job listings on the SAA website during summer 2007 reveals that 82 percent of the advertised positions are in private or government sector CRM. In Utah there are more than 50 private companies holding archaeological permits, with 18 firms maintaining offices in the state. The Utah Division of State History reports that more than 1,700 archaeological field projects are conducted in the state each year. CRM is a thriving industry looking for qualified individuals, and the MS program in Anthropology at USU is specifically designed to provide the training and degree qualifications sought after by employers in both the public and private sectors.

## Sociology, Social Work and Anthropology Faculty

### Professors

*Stan L. Albrecht*, President of Utah State University, environmental sociology, rural sociology, health studies  
*John C. Allen*, rural development, natural resource sociology, survey research methods  
*E. Helen "Eddy" Berry*, demography, ecology, methods, urban  
*Raymond T. Coward*, Provost of Utah State University; social gerontology, health care delivery, rural sociology  
*Steven E. Daniels*, rural development, natural resource policy  
*Susan E. Dawson*, occupational and environmental health  
*H. Reed Geertsen*, community, sociological theory, medical  
*Bonnie Glass-Coffin*, medical anthropology, shamanism, Latin America, applied anthropology, method and theory  
*Richard S. Krannich*, environmental, community, and rural sociology; research methods  
*Patricia M. Lambert*, biological anthropology, bioarchaeology, paleopathology  
*David F. Lancy*, educational anthropology, ethnography

*Jon R. Moris*, applied anthropology, rural development, contemporary Africa  
*Steven R. Simms*, archaeology, anthropological theory, behavioral ecology  
*Michael B. Toney*, demography, ecology

### Adjunct Professors

*Gil-Sung Park*, economic sociology  
*Douglas N. Sharon*, cultural anthropology  
*Joseph A. Tainter*, environmental anthropology, sustainability

### Professors Emeritus

*H. Bruce Bylund*, social change, methods  
*Richley H. Crapo*, religion, sex, and gender; sexuality and homosexuality  
*Gordon N. Keller*, comparative kinship, applied anthropology  
*Yun Kim*, demography, development, quantitative methodology  
*Ronald L. Little*, environmental sociology, rural, quantitative methodology  
*Gary E. Madsen*, methods, environmental risk  
*Wesley T. Maughan*, community organization, sociology of education  
*Bradley W. Parlin*, comparative sociology of work  
*Pamela J. Riley*, social psychology, international development, criminology, gender  
*David L. Rogers*, complex organizations, political sociology, communities  
*William F. Stinner*, social demography, life course, community

### Associate Professors

*M. Diane Calloway-Graham*, women's development, women's clinical and societal issues, social work theory  
*Douglas B. Jackson-Smith*, sociology of agriculture, natural resources and environment, research methods, economic sociology  
*Terry L. Peak*, social policy, health care, gerontology  
*Bonnie L. Pitblado*, archaeology, lithics, peopling of the New World, museum studies

### Clinical Associate Professor

*Derrick Tollefson*, MSW Program Coordinator, child welfare, family violence, research methods

### Adjunct Associate Professor

*Joanna L. Endter-Wada*, cultural anthropology and natural resource policy and sociology

### Assistant Professors

*Carol M. Albrecht*, educational attainment, research methods, social justice  
*Christy Glass*, comparative sociology, work and labor markets, inequality  
*Kelly H. Hardwick*, criminology, deviance, theory, methods  
*Maki Hatanaka*, sociology of development, globalization, food and agriculture, social movements  
*Emily L. Jones*, zooarchaeology, subsistence change, evolutionary ecology, environmental anthropology  
*David C. Kondrat*, mental health, research methods, social justice  
*Susan E. Mannon*, social inequality, sociology of development, gender  
*Sandra T. Marquart-Pyatt*, environmental sociology, political sociology, methods  
*Christopher T. Morgan*, archaeology, hunter-gatherers, evolutionary ecology, cultural geography, lithics  
*Peggy Petrzalka*, environmental sociology, rural sociology, social change and development  
*Eric Reither*, demography, health

# Department of Sociology, Social Work and Anthropology

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## **Clinical Assistant Professors**

*Shannon T. Browne*, Assistant Practicum Director, child welfare, generalist practice

*Sean H. Camp*, foster care, adoption, gay and lesbian issues

*Susan C. Egbert*, child welfare, foster care, adoption

*LaShawn C. Schultz*, criminal justice, diversity, social justice

## **Adjunct Assistant Professors**

*Nazih T. Al-Rashid*, sociology of work

*Krista Lynn Minnotte*, family sociology, gender

## **Lecturer**

*Jason Leiker*, criminology and juvenile delinquency

## **Course Descriptions**

Sociology (SOC), pages 652-655

Social Work (SW), pages 665-667

Anthropology (ANTH), pages 496-499

# Department of Special Education and Rehabilitation

**Department Head:** Benjamin Lignugaris/Kraft  
**Location:** Emma Eccles Jones Education 313A  
**Phone:** (435) 797-2382  
**FAX:** (435) 797-3572  
**E-mail:** ben.lig@usu.edu  
**WWW:** http://sped.usu.edu

## Graduate Program Coordinators:

### Special Education Master's Programs:

Charles L. Salzberg, Education 326, (435) 797-3234,  
c.salzberg@usu.edu

### Rehabilitation Counseling Program:

Julie F. Smart, Education 322, (435) 797-3269, julie.smart@usu.edu

### Doctoral Program:

Timothy A. Slocum, Education 314, (435) 797-3212,  
tim.slocum@usu.edu

## Multi-university Consortium in Sensory Impairments Coordinator:

Judith M. Holt, Center for Persons with Disabilities 196,  
(435) 797-7157, judith@cpd2.usu.edu

## Advising:

### Advising and Student Teaching Coordinator:

Darcie L. Peterson, Education 371, (435) 797-3252,  
darcie.peterson@usu.edu

### Advisor:

Becky Morgan, Education 376, (435) 797-7575,  
becky.morgan@usu.edu

### Distance Education and Extension Program Coordinator:

Nancy K. Glomb, Education 327, (435) 797-3911,  
nancy.glomb@usu.edu

**Degrees offered:** Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), Master of Education (MEd), and Educational Specialist (EdS) in Special Education; Master of Rehabilitation Counseling (MRC); Doctor of Philosophy (PhD) in Disability Disciplines. The Special Education and Rehabilitation Department participates in the Doctorate of Education (EdD) administered by the School of Teacher Education and Leadership (TEAL).

**Undergraduate emphases:** BS, BA—Mild/Moderate Disabilities, Severe Disabilities, Early Childhood Special Education

**Graduate specializations:** MEd, MS, EdS—Behavioral Disorders, Early Childhood Special Education, Mild/Moderate Disabilities, Severe Disabilities, Transitional/Special Education; PhD—Special Education, Applied Behavior Analysis with Individuals with Disabilities, Rehabilitation Counseling, Disabilities Studies, Speech-Language Pathology

**Licensure** is available for teachers in early childhood special education, mild/moderate disabilities, and severe disabilities. At the postbachelor's level, licensure is available for teachers in vision and hearing impairments. A Special Education composite licensure program is available with the Elementary Education Program in the School of Teacher Education and Leadership (TEAL). A dual licensure program is available with secondary education content majors in the School of TEAL.

## Undergraduate Programs

### Objectives

The undergraduate programs in the Department of Special Education and Rehabilitation offer educational and training opportunities for teachers and support personnel working with exceptional children and adults with disabilities. The programs prepare students to work with individuals with mild/moderate and severe disabilities and with early childhood special education. Students who are majoring in other teaching fields (i.e., elementary education, secondary education) are encouraged to pursue a second certification by taking those courses which lead to a special education license. Teacher education programs in the department are accredited by the State of Utah. These programs are also approved candidate members of the Teacher Education Accreditation Council (TEAL).

### Areas of Emphasis

The Department of Special Education and Rehabilitation offers training programs for individuals who want to work with children and adults with disabilities. A student fulfilling the undergraduate course requirements will qualify for a BS or BA degree in special education and be eligible for a license to teach students with mild/moderate disabilities, students with severe disabilities, or young children with disabilities. The severe and mild/moderate endorsements allow graduates to teach pupils with disabilities from kindergarten through 12th grades. The early childhood special education license allows graduates to teach children with disabilities from birth to five years old. In addition, the department offers composite teaching majors with the Elementary Education Program and dual teaching majors with the Secondary Education Program, both of which are part of the School of TEAL. Students completing the dual major requirements in secondary education will be eligible for teacher licensure in one of the special education endorsement areas and the secondary education content major. Students completing the composite major requirements in elementary education will be eligible for teacher licensure in one of the special education endorsement areas and elementary education. Students interested in teaching preschool children with disabilities may receive an early childhood special education license for ages 0-5, in addition to a K-12 special education endorsement in severe or mild/moderate disabilities. A Birth to Age 3 minor is available for Family, Consumer, and Human Development majors.

## Requirements

### Admission Requirements

Students are admitted to the Department of Special Education and Rehabilitation as Pre-Special Education majors by meeting the Utah State University minimum requirements (see pages 30-35). To become a Special Education major, a student must make written application to the department after meeting the following prerequisites:

(1) completion of at least 40 attempted semester credits with a cumulative GPA of 2.75 or higher; (2) completion of admission requirements to the Emma Eccles Jones College of Education and Human Services Teacher Education Program (see page 128); (3) passing scores on all six Computer and Information Literacy (CIL) exams; and (4) passing score on Special Education Math exam. Students should apply to the department during fall semester of their sophomore year (October 1 deadline). Admission to the department is competitive based on several factors. These include: (1) the student's current GPA; (2) the number of credit hours completed by the end of fall semester; (3) completion of premajor classes (such as STAT 1040 and FCHD 1500); and (4) the student's career goals and experiences.



# Department of Special Education and Rehabilitation

## GPA Requirement

A minimum GPA of 2.75 is required to apply for admission, to remain in good standing, and to graduate from the program. All required special education classes must be completed with a grade of C or better.

## Bachelor's Degree in Special Education

Undergraduate study leads to the Bachelor of Science or Bachelor of Arts degree in Special Education with licensure to teach students with mild/moderate disabilities, severe disabilities, or early childhood special education. The degree requires a total of **120 credits**. The requirements are as follows:

### A. University Studies Requirements

Competency Requirements (9-13 credits), Breadth Requirements (21 credits), and Depth Education Requirements (5 courses). For more information, see pages 67-75.

### B. Professional Education Requirements (16-20 credits)

<b>FCHD 1500 (BSS)</b> Human Development Across the Lifespan (F,Sp) (3 cr) or	
<b>PSY 1100</b> Developmental Psychology: Infancy and Childhood (F,Sp) (3 cr)	3
<b>SPED 4000</b> Education of Exceptional Individuals (F,Sp,Su)	2
<b>SPED 5530</b> Technology for Teaching Exceptional Learners (Sp)	3
<b>PSY 3660</b> Educational Psychology for Teachers (Sp)	2
<b>ELED 3000 (CI)</b> Foundation Studies and Practicum in Teaching and Classroom Management Level II (Sp)	6
<b>FCHD 2600</b> Seminar in Early Childhood Education (Sp)	(2)
<b>FCHD 2630</b> Practicum in Early Childhood Education (Sp)	(2)

(FCHD 2600 and 2630 are required *only* for students completing the Birth to Age 5 Certificate)

### C. Special Education Major (42-60 credits)

Coursework includes: human growth and development; applied behavior analysis; introduction to systematic instruction (task analysis, curriculum-based measurement, behavioral objectives, contingent reinforcement); designing curriculum; Individualized Educational Programs (IEP); educational assessment, analysis, and adaptation of instructional materials; intervention strategies for academic and social behaviors; and parent involvement. Additionally, each endorsement area includes practicum work with exceptional children or youth. Finally, all students must complete student teaching with students with disabilities. Most of the Special Education courses are presented in a hybrid format. Hybrid is a combination of live (face-to-face) classes and online classes. Courses vary in terms of how much content is online. For example, students may attend class every other week, and during the in-between weeks complete work using an online tool (e.g., Blackboard).

### D. Teaching Support (15 credits)

The support area is designed to enhance the Special Education major's background. Areas recommended include communicative disorders, psychology, sociology, family and human development, recreation, and physical education. Students are encouraged to take courses which will prepare them for the PRAXIS exam.

### E. Electives (7-20 credits)

## Endorsement Areas

Students are required to complete the **Mild/Moderate Disabilities Endorsement**, the **Severe Disabilities Endorsement**, or the **Birth to Age 5 Certificate**.<sup>1</sup>

The following courses are required for the special education training programs. A minimum grade point average of 2.75 is required for admission to the endorsement courses. Most of the courses should be taken during the junior year. Students enrolled in the endorsement programs are required to maintain a GPA of at least 2.75. Students are required to earn a grade of C or better in *all* teacher licensure courses. Students must retake any licensure course for which a grade of less than a C was received. Each student will be allowed to repeat a *maximum of only one* didactic, practica, or student teaching course.

## Mild/Moderate Disabilities Endorsement (48 credits)

<b>SPED 5010 (QI)</b> Applied Behavioral Analysis 1: Principles, Assessment, and Analysis (F)	3
<b>SPED 5040</b> Foundations of Effective Assessment and Instructional Practices (F)	3
<b>SPED 5050</b> Applied Behavioral Analysis 2: Applications (Sp)	3
<b>SPED 5060</b> Consulting with Parents and Teachers (Sp)	3
<b>SPED 5070</b> Policies and Procedures in Special Education (F)	3
<b>SPED 5200 (CI)<sup>2</sup></b> Student Teaching in Special Education (F or Sp)	15
<b>SPED 5310</b> Teaching Reading and Language Arts to Students with Mild/Moderate Disabilities (F)	4
<b>SPED 5320</b> Teaching Content Areas and Transition to Students with Mild/Moderate Disabilities (Sp)	3
<b>SPED 5330</b> Eligibility Assessment for Students with Mild/Moderate Disabilities (F)	1
<b>SPED 5340</b> Teaching Math to Students with Mild/Moderate Disabilities (Sp)	3
<b>SPED 5410</b> Practicum: Direct Instruction Reading and Language Arts for Students with Mild/Moderate Disabilities (F)	3
<b>SPED 5420</b> Practicum: Teaching Mathematics to Students with Mild/Moderate Disabilities (Sp)	4

## Severe Disabilities Endorsement (45 credits)

<b>SPED 5010 (QI)</b> Applied Behavioral Analysis 1: Principles, Assessment, and Analysis (F)	3
<b>SPED 5040</b> Foundations of Effective Assessment and Instructional Practices (F)	3
<b>SPED 5050</b> Applied Behavioral Analysis 2: Applications (Sp)	3
<b>SPED 5060</b> Consulting with Parents and Teachers (Sp)	3
<b>SPED 5070</b> Policies and Procedures in Special Education (F)	3
<b>SPED 5200 (CI)<sup>2</sup></b> Student Teaching in Special Education (F or Sp)	15
<b>SPED 5510</b> Curriculum for Students with Severe Disabilities (F)	4
<b>SPED 5520</b> Curriculum for Secondary-Level Students with Severe Disabilities (Sp)	3
<b>SPED 5540</b> Assessment of Persons with Severe Disabilities (Sp)	1
<b>SPED 5600</b> Practicum: Introduction to Instruction of Students with Severe Disabilities (F)	3
<b>SPED 5610</b> Practicum: Advanced Systematic Instruction of Students with Severe Disabilities (Sp)	4

## Birth to Age 5 Certificate (46 credits)

Students who are completing this certificate in addition to the Mild/Moderate Disabilities Endorsement or the Severe Disabilities Endorsement will need to complete only those courses which they have not already taken under their endorsement.<sup>3</sup>

<b>SPED 5010 (QI)</b> Applied Behavioral Analysis 1: Principles, Assessment, and Analysis (F)	3
<b>SPED 5040</b> Foundations of Effective Assessment and Instructional Practices (F)	3
<b>SPED 5050</b> Applied Behavioral Analysis 2: Applications (Sp)	3
<b>SPED 5060</b> Consulting with Parents and Teachers (Sp)	3
<b>SPED 5070</b> Policies and Procedures in Special Education (F)	3
<b>SPED 5200 (CI)<sup>2</sup></b> Student Teaching in Special Education (F or Sp)	15

# Department of Special Education and Rehabilitation

<b>SPED 5710</b> Young Children with Disabilities: Characteristics and Services (Sp).....	3
<b>SPED 5730</b> Intervention Strategies for Young Children with Disabilities (F).....	3
<b>SPED 5810</b> Seminar and Field Experiences with Infants and Families (Sp).....	4
<b>SPED 5820</b> Preschool Practicum with Young Children with Disabilities in Community Environments (F).....	4
<b>SPED 5840</b> Seminar: Preschool Practicum with Young Children with Disabilities (F).....	2

<sup>1</sup>After acceptance to the Special Education major and before beginning the practica, students are required to complete a background check for conviction of violating any law (except traffic violations).

<sup>2</sup>SPED 5200 should be taken during the senior year.

<sup>3</sup>Students working toward the Birth to Age 5 Certificate are encouraged to complete either the mild/moderate disabilities endorsement or the severe disabilities endorsement, as well as courses included in the Birth to Age 5 Certificate. For additional information, see the special education advisor.

## Suggested Four-year Plans

Suggested semester-by-semester four-year plans for students working toward bachelor's degrees offered through the Department of Special Education and Rehabilitation can be found at:

<http://www.usu.edu/degreepans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Assessment and Accreditation

Information about assessment within the Department of Special Education and Rehabilitation, as well as information about TEAL and CORE accreditation, can be found at:

<http://sped.usu.edu/assessment/>

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## Additional Information

For more information concerning Bachelor of Science or Bachelor of Arts requirements and the sequence in which courses should be taken, see major requirement sheets available from the Department of Special Education and Rehabilitation (Education 313) or the Special Education Advising Office (Education 371). Requirement sheets can also be accessed online at: <http://www.usu.edu/majorsheets/>

## Financial Support

Scholarships, assistantships, grants-in-aid, and work-study programs are available through the University. In addition, there are some endowed scholarships available through the department and, sometimes, there are stipends available from federal grants.

## Graduate Programs

### Admission Requirements

Admission decisions are made by the department's Graduate Program Committee. Admission requirements are based upon those of the School of Graduate Studies (see pages 36-37). In addition, the committee considers experience, academic record and curriculum, formal recommendations, and test scores. Special Education master's and doctoral program admission requires GRE scores. Rehabilitation Counseling master's program admission requires GRE or MAT scores. Students applying for admission to special education graduate programs, who do not have an undergraduate special education background, may be required to complete selected undergraduate courses prior to admission as fully-matriculated graduate students.

Deadlines for application to the Special Education master's program and the Rehabilitation Counseling master's program are March 15, June 15, and October 15. The deadline for application to the Disabilities Disciplines Doctoral program is February 1. Only complete files will be reviewed. Applications received after these dates will be considered, but opportunities for financial assistance may be limited. No applications will be considered until all required information arrives at the School of Graduate Studies office.

### Teaching Licenses

The department prepares students for licensure as teachers of students with mild/moderate disabilities, students with severe disabilities, and preschool-age students with disabilities. Licensure may also be obtained in visual and/or hearing impairments through a multi-university consortium program. Licensure may be obtained as part of the graduate degree program or without a graduate degree.

## Degree Programs

### Master of Science in Special Education (MS)

The Master of Science degree program is designed for persons who desire to improve their teaching skills and who are contemplating an advanced degree beyond a master's degree. Generally, MS theses differ from MEd creative projects in that they involve experimental research. That is, a study is designed to determine the relationship between an independent variable (i.e., an intervention or treatment) and a dependent variable (i.e., a target behavior). The intent of such research is to contribute knowledge to the field of special education. A minimum of 36 credits, including a thesis, is required for the MS degree.

### Master of Education in Special Education (MEd)

The Master of Education degree program is designed for persons who desire a graduate program that will help them improve their competencies as educators. This includes school personnel, as well as individuals who are involved in education-related activities across a variety of community, work, and clinical settings. The MEd

# Department of Special Education and Rehabilitation

degree focuses on refining school practices in terms of instruction and management practices, legal requirements, and professional collaboration. All candidates must complete a creative project. A minimum of 36 credits, including a creative project, is required for the MEd degree. Students may obtain an endorsement in Education Administration with their MEd program.

## Master of Rehabilitation Counseling (MRC)

The Master of Rehabilitation Counseling prepares persons with the basic competencies to provide rehabilitation counseling to individuals with a broad range of disabilities in a variety of settings, such as state rehabilitation agencies, independent living centers, rehabilitation hospitals, private rehabilitation facilities and agencies, employment assistance programs, and private industry. The degree is a 52-credit program consistent with the requirements of the Council on Rehabilitation Education (CORE). The Rehabilitation Counseling Program has a limited number of scholarships funded through the U.S. Department of Education, Rehabilitation Services Administration. These scholarships require a postgraduate commitment to work for a not-for-profit agency serving the needs of individuals with disabilities for two years for every year of scholarship received.

### Mission

The mission of the Master of Rehabilitation Counseling program is to promote quality rehabilitation services for individuals with disabilities through the education of rehabilitation professionals, provision of rehabilitation continuing education, and through research related to rehabilitation.

### Objectives

Program objectives include:

1. Preparation of master's level counselors,
2. Promotion of the code of Professional Ethics, and
3. Advancement of the basic philosophical tenets of rehabilitation, including the value and worth of all individuals, a belief in human dignity, and the right of all persons to fully participate in society.

## Educational Specialist Program (EdS)

The educational specialist degree is designed for advanced graduate students seeking instruction beyond a master's degree. Programs are individually planned to address specific student needs. Completion of the EdS program is based on completion of required coursework, submission of a research proposal to a supervisory committee, and satisfactory defense of the research project.

## Doctor of Philosophy in Disability Disciplines (PhD)

The PhD program prepares leadership personnel for positions in research and personnel preparation in the areas of special education, rehabilitation, applied behavior analysis, disabilities studies, and speech-language pathology. The PhD program is designed to develop students' competence in (1) mastery of the theoretical and applied content underlying provision of appropriate educational and other services for persons with disabilities; (2) ability to conduct independent research; and (3) ability to conduct effective personnel preparation, including teaching audiences with varying levels of sophistication and expertise, and supervising the delivery of special education services, rehabilitation services, and speech-language pathology.

## Doctorate of Education (EdD)

The department participates in the Doctorate of Education (EdD) degree program administered by the School of Teacher Education and Leadership (TEAL). The general purpose of the special education emphasis area of the EdD program is to prepare leadership personnel for positions in administration, supervision, curriculum development, and teacher training. For information about admission requirements, procedures to follow, and research sponsored, as well as other information, see pages 234-235 of this catalog.

## Financial Assistance

Scholarships, teaching assistantships, and research assistantships are available for qualified doctoral students. Scholarships are also available to qualified students in the Master of Rehabilitation Counseling program.

## Additional Information

For additional information regarding the Special Education and Rehabilitation graduate programs, check the departmental website at: <http://sped.usu.edu>

## Special Education and Rehabilitation Faculty

### Professors

*Benjamin Lignugaris/Kraft*, personnel preparation, secondary special education, social/vocational skill training, behavioral analysis, instructional design and program development

*Robert L. Morgan*, behavior analysis/transition

*Charles L. Salzberg*, applied behavioral analysis, single-subject research design, research on teacher training, employment preparation for persons with disabilities, video assisted training programs, paraeducator training, and students with disabilities in higher education

*Julie F. Smart*, rehabilitation counseling, disability studies, Hispanics with disabilities, Spanish translation of rehabilitation instruments, multicultural rehabilitation

*Richard P. West*, behavior analysis in education, computer-based decision making, parent training, school organization and administration

### Adjunct Professors

*Ron Gillam*, language development, language assessment and intervention, narrative development, memory, phonological representation

*Stephanie Peterson*, applied behavior analysis, problem behavior, functional analysis, choice making, concurrent operants, functional communication training, teacher training, developmental disabilities

### Professors Emeritus

*Garth M. Eldredge*, rehabilitation counseling

*Alan M. Hofmeister*, technology, school reform, reading and math instruction

*Sarah Rule*, early intervention, developmental disabilities, technology and teacher education

### Associate Professors

*Thomas S. Higbee*, early childhood, severe disabilities, autism

*Judith M. Holt*, early childhood and visually impaired

*Ronda R. Menlove*, special education, educational leadership, special education law, distance education

# Department of Special Education and Rehabilitation

*Timothy A. Slocum*, reading, mild/moderate disabilities, behavior analysis, research methods

## **Research Associate Professor**

*Marilyn Likins*, paraeducators, mild/moderate disabilities, alternative teacher preparation

## **Adjunct Associate Professor**

*Daniel P. Morgan*, behavior disorders, social skills, legal issues in special education, personnel development in special education

## **Associate Professors Emeritus**

*Hyrum S. Henderson*, teacher training

*Devoe C. Rickert*, vocational training

## **Assistant Professors**

*Sarah Bloom*, applied behavior analysis, functional analysis of severe behavior disorders, assessment and treatment of problem behavior, verbal behavior, early childhood, single-subject research design

*Nancy K. Glomb*, mild/moderate disabilities, distance education

*Thomas S. Higbee*, early childhood, severe disabilities, autism

*Alan Lott*, rehabilitation counseling

*Jared Schultz*, rehabilitation counseling

## **Research Assistant Professors**

*Michael J. Millington*, rehabilitation counseling

*Cynthia J. Rowland*, distance education, speech and language development, naturalistic instructional methods, early literacy, assistive technology

*Andrew Samaha*, functional assessment, descriptive analysis, caregiver training, autism, translational research, and treatment fidelity

## **Adjunct Assistant Professors**

*Melina Alexander*, mild/moderate special education, math education, distance education

*Martin E. Blair*, special education policy, assistive technology, disability policy research, disability and health

*Norman Corson*, job placement of persons with disabilities

*Janice Neibaur Day*, educational issues for children with visual impairments including early literacy, family issues and needs, and assistive technology

*David E. Forbush*, mild/moderate disabilities, reading, behavior analysis in schools, assessment, educational systems change, educational leadership

*Karen T. Kowalski*, special education law, behavior, issues in social justice

*Julie Landeen*, legal issues in special education, special education administration

*Martell Menlove*, special education administration

*Lowell K. Oswald*, response to intervention, behavior and emotional problems in school settings, assistive technology, school district administration

*Randy Schelble*, mild/moderate disabilities

*Bruce Schroeder*, collaboration, special education administration, special education personnel development

## **Clinical Instructors**

*Barbara J. Fiechtl*, preschool and infant service delivery

*Tami W. Pyfer*, severe and preschool special education, development

*Kimberly H. Snow*, curriculum development

## **Adjunct Clinical Instructors**

*Kirk Allen*, emotionally disturbed, special education administration

*Deanna Avis*, paraeducators, curriculum and assessment

*Deb Bowen*, vocational rehabilitation and transition

*Alma Brown*, classroom/behavior management and emotional behavior disorders, effective classroom instruction

*Marlene Deer*, preschool special education, naturalistic instruction disorders, effective classroom instruction

*Cindy Myers*, moderate and severe disabilities, alternative teacher preparation

*Lois Naegele*, American Sign language, deaf culture, rehabilitation counseling

*Tammy Pettigrew*, mild/moderate disabilities, direct instruction, new special education teacher induction, effective classroom instruction/classroom management

## **Adjunct Lecturers**

*Gayle Baker*, severe disabilities

*Glenn Dyke*, behavior disorders, mild/moderate disabilities

*Jeri Rigby*, mild/moderate disabilities

## **Clinical Instructor Emeritus**

*Joan F. Forsgren-White*

## **Course Descriptions**

Special Education (SPED), pages 658-663

Rehabilitation Counseling (REH), pages 648-650

# Department of Theatre Arts

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## Undergraduate Advisors:

### General Theatre Arts Studies Program:

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### Theatre Design and Technology Emphasis:

Bruce L. Duerden (light design, tech), Fine Arts Center 148,  
(435) 797-3026, bruce.duerden@usu.edu

Shawn Fisher (set design), Fine Arts Center 139D, (435) 797-2120,  
shawn.fisher@usu.edu

Dennis Hassan (set design), Fine Arts Center 138, (435) 797-3024,  
dennis.hassan@usu.edu

Nancy E. Hills (costume design), Fine Arts Center 229A,  
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### Acting Emphasis:

Kevin Doyle, Fine Arts Center 139A, (435) 797-3022,  
kevin.doyle@usu.edu

Lynda Linford, Fine Arts Center 226A, (435) 797-3050,  
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Adrienne Moore, Fine Arts Center 230, (435) 797-3023,  
adrienne.moore@usu.edu

### Theatre Education Emphasis:

Robbin C. Black, University Reserve 125, (435) 797-0087,  
robbin.black@usu.edu

### Graduate Program Coordinator:

Shawn W. Fisher, Fine Arts Center 139D, (435) 797-2120,  
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**Degrees offered:** Bachelor of Arts (BA), Bachelor of Fine Arts (BFA),  
Master of Arts (MA), and Master of Fine Arts (MFA) in Theatre Arts

**Undergraduate programs:** *BA*—General Theatre Arts Studies  
(History and Dramatic Literature); *BFA*—Acting; Theatre Design and  
Technology (costume design, lighting design, scenic design, stage  
management, theatre technology); and Theatre Education

**Graduate specializations:** *MFA*—Advanced Technical Practice,  
Design (scenery, costume, lighting)

## Undergraduate Programs

### Objectives

The primary mission of the Department of Theatre Arts is to offer a flexible program with the following objectives:

1. To prepare students for professional work in performance, various types of theatre design, and technical practice with producing theatre organizations;

2. To prepare students for advanced study and training;
3. To prepare students for careers as theatre instructors in secondary schools and to provide service courses in support of the language arts curriculum of the State of Utah for elementary education majors;
4. To sponsor public performances in which students can practice the art and craft of theatre and interpretive/narrative performance. These productions enhance the cultural life of the University community and region;
5. To teach appreciation and service courses contributing to the University Studies Program.

### Production Groups and Theatres

The Theatre Arts Department sponsors the following production groups and divisions: Utah State Theatre, Old Lyric Repertory Company (summer), Studio/Conservatory Stage Series, and Utah State Children's Theatre. Facilities used for performances by these groups include the 660-seat thrust stage Morgan Theatre in the Chase Fine Arts Center, the 370-seat proscenium Caine Lyric Theatre in downtown Logan, and a flexible 90-seat Studio Stage. Facilities also include a costume shop, scenery shop, sound studio, design studio, dance and movement laboratory, and storage areas.

## Requirements

### Departmental Admission and Scholarship Requirements

Admission requirements are the same as those described for the University on pages 30-35. Students in good standing may apply for admission or transfer to the program. Students wishing to transfer into the department must first meet with and be officially accepted by the department head, and must have a minimum 2.75 GPA (on a scale of 4.0) regardless of credit amount transferred. Students are encouraged to declare a theatre arts major early and consult an advisor early in the semester, as the professional BFA degree requires a minimum of three full years to complete. All students enter the department as BA degree majors. Admission to specialized BFA programs by audition, interview, or portfolio review, subsequent to admission to the department, is explained below. Students must maintain an average 2.75 minimum GPA in all theatre classes required for graduation. No grade of less than a *B-* is accepted in any required theatre class, and no required classes, regardless of department, may be taken on a pass-fail basis.

### Required Core Courses (15 credits)

All Theatre Arts majors are required to complete the following core courses. (**Note:** Courses may not be taught during every semester listed.)

<b>THEA 1033</b> Beginning Acting (F,Sp) .....	3
<b>THEA 1513</b> Stage and Costume Crafts (F,Sp).....	3
<b>THEA 1713</b> Introduction to Playscript Analysis (F,Sp).....	3
<b>THEA 2410</b> Directing (F,Sp) .....	3
<b>THEA 3230 (CI)</b> Survey of Western Theatre (F) .....	3

In addition, all students must complete a minimum of 6 credits of production practicum work:

### Required Practicum Courses (6 credits)

Theatre Arts major and minor students are expected to work on all Utah State Theatre productions. All Theatre Arts majors are required to complete 6 credits of production practicum. Production work will be assigned based on the needs of productions and to give students a variety of practical experience. Lower-division students register for

# Department of Theatre Arts

THEA 2555/2556, while upper-division students register for THEA 4750/4850. Students should register for one production practicum each semester, except for the semesters they take THEA 1513 and their Senior Project semester. **Note:** Additional production work is required for some emphasis areas.

THEA 2555/4750/4850 Production Practicum (F,Sp,Su).....	1
THEA 2555/4750/4850 Production Practicum (F,Sp,Su).....	1
THEA 2555/4750/4850 Production Practicum (F,Sp,Su).....	1
THEA 2555/4750/4850 Production Practicum (F,Sp,Su).....	1
THEA 2555/4750/4850 Production Practicum (F,Sp,Su).....	1
THEA 2556/4750/4850 Production Run Crew (F,Sp,Su).....	1

Transfer students' transcripts will be evaluated and a prorated production work requirement will be set at the time of admission to the program. Additional production work is required under some degree plans.

## Bachelor of Arts Degree

A Bachelor of Arts degree in the **General Theatre Arts Studies Program** requires 60 credits. Requirements are as follows: core courses and production work (21 credits); performance courses (9 credits); design/technical courses (3 credits); dramatic literature/history courses (15 credits); and a university minor. To obtain a Bachelor of Arts degree, a student must fulfill the language requirement (see pages 76-77). All students declaring a Theatre Arts major are enrolled in the BA program until they audition or interview for one of the BFA tracks. The BA degree is recommended for students interested in pursuing careers in stage directing, especially in a graduate program. In lieu of a senior project, students in this program must select a minor in consultation with their advisor, and fulfill all requirements for the minor selected.

### General Theatre Arts Studies Program (THEA) BA Degree in Theatre Arts (48 credits) (2.75 GPA)

**Minimum GPA for Admission:** 2.75, USU; 2.75, Career  
**Minimum GPA for Graduation:** 2.75, major courses; 2.0, USU; 2.75, Career  
**Minimum Grade Accepted:** B- in all courses required for major and emphasis area

#### Language Requirement (see University graduation requirements)

#### Required Theatre Arts Department Core Courses (15 credits)

#### Required Practicum Courses (6 credits)

#### Required Performance Courses (select 9 credits minimum)

THEA 1113 Beginning Voice (F).....	3
THEA 1430 Movement for Actors I (F,Sp).....	2
THEA 2420 Intermediate Acting: Scene Study (F,Sp).....	3
THEA 2430 Movement for Actors II (F,Sp).....	2
THEA 2440 Introduction to Dance for Theatre: Jazz, Ballet, and Tap (F,Sp).....	2
THEA 2470 Movement: Stage Combat (F,Sp).....	3
THEA 2480 Intermediate Voice for Theatre (Sp).....	3
THEA 2490 Intermediate Acting: Shakespeare (F,Sp).....	3
THEA 2666 Performance Practicum I (F,Sp) (1cr, repeatable) or	
THEA 2667 Performance Practicum II (F,Sp) (1cr, repeatable) or	
THEA 4740 Advanced Performance Practicum I (F,Sp) (1-2 cr, repeatable) or	

THEA 4840 Advanced Performance Practicum II (F,Sp) (1-2 cr, repeatable).....	1-2
THEA 3410 Dance for Theatre: Tap (F,Sp).....	1
THEA 3420 Dance for Theatre: Jazz (F,Sp).....	1
THEA 3440 Dance for Theatre: Ballet (F,Sp).....	1
THEA 5410 Advanced Directing (F,Sp).....	3

#### Required Design Courses (select 3 credits minimum)

THEA 2540 Lighting Design (F,Sp).....	3
THEA 3050 Period Styles/Historic Interiors (F,Sp).....	3
THEA 3510 Scene Design (F,Sp).....	3
THEA 3520 Stage Costume Design (F,Sp).....	3
THEA 3570 Historic Clothing (F,Su).....	3

#### Required Dramatic Literature/History Courses (9 credits)

ENGL 2300 (BHU) Introduction to Shakespeare (F).....	3
THEA 5240 (CI) Contemporary Theatre (F,Sp).....	3
THEA 5290 Special Topics in Theatre History and Literature (F,Sp).....	3

#### Elective Dramatic Literature/History Courses (select 6 credits minimum)

ENGL 4300 Shakespeare (F,Sp).....	3
THEA 5250 Playwriting Company Workshop (F).....	3
THEA 5270 Performance Theory and Criticism (Sp).....	3
THEA 5290 Special Topics in Theatre History and Literature (a different topic than taken for required credit) (F,Sp).....	3

#### Required Minor (12 credits minimum)

Since the study of theatre requires an understanding of many different fields of human endeavor, students majoring in Theatre Arts must select a minor in consultation with their advisor. Students are encouraged to select a minor that will broaden their knowledge of the world and related art disciplines, as well as strengthen their practice of theatre. (See minor department for specific requirements.)

### General Theatre Studies Minor (18 credits) (2.75 GPA)

**Note:** Transcripts will list this minor as Theatre Arts Minor.

The General Theatre Studies Minor is available to all students. Students enrolled in this minor must submit a resume and/or production history of their theatre work to date. Progress will be reviewed on an annual basis.

#### Required Theatre Arts Courses (15 credits)

THEA 1033 Beginning Acting (F,Sp).....	3
THEA 1513 Stage and Costume Crafts (F,Sp).....	3
THEA 1713 Introduction to Playscript Analysis (F,Sp).....	3
THEA 2410 Directing (F,Sp).....	3
THEA 3230 (CI) Survey of Western Theatre (F).....	3

#### Elective Production Courses (3 credits)

Complete three performance or production practicum courses, to be determined in consultation with Theatre Arts advisor.

THEA 2666/4740 Performance Practicum I (F,Sp) (1-2 cr, repeatable) or	
THEA 2667/4840 Performance Practicum II (F,Sp) (1-2 cr, repeatable) or	
THEA 2555/4750 Production Practicum (F,Sp,Su) (1-3 cr, repeatable) or	
THEA 2556 Production Run Crew (F,Sp) (1 cr, repeatable) or	
THEA 4850 Advanced Production Projects (F,Sp,Su) (1-3 cr, repeatable).....	3

# Department of Theatre Arts

## Bachelor of Fine Arts Degree

### Program Entrance Requirements

Students seeking the BFA degree who choose the Acting Emphasis or the Theatre Design and Technology Emphasis will be admitted by audition or an interview and portfolio review. Periodic audition and review will be undertaken to determine good standing in these programs.

This degree is highly recommended for those students desiring more intensive pre-professional training in their selected discipline. Students in these programs also complete a capstone recital or project during their senior year. Inquiries about specific requirements and expectations should be directed to the Theatre Arts Office.

### Acting Emphasis (AE) (77 Credits) (2.75 GPA) BFA Degree in Theatre Arts

**Minimum GPA for Admission:** 2.75, USU; 2.75, Career

**Minimum GPA for Graduation:** 2.75, major courses; 2.75, USU; 2.75, Career

**Minimum Grade Accepted:** *B* in all courses required for the emphasis area and *B-* in all other required courses required for the major

Candidates are accepted into this performance program through an audition and interview conducted by a BFA committee. Freshmen audition during their second semester, and transfer students audition during their first semester. All students *must* be declared Theatre Arts majors to be admitted to the BFA program. Progress and retention in this emphasis is monitored through periodic recitals/auditions before the same body, and students must maintain *B* or better grades in all required performance courses. All students in the Acting Emphasis must perform a recital during their senior year. Transfer students are subject to the same acceptance process and progress review.

Students seeking the BFA degree must work closely with advisors. Most University Studies courses and the core curriculum should be completed before the end of the sophomore year, as training is conducted in a manner adapted from conservatory practice. Individual needs, interests, and goals of the student are taken into consideration for selection of elective courses.

### Required Theatre Arts Department Core Courses (15 credits)

#### Required Practicum Courses (6 credits)

#### Required Performance Courses (21 credits)

THEA 1113 Beginning Voice (F)	3
THEA 1430 Movement for Actors I (F,Sp)	2
THEA 2420 Intermediate Acting: Scene Study (F,Sp)	3
THEA 2440 Introduction to Dance for Theatre: Jazz, Ballet, and Tap (F,Sp)	2
THEA 2480 Intermediate Voice for Theatre (Sp)	3
THEA 2490 Intermediate Acting: Shakespeare (F,Sp)	3

Students must complete 5 credits of performance practicum chosen from any of the following courses:

THEA 2666 Performance Practicum I (F,Sp) (1 cr, repeatable) or	
THEA 2667 Performance Practicum II (F,Sp) (1 cr, repeatable) or	
THEA 4740 Advanced Performance Practicum I (F,Sp) (1-2 cr, repeatable) or	
THEA 4840 Advanced Performance Practicum II (F,Sp) (1-2 cr, repeatable)	5

### Elective Advanced Acting Courses

#### (select 9 credits minimum)

THEA 5400 Advanced Acting: Period Styles I (F,Sp)	3
THEA 5420 Advanced Acting: Period Styles II (F,Sp)	3
THEA 5430 Advanced Acting: Acting for the Camera (F,Sp)	3
THEA 5440 Advanced Acting: Musical Theatre Auditions (F,Sp)	3
THEA 5470 Advanced Acting: Modern Methods (F,Sp)	3

### Elective Movement Courses (select 4 credits minimum)

THEA 2430 Movement for Actors II (F,Sp)	2
THEA 2470 Movement: Stage Combat (F,Sp)	3
THEA 3410 Dance for Theatre: Tap (F,Sp)	1
THEA 3420 Dance for Theatre: Jazz (F,Sp)	1
THEA 3440 Dance for Theatre: Ballet (F,Sp)	1

### Elective Advanced Performance Courses

#### (select 6 credits minimum)

THEA 3450 (DHA) Dialects (F,Sp)	3
THEA 4400 Company Workshop (F,Sp) (repeatable)	3
THEA 4450 Advanced Voice for Theatre (Sp)	3
THEA 5410 Advanced Directing (F,Sp)	3

### Required Design/Technical Course (2 credits)

THEA 1223 Stage Makeup (F,Sp)	2
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### Elective Theatre History/Literature

#### (select 12 credits minimum)

THEA 4250 Playwriting (Sp)	3
THEA 5240 (CI) Contemporary Theatre (F,Sp)	3
THEA 5250 Playwriting Company Workshop (F)	3
THEA 5270 Performance Theory and Criticism (Sp)	3
THEA 5290 Special Topics in Theatre History and Literature (repeatable for credit, if different topics) (F,Sp)	3
ENGL 2300 (BHU) Introduction to Shakespeare (F)	3

### BFA Acting Senior Project Requirements (2 credits)

All BFA Acting Emphasis majors must complete a senior project during their final year. Project material must be submitted in a written proposal to, and be approved by, the BFA performance faculty the semester prior to the project date. Students must be enrolled in THEA 5910 for 2 credits during the semester in which the project is to be presented.

Recitals should be 30-45 minutes in duration and may be individual or combined efforts on the part of not more than two candidates (combined efforts must be approved by the BFA committee). Upon approval of the advisor, an individual performer may recruit no more than two additional performers. Acting students are required to attend all acting senior projects.

### Required Senior Project

THEA 5910 Senior Project (BFA Performance Recital) (F,Sp)	2
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### Theatre Performance Minor (18 credits) (2.75 GPA)

**Note:** Transcripts will list this minor as Theatre Arts Minor.

The Theatre Performance Minor is available to all students. To be accepted, students must interview with a member of the BFA Performance Committee and submit a resume and/or production history of their theatre work to date. Progress will be reviewed on an annual basis.

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## Required Theatre Arts Courses (9 credits)

THEA 1033 Beginning Acting (F,Sp)	3
THEA 1713 Introduction to Playscript Analysis (F,Sp)	3
THEA 2666/4740 Performance Practicum I (F,Sp) (1-2 cr, repeatable) or	
THEA 2667/4840 Performance Practicum II (F,Sp) (1-2 cr, repeatable)	3

## Elective Performance Courses (9 credits)

Complete three or more classes from the BFA Acting Emphasis (AE) course of study, to be determined in consultation with Theatre Arts advisor.

## Theatre Design and Technology Emphasis (TDE) (74-78 credits) (2.75 GPA) BFA Degree in Theatre Arts

**Minimum GPA for Admission:** 2.75, USU; 2.75, Career  
**Minimum GPA for Graduation:** 2.75, major courses; 2.75, USU; 2.75, Career  
**Minimum Grade Accepted:** B in all courses required for the emphasis area and B- in all other required courses required for the major

Candidates are accepted into the design and technology emphasis by interview and review of a portfolio by a BFA committee. All students *must* be declared Theatre Arts majors to be admitted to the BFA program. Progress and retention in this emphasis is monitored by an annual review/interview with the BFA Design Committee. Students must maintain B or better grades in all design/technical courses. All students in the Design/Technical Emphasis must complete a final project during their senior year.

## Required Theatre Arts Department Core Courses (15 credits)

### Required Practicum Courses (6 credits)

### Required Design/Technical Courses (17 credits)

THEA 1223 Stage Makeup (F,Sp)	2
THEA 2540 Lighting Design (F,Sp)	3
THEA 3050 Period Styles/Historic Interiors (F,Sp)	3
THEA 3510 Scene Design (F,Sp)	3
THEA 3520 Stage Costume Design (F,Sp)	3
THEA 3570 Historic Clothing (F,Su)	3

### Required Performance Courses (select 3 credits minimum)

THEA 2420 Intermediate Acting: Scene Study (F,Sp)	3
THEA 2470 Movement: Stage Combat (F,Sp)	3
THEA 2490 Intermediate Acting: Shakespeare (F,Sp)	3
THEA 2666 Performance Practicum I (F,Sp) (repeatable)	1
THEA 2667 Performance Practicum II (F,Sp) (repeatable)	1
THEA 4740 Advanced Performance Practicum I (F,Sp) (repeatable)	1-2
THEA 4840 Advanced Performance Practicum II (F,Sp) (repeatable)	1-2

### Required Dramatic Literature/History Courses (select 6 credits minimum)

THEA/ENGL 4250 Playwriting (Sp)	3
THEA 5240 (C) Contemporary Theatre (F,Sp)	3
THEA 5250 Playwriting Company Workshop (F)	3
THEA 5270 Performance Theory and Criticism (Sp)	3
THEA 5290 Special Topics in Theatre History and Literature (repeatable for credit, if different topics) (F,Sp)	3
ENGL 2300 (BHU) Introduction to Shakespeare (F)	3

## BFA Design and Technology Senior Project Requirements (2 credits)

All students must complete a design/stage management project during their senior year. Students must be enrolled in THEA 5910 for 2 credits during the semester in which the project is presented. All design/project assignments will be chosen in consultation with the student's advisor and approved by the design faculty during the spring semester of the student's junior year.

THEA 5910 Senior Project (F,Sp)	2
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## Specialization Requirements (25-31 credits)

**Note:** Student transcripts will show Theatre Design and Technology Emphasis (TDE) *not* one of the specialized areas listed below.

### Costume Design

Required Theatre Design/Technical Courses (17-20 credits)

ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern (Sp)	3
THEA 2510 Scene Painting (F,Sp)	3
THEA 4520 Advanced Costume Design (F,Sp)	3
THEA 5590 Design Studies for Theatre (F,Sp) (repeatable)	2
THEA 5900 Special Projects I (specialty courses) (F,Sp,Su) (repeatable)	6-9

Required Production Courses (8 credits)

THEA 4750 Advanced Production Practicum: Project in Costume Construction (F,Sp,Su) (repeatable)	1
THEA 4850 Advanced Production Projects: Project in Costume Construction (F,Sp,Su) (repeatable)	1
THEA 5750 Repertory Theatre Production (Su) (2-8 cr, repeatable) or	
THEA 5930 Special Projects III (F,Sp,Su) (1-4 cr, repeatable)	3
THEA 5920 Special Projects II: Assistant Design (F,Sp,Su) (repeatable)	3

Elective Art Courses (select 3 credits minimum)

ART 1010 (BCA) Exploring Art (F)	3
ART 1020 Drawing I (F,Sp)	3
ART 2110 Drawing II (F,Sp)	3
ART 2200 Painting I (F)	3
FCSE 2040 Clothing Production Principles (F,Sp)	3
FCSE 3040 Advanced Clothing Production Principles (F)	3

### Lighting Design

Required Theatre Design/Technical Courses (14 credits)

THEA 2510 Scene Painting (F,Sp)	3
THEA 4540 Advanced Lighting Design (Sp)	3
THEA 5510 Computer-Aided Design for Theatre (F)	3
THEA 5590 Design Studies for Theatre (F,Sp) (repeatable)	2
THEA 5900 Special Projects I (specialty courses) (F,Sp,Su) (1-4 cr, repeatable)	3

Required Production Courses (8 credits)

THEA 4750 Advanced Production Practicum: Project in Lighting (F,Sp,Su) (repeatable)	1
THEA 4850 Advanced Production Projects: Project in Lighting (F,Sp,Su) (repeatable)	1
THEA 5750 Repertory Theatre Production (Su) (2-8 cr, repeatable) or	
THEA 5930 Special Projects III (F,Sp,Su) (1-4 cr, repeatable)	3
THEA 5920 Special Projects II: Assistant Design (F,Sp,Su) (repeatable)	3



# Department of Theatre Arts

Elective Technology Courses (select 6 credits minimum)

<b>ART 1050</b> Introduction to Photography (F) .....	3
<b>ART 2810</b> Photography I (F,Sp) .....	3
<b>ETE 2240</b> Analog Devices and Circuits (F) .....	3
<b>ETE 2300 (QI)</b> Electronic Fundamentals (Sp) .....	4
<b>ETE 2310</b> AC/DC Circuits (Sp) .....	2
<b>ETE 2360</b> Digital Circuits (Sp) .....	3
<b>THEA 2560</b> Theatre and Studio Sound (F,Sp) .....	3
<b>THEA 4480</b> Theatre Leadership and Management (Sp) .....	3

## Scenic Design

Required Theatre Design/Technical Courses (14 credits)

<b>THEA 2510</b> Scene Painting (F,Sp) .....	3
<b>THEA 4510</b> Advanced Scene Design (F,Sp) .....	3
<b>THEA 5510</b> Computer-Aided Design for Theatre (F) .....	3
<b>THEA 5590</b> Design Studies for Theatre (F,Sp) (repeatable) .....	2
<b>THEA 5900</b> Special Projects I (specialty courses) (F,Sp,Su) (1-4 cr, repeatable) .....	3

## Required Production Courses (8 credits)

<b>THEA 4750</b> Advanced Production Practicum: Project in Props, Scene Painting (F,Sp,Su) (repeatable) .....	1
<b>THEA 4850</b> Advanced Production Projects: Project in Props, Scene Painting (F,Sp,Su) (repeatable) .....	1
<b>THEA 5750</b> Repertory Theatre Production (Su) (2-8 cr, repeatable) <b>or</b> <b>THEA 5930</b> Special Projects III (F,Sp,Su) (1-4 cr, repeatable) .....	3
<b>THEA 5920</b> Special Projects II: Assistant Design (F,Sp,Su) (repeatable) .....	3

## Elective Art Courses (select 3-6 credits minimum)

<b>ART 1010 (BCA)</b> Exploring Art (F) .....	3
<b>ART 1020</b> Drawing I (F,Sp) .....	3
<b>ART 2110</b> Drawing II (F,Sp) .....	3
<b>ART 2200</b> Painting I (F) .....	3
<b>ART 2400</b> Computers and Art (F) .....	3

## Stage Management/Technician

Required Theatre Design/Technical Courses (14 credits)

<b>HEP 2000</b> First Aid and Emergency Care (F,Sp,Su) .....	2
(or First Aid and CPR Certification)	
<b>THEA 2510</b> Scene Painting (F,Sp) .....	3
<b>THEA 2550</b> Stage Management (F,Sp) .....	3
<b>THEA 2560</b> Theatre and Studio Sound (F,Sp) .....	3
<b>THEA 5510</b> Computer-Aided Design for Theatre (F) .....	3

## Required Production Courses (8 credits)

<b>THEA 4750</b> Advanced Production Practicum: Project in Props, Run Crew (F,Sp,Su) (repeatable) .....	1
<b>THEA 4850</b> Advanced Production Projects: Project in Props, Run Crew (F,Sp,Su) (repeatable) .....	1
<b>THEA 5750</b> Repertory Theatre Production (Su) (2-8 cr, repeatable) <b>or</b> <b>THEA 5930</b> Special Projects III (F,Sp,Su) (1-4 cr, repeatable) .....	3
<b>THEA 5920</b> Special Projects II: Assistant Stage Management (F,Sp,Su) (repeatable) .....	3

## Elective Courses (select 6 credits minimum)

Students should choose from the electives for their specialization.

## Stage Management Electives:

<b>BUS 3110 (DSS)</b> Management Fundamentals .....	3
<b>MGT 1160</b> Developing Self-Management Skills (F,Sp,Su) .....	1
<b>MGT 2350</b> Small Business Management .....	3
<b>MGT 3110 (DSS)</b> Managing Organizations and People (F,Sp,Su) .....	3
<b>MGT 3710</b> Developing Team and Interpersonal Skills (F,Sp) .....	3

<b>MUSC 1010 (BCA)</b> Introduction to Music (F,Sp,Su) .....	3
<b>MUSC 1100 (BCA)</b> Fundamentals of Music (F,Sp) .....	3
<b>THEA 4480</b> Theatre Leadership and Management (Sp) .....	3

## Technician Electives:

<b>ECE 1000</b> Introduction to Electrical and Computer Engineering (F) .....	2
<b>ECE 2250</b> Electrical Circuits (F,Sp) .....	4
<b>ETE 1040</b> Construction and Estimating (Sp) .....	3
<b>ETE 1200</b> Computer-Aided Drafting and Design (F,Sp) .....	3
<b>ETE 1640</b> Introduction to Welding (F) .....	3
<b>ETE 2850</b> Statics and Strength of Materials (F) .....	3
<b>THEA 5590</b> Design Studies for Theatre (F,Sp) (repeatable) .....	2

## Sound Design

Required Theatre Design/Technical Courses (9 credits)

<b>THEA 2560</b> Theatre and Studio Sound (F,Sp) .....	3
<b>THEA 5510</b> Computer-Aided Design for Theatre (F) .....	3
<b>THEA 5900</b> Special Projects I: Advanced Sound Design (1-4 cr, repeatable) .....	3

## Required Music Courses (6 credits)

<b>MUSC 1010 (BCA)</b> Introduction to Music (F,Sp,Su) .....	3
<b>MUSC 1100 (BCA)</b> Fundamentals of Music (F,Sp) .....	3
(or participation in Music Ensemble)	

## Required Production Courses (8 credits)

<b>THEA 4750</b> Advanced Production Practicum: Project in Sound (F,Sp,Su) (repeatable) .....	1
<b>THEA 4850</b> Advanced Production Projects: Project in Sound (F,Sp,Su) (repeatable) .....	1
<b>THEA 5750</b> Repertory Theatre Production (Su) (2-8 cr, repeatable) <b>or</b> <b>THEA 5930</b> Special Projects III: Project in Theatre (F,Sp,Su) (1-4 cr, repeatable) .....	3
(or Internship)	
<b>THEA 5920</b> Special Projects II: Assistant Design (F,Sp,Su) (repeatable) .....	3

## Elective Courses (select 4 credits minimum)

<b>MUSC 3320</b> Psychology of Music I (Sp) .....	2
<b>MUSC 3360</b> MIDI Studio Techniques (Sp) .....	2
<b>MUSC 3370</b> Sound Recording and Reinforcement Techniques (Sp) .....	2
<b>THEA 1113</b> Beginning Voice (F) .....	3
<b>THEA 2480</b> Intermediate Voice for Theatre (Sp) .....	3
<b>THEA 3450 (DHA)</b> Dialects (F,Sp) .....	3

## Theatre Production Minor (18 credits) (2.75 GPA)

**Note:** Transcripts will list this minor as Theatre Arts Minor.

The Theatre Production Minor is available to all students. Students must interview with a member of the BFA Design Committee and submit a resume and/or production history of their theatre work to date. Coursework will be selected in consultation with student's minor advisor. Progress will be reviewed on an annual basis.

## Required Theatre Arts Courses (9 credits)

<b>THEA 1713</b> Introduction to Playscript Analysis (F,Sp) .....	3
<b>THEA 2410</b> Directing (F,Sp) .....	3
<b>THEA 2555/4750</b> Production Practicum (F,Sp,Su) (1-3 cr, repeatable) .....	3
<b>Or</b>	
<b>THEA 2556</b> Production Run Crew (F,Sp) (1 cr, repeatable) <b>and</b> <b>THEA 4850</b> Advanced Production Projects (F,Sp,Su) (1-3 cr, repeatable) .....	3

# Department of Theatre Arts

## Elective Production Courses (9 credits)

Complete three or more classes from the BFA Theatre Design and Technology Emphasis (TDE) course of study, to be determined in consultation with Theatre Arts advisor.

## Theatre Education Emphasis (79 credits)

### Theatre Courses (44 credits) + STEP (35 credits)

**Minimum GPA for Admission:** 2.75, USU; 2.75, Career  
**Minimum GPA for Graduation:** 2.75, major courses; 2.75, USU; 2.75, Career

**Minimum Grade Accepted:** B- in all courses required for major and emphasis area

Candidates are accepted into the theatre education emphasis by interview and a review of a portfolio by the theatre education committee. Students earning a secondary education license must complete 35 additional credits in the Secondary Teacher Education Program (STEP), as well as an academic teaching minor approved by the Emma Eccles Jones College of Education and Human Services. All majors desiring a teaching license must apply for admission to teacher education. Progress and retention in this emphasis requires a minimum 2.75 GPA for admission to the STEP. All students in the Theatre Education Emphasis must complete a senior project.

### Required Theatre Arts Department Core Courses (15 credits)

#### Theatre Education Courses (6 credits)

THEA 5340 Theatre Production Methods for Educators (Sp)	3
THEA 5360 Drama in the Secondary Education Classroom: Grades 7-12 (Sp)	3

#### Theatre History Courses (select 3 credits)

THEA/ENGL 4250 Playwriting (Sp)	3
THEA 5240 (CI) Contemporary Theatre (F,Sp)	3
THEA 5270 Performance Theory and Criticism (Sp)	3
THEA 5290 Special Topics in Theatre History and Literature (F,Sp)	3
ENGL 2300 (BHU) Introduction to Shakespeare (F)	3
ENGL 4300 Shakespeare (F,Sp)	3

#### Theatre Performance Courses (select 6 credits minimum)

THEA 1030 (BHU) Exploring Performance Through Aesthetic Texts (F,Sp,Su)	3
THEA 1430 Movement for Actors I (F,Sp)	2
THEA 2420 Intermediate Acting: Scene Study (F,Sp)	3
THEA 2430 Movement for Actors II (F,Sp)	2
THEA 2440 Introduction to Dance for Theatre: Jazz, Ballet, and Tap (F,Sp)	2
THEA 2490 Intermediate Acting: Shakespeare (F,Sp)	3
THEA 3410 Dance for Theatre: Tap (F,Sp)	1
THEA 3420 Dance for Theatre: Jazz (F,Sp)	1
THEA 3440 Dance for Theatre: Ballet (F,Sp)	1
THEA 4030 Storytelling (F,Sp,Su)	3
THEA 4400 Company Workshop (F,Sp)	3
THEA 5410 Advanced Directing (F,Sp)	3
THEA 5470 Advanced Acting: Modern Methods (F,Sp)	3

## Theatre Performance Practicum Courses

### (select 2 credits)

THEA 4740 Advanced Performance Practicum I (F,Sp) (1-2 cr, repeatable) or	
THEA 4840 Advanced Performance Practicum II (F,Sp) (1-2 cr, repeatable)	1-2
THEA 5310 Theatre Mentorship and Service (F,Sp,Su) (1-3 cr, repeatable)	1-3

## Theatre Design/Technical Courses

### (select 6 credits minimum)

THEA 1223 Stage Makeup (F,Sp)	2
THEA 2540 Lighting Design (Required) (F,Sp)	3
THEA 2550 Stage Management (F,Sp)	3
THEA 3510 Scene Design (F,Sp)	3
THEA 3520 Stage Costume Design (F,Sp)	3
THEA 4480 Theatre Leadership and Management (Sp)	3

## Theatre Production Practicum Courses (select 6 credits minimum; 3 credits must be upper division)

THEA 2555 Production Practicum (F,Sp,Su) (1 cr, repeatable) or	
THEA 2556 Production Run Crew (F,Sp) (1 cr, repeatable)	1-2
THEA 4750/4850 Advanced Production Practicum (F,Sp,Su) (1-3 cr, repeatable)	1-3

## BFA Theatre Education Senior Project Requirements

During their senior year, students in the Theatre Education emphasis must complete a project approved by their advisor and one additional faculty member. The project may be developed in conjunction with student teaching to be assessed through THEA 5390, Student Teaching Seminar; or must be chosen from one of the following options: (1) a BFA design or technical Senior Project, subject to the same guidelines; (2) a BFA Performance Recital, subject to the same guidelines; or (3) directing a studio one-act play or independent production. Project material must be selected and approved during the spring semester of the junior year, including submission of a written proposal. If the project is *not part of student teaching*, students must be enrolled in THEA 5910 for 2 credits during the semester in which the recital is to be presented. These credits will be *in addition* to the 44 credits required for the Theatre Education emphasis.

## Required Senior Courses

THEA 5390 Student Teaching Seminar (taken in conjunction with STEP Program) (F,Sp)	2
THEA 5910 Senior Project (F,Sp)	2

## Secondary Teacher Education Program (STEP) (35 credits) (2.75 GPA)

The Secondary Teacher Education Program (STEP) prepares and licenses students to teach in public secondary schools. The program consists of three successive semesters of education courses, including THEA 3300 or 4300, THEA 5370, and THEA 5390, culminating in supervised student teaching in both the major and minor subject areas.

The STEP requires admission to the Secondary Education Program of the School of Teacher Education and Leadership (TEAL), Emma Eccles Jones College of Education and Human Services. Information about the program, including admission requirements, approved minor subject areas, and the three-semester course sequence, can be found at the Secondary Education Program website:  
<http://secondaryeducation.usu.edu>

# Department of Theatre Arts

**Minor Teaching Subject Area (Required)**  
**(approximately 20-30 credits, depending on subject)**  
Students must complete a University-approved teaching minor.

## **Theatre Arts Teaching Minor** **(29 credits) (2.75 GPA)**

The Theatre Arts Teaching Minor is an approved teaching minor for Secondary Education students majoring in other subject areas. Students enrolled in this minor must interview with the Theatre Arts Department and submit a portfolio that includes their diverse theatre experiences to date. This portfolio is used for advising purposes, as well as for scholarship consideration. **The portfolio is required for entrance into the STEP Program**, and USOE currently requires a portfolio in lieu of a praxis exam, in order for the student to be considered "highly qualified," according to the "No Child Left Behind" regulations.

### **Required Theatre Arts Department** **Core Courses (15 credits)**

#### **Theatre Education Courses (select 3 credits minimum)**

**THEA 5340** Theatre Production Methods for Educators (Sp) ..... 3  
**THEA 5360** Drama in the Secondary Education Classroom:  
Grades 7-12 (Sp)..... 3

#### **Theatre Performance Practicum** **Courses (select 2 credits)**

**THEA 4740/4840** Advanced Performance Practicum (F,Sp)  
(1-2 cr, repeatable)..... 1-2  
**THEA 5310** Theatre Mentorship and Service (F,Sp,Su)  
(1-3 cr, repeatable)..... 1-3

#### **Theatre Production Practicum Courses** **(select 6 credits minimum; 3 credits must be** **upper division)**

**THEA 2555** Production Practicum (F,Sp,Su) (1 cr, repeatable) or  
**THEA 2556** Production Run Crew (F,Sp) (1 cr, repeatable)..... 1-2  
**THEA 4750** Advanced Production Practicum (F,Sp,Su)  
(1-3 cr, repeatable)..... 1-3

## **Sample Four-year Plans**

Sample semester-by-semester four-year plans for students working toward bachelor's degrees within the Department of Theatre Arts can be found at: <http://www.usu.edu/degreeplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## **Production Responsibilities**

Because the production programs of the department are some of the most important training tools of the discipline, all majors and teaching minors are required to participate in them. A permanent theatre participation record is maintained for each student, and successful completion of crew and performance assignments is a requirement for graduation.

As a capstone experience to their university careers, all majors, *except* those in the General Theatre Arts Studies BA program, are required to complete a project or recital appropriate to their area of emphasis in their senior year.

## **Financial Support**

Scholarships, grants-in-aid, and work-study opportunities are available through the University. In addition, the department offers talent awards and tuition scholarships to its own majors. These are generally for one semester of in-state tuition and may be applied for each semester by continuing students. Several auditions and interviews are scheduled during the year, both on-campus and at regional theatre conferences and festivals. The department offers special work grants through its production program for qualified, skilled students. There are a number of named scholarships awarded to students qualifying under specific conditions. Contact the Theatre Arts Department for more information.

## **Departmental Honors**

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in selected upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and within the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. Minimum GPA requirements for participation in departmental honors vary by department, but usually fall within the range of 3.30-3.50. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level. The campus-wide Honors Program, which is open to all qualified students regardless of major, offers a rich array of cultural and social activities, special classes, and the benefit of Honors early registration. Interested students should contact the Honors Program, Main 15, (435) 797-2715, [honors@usu.edu](mailto:honors@usu.edu). Additional information can be found online at: <http://www.usu.edu/honors/>

## **Additional Information**

Major requirement sheets, which provide detailed information about requirements for undergraduate programs within the Theatre Arts Department, can be obtained from the department, or accessed online at: <http://www.usu.edu/majorsheets/>

## **Graduate Programs**

### **Admission Requirements**

All students making application to the MFA program who cannot audition or interview with a member of the theatre arts faculty must submit a resume and a portfolio with renderings, designs, photographs appropriate to the specialization, and any special letters of reference not included with the formal application to the School of Graduate Studies.

The Miller Analogies Test (MAT) may be substituted for the more standard GRE, although the department does not recommend the MAT for international students.

Students who have received their undergraduate training at other institutions or in a discipline other than theatre will be expected to meet a proficiency equivalent to that of USU Theatre Arts graduates. This may require the student to complete the following minimum 20-credit program, which will not count toward the graduate degree:

# Department of Theatre Arts

<b>THEA 1033</b> Beginning Acting (F,Sp) .....	3
<b>THEA 1513</b> Stage and Costume Crafts (F,Sp) .....	3
<b>THEA 2410</b> Directing (F,Sp) .....	3
<b>THEA 3230 (CI)</b> Survey of Western Theatre (F) .....	3
<b>THEA 4750</b> Advanced Production Practicum (F,Sp,Su) .....	3
Elective Theatre Arts courses in one program area .....	6

The student will be given credit for any equivalent courses taken within seven years prior to the date of admission.

Students accepted into the program must begin during the fall semester. The nature of the discipline and the program require that students maintain a continuous residence at the campus during the first two years of study.

## Master of Arts

The candidate for the 30 (minimum) credit MA degree will normally complete a thesis, but may, with the approval of the supervisory committee, present a thesis alternative Plan B (in this case 36 credits minimum required).

### Required Courses (30 credits)

Requirements are as follows:

<b>THEA 6010</b> Introduction to Graduate Study in Theatre (F) .....	3
<b>THEA 6240</b> Contemporary Theatre (F,Sp) .....	3
<b>THEA 6790</b> Seminar in Drama (Sp) .....	3
<b>THEA 6800</b> Graduate Studies in Theatre: Dramaturgy Project .....	2

Two advanced theatre history or dramatic literature courses selected from the Theatre Arts, English, or Languages, Philosophy, and Speech Communication departments are also required (6 credits).

Students must also complete two 5000- or 6000-level THEA courses, two of which must be in a single area.

Generally, students complete up to 8 thesis credits in THEA 6970. However, under special circumstances, a Plan B option in this program is available, requiring 12 credits of special project work and no more than 3 thesis credits in THEA 6970, for a total of 36 credits minimum.

In addition, the standard language competency of 15 credits in one language is required for the MA degree (see page 117).

## Master of Fine Arts (60 credits minimum)

The candidate for the 60 (minimum) credit MFA must complete the Plan B program, and will undertake from three to four creative projects in the appropriate specialization. Under this plan, the required project reports customarily take the form of production books, journals, or a design or technical portfolio.

The student may specialize in one of the following areas. It is recommended that *both* a primary *and* a secondary emphasis be elected.

**Scenery Design**  
**Costume Design**  
**Lighting Design**  
**Advanced Technical Practice**

The minimum residency is four semesters, including one or two summers in an established repertory or stock company, or equivalent experience. Participation in the department's summer Old Lyric Repertory Company will satisfy this requirement. A *minimum* total of 60 semester credits is required. The nature of the discipline, as well as the resources of the department, discourage credit by extension, large amounts of transfer credit (i.e., in excess of 12 credits), or numerous off-campus projects.

Students who have already earned an MA degree in theatre from an accredited institution will generally be given approximately one academic year of credit toward the MFA degree. To finish the MFA degree, they will then be required to complete a specialized program of approximately 40 credits.

### Required Courses

The program is completed in three phases, and while there may be considerable overlap between them, students undergo formal reviews before advancing to the next phase. The number of semesters given is approximate.

#### I. Entry Phase (approximately two semesters) (19 credits)

##### A. Required Course (3 credits)

<b>THEA 6010</b> Introduction to Graduate Study in Theatre (F) .....	3
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##### B. Advanced Literature Component (select two courses) (6 credits)

<b>THEA 6030</b> Storytelling (F,Sp,Su) .....	3
<b>THEA 6240</b> Contemporary Theatre (F,Sp) .....	3
<b>THEA 6250</b> Playwriting (Sp) .....	3
<b>THEA 6270</b> Performance Theory and Criticism (Sp) .....	3
<b>THEA 6290</b> Special Topics in Theatre History and Literature (F,Sp) .....	3

##### C. Advanced Design Coursework (in areas of specialization) (select 6 credits)

<b>THEA 5510</b> Computer-Aided Design for Theatre (F) .....	3
<b>THEA 5950</b> Rendering and Painting for the Theatre (F,Sp) .....	3
<b>THEA 6480</b> Theatre Leadership and Management (Sp) .....	3
<b>THEA 6510</b> Advanced Scene Design (F,Sp) .....	3
<b>THEA 6540</b> Advanced Lighting Design (Sp) .....	3
<b>THEA 6790</b> Seminar in Drama ( <i>Topics include: Drafting for Theatre, Tailoring, Pattern Drafting, Structural Design for the Stage, Costume Crafts</i> ) (F,Sp) .....	1-4
<b>THEA 6900</b> Research Studies (F,Sp,Su) .....	1-4

##### D. Design Studies (complete 2 credits each semester) (4 credits)

<b>THEA 5590</b> Design Studies for Theatre (F,Sp) .....	4
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During (or upon the completion of) the first semester of this phase, the student will:

1. Submit a petition to advance to the next phase.
2. Nominate an MFA Supervisory Committee of at least three members and submit the list of members to the department head.
3. Identify three projects for the next phase, after consultation with the graduate committee and department head of Utah State Theatre regarding program scheduling for the following season.
4. Develop a study list with the help of the committee, outlining the course of study for the project and culminating phases.

# Department of Theatre Arts

## II. Project Phase (approximately three semesters) (35 credits)

### A. Design Studies (complete 2 credits each semester) (6 credits)

THEA 6590 Design Studies for Theatre (F,Sp).....6

### B. Cognate Skill Coursework (6 credits)

A minimum of two courses is required to develop skills or increase knowledge in a field related to the area of specialization. Courses are subject to approval by the Graduate Study Committee. Students in any of the Design or Advanced Technical Practice specializations will take courses in: art, engineering and technology education, welding, furniture construction or cabinetry, or landscape architecture. Students may petition to take coursework in other disciplines, upon justification of relevance to the course of study.

### C. Advanced Design Coursework (in areas of specialization) (9 credits)

THEA 5510 Computer-Aided Design for Theatre (F) .....	3
THEA 5950 Rendering and Painting for the Theatre (F,Sp) .....	3
THEA 6480 Theatre Leadership and Management (Sp) .....	3
THEA 6510 Advanced Scene Design (F,Sp) .....	3
THEA 6520 Advanced Costume Design (F,Sp) .....	3
THEA 6540 Advanced Lighting Design (Sp) .....	3
THEA 6790 Seminar in Drama ( <i>Topics include: Drafting for Theatre, Tailoring, Pattern Drafting, Structural Design for the Stage, Costume Crafts</i> ) (F,Sp) .....	1-4
THEA 6900 Research Studies (F,Sp,Su) .....	1-4

### D. Graduate Projects in Theatre (9 credits)

THEA 6920 Project in Theatre A .....	3
THEA 6920 Project in Theatre B .....	3
THEA 6920 Project in Theatre C .....	3

### E. Repertory Theatre Performance or Production (4-8 credits)

THEA 6740 or 6750 Old Lyric Repertory Company or its equivalent in a recognized stock or repertory program; a letter of satisfactory performance from the company director should be submitted to the department (repeatable) .....	4-8
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#### Notes:

1. Students may also begin projects while they are still in the Entry Phase, but credit given for projects should include time for assembling and writing up the report, which is **due the following semester**; the supervising instructor will notify the major professor or advisor when this is completed.
2. Planning of the major projects should begin as early as possible in this phase.
3. Qualified major and minor projects should be identified by the faculty each spring, based upon the plays selected for the following season. Graduate students will meet with the faculty or department head to discuss directing, design, or technical assignments; or request a list of such projects by mid-April each year.
4. During (or upon completion of) this phase, the student will:
  - a. Submit a petition to advance to the final phase. The date of this petition will depend upon individual progress.
  - b. Submit proof that projects A, B, and C, as well as the written reports for them, have been completed.

- c. Submit a proposal and/or preliminary work for the major culminating project: renderings, preliminary working drawings, etc.

## Culminating Phase (one semester minimum)

### Required Courses (7 credits)

THEA 6180 Theatre Production Portfolio (Sp) .....	3
THEA 6970 Thesis (F,Sp) .....	4

(Assemble Plan B reports and complete major report in thesis format.)

**Note:** The option to cancel a student project, or to allow work to proceed but disqualify it as an MFA project based upon insufficient preparation or validity, rests with the department's Graduate Study Committee, the student's Supervisory Committee chairperson (advisor), and the Executive Producer of Utah State Theatre. This rule is designed to protect the priorities of the department and the integrity of its productions.

During (or upon completion of) this phase, the student will:

1. Assemble the Supervisory Committee for a final review (defense) of the student's graduate work.
2. File a complete copy of all Plan B reports with the department, in accordance with procedures of the School of Graduate Studies. Copyrighted material, such as published scripts, will be filed separately in the Theatre Arts Office.
3. Be awarded the appropriate degree.

## Financial Assistance

Teaching and general assistantships are awarded by the department. Assistantships are generally in the area of production, depending on theatre needs and the skills of applying students, and are renewable for up to three years. Application should be made directly to the department by February 1. Graduate students are not guaranteed financial assistance during their initial year of residence. Several other grants and forms of support are available on a competitive basis. Fellowships may supplement assistantships when funding is available.

## Career Opportunities

The MA degree is a general, nonterminal degree designed to train students for further doctoral work in the discipline and to serve as a career upgrade for secondary school teachers. Students interested in teaching dramatic literature and theatre history and criticism at the postsecondary level should plan to use the MA as a step toward further PhD studies. Some two-year colleges employ MA graduates in teaching positions; however, almost no four-year colleges do so.

The MFA is designed for students pursuing careers in educational, professional, and regional theatres, or, in some cases, further doctoral-level work. It is regarded by most university and college administrations as a terminal degree for individuals with academic appointments as acting instructors, designers, and technicians. The department makes no guarantee that its training will qualify its graduates to pass examinations administered by the theatrical trade unions or otherwise meet requirements for guild membership. MFA graduates are qualified to seek employment with regional and professional theatres, regardless of the guild or trade union status of these organizations.

## Additional Information

Specific details about each of the foregoing programs are outlined in documents available through the department. Requirements are subject to change. Internet e-mail requests should be sent to: [luann.baker@usu.edu](mailto:luann.baker@usu.edu).

## Theatre Arts Faculty

### Professors

*Mark L. Damen*, playwriting, history; (part time)

*Kevin Doyle*, acting, directing

*Colin B. Johnson*, theatre history and criticism, film

### Professor Emeritus

*Sidney G. Perkes*, scene and costume design

### Associate Professors

*Bruce L. Duerden*, technical theatre, lighting

*Dennis Hassan*, scene design

*Nancy E. Hills*, costume design

*Lynda Linford*, acting

*Adrienne Moore*, voice, acting, directing

### Associate Professor Emeritus

*Arthur Y. Smith*, interpretation, theatre education

### Assistant Professor

*Shawn W. Fisher*, design, technical generalist

### Lecturer

*Robbin C. Black*, theatre appreciation, theatre education

## Course Descriptions

Theatre Arts (THEA), pages 671-674

# Interdepartmental Program in Toxicology

**Director:** Roger A. Coulombe, Jr.  
**Location:** Animal Science 213  
**Phone:** (435) 797-1600  
**FAX:** (435) 797-1601  
**E-mail:** roger.coulombe@usu.edu  
**WWW:** http://toxicology.usu.edu

**Degrees offered:** Master of Science (MS) and Doctor of Philosophy (PhD) in Toxicology

## Graduate Programs

Established in 1962, USU's Interdepartmental Graduate Program in Toxicology is one of the first degree-granting graduate toxicology programs in the country. More than 140 students have received MS and PhD degrees through this research-intensive interdisciplinary program. Students affiliate with the program through one of several departments: Animal, Dairy and Veterinary Sciences (ADVS); Biology; Chemistry and Biochemistry; Civil and Environmental Engineering (CEE); or Plants, Soils, and Climate (PSC). The USDA Poisonous Plants Laboratory also provides facilities and research projects for study.

## Admission Requirements

Students with a degree in life sciences, physical science, medical science, or engineering and with adequate preparation in chemistry, biology, physics, and/or mathematics are encouraged to apply. Admission to the program requires compliance with the general admission requirements of the School of Graduate Studies, a faculty sponsor, and acceptance into the sponsoring professor's home department. Applicants should have a minimum GPA of 3.0 from completed degree programs. International students must receive a minimum TOEFL score of 250 (computer-based) or 600 (paper-based).

## Major Research Areas

### Molecular and Biochemical Toxicology

Modern molecular biological techniques are used to determine the mechanisms of toxicity and carcinogenesis by examining how various natural and synthetic compounds interact with the cellular genome. Resultant mutations in oncogenes and tumor suppressor genes are being investigated. The mechanisms of free-radical toxicity, specifically by iron and other transition elements, are also important research topics. Other ongoing studies examine the mechanisms of cancer chemoprevention, chemical metabolism, effects of toxicants on macromolecular syntheses, and metabolic intermediates. The toxicity of poisonous plants is another program emphasis.

### Environmental Toxicology

Utah State University has a comprehensive research program in several aspects of environmental toxicology. Specifically, Utah State University faculty pioneered the use of white-rot fungi for the biodegradation of environmental contaminants. Models are developed and tested for dealing with the migration of chemicals in the environment, especially those with potential routes for human exposure. Basic biological, chemical, and physical methods are explored for hazardous waste management programs.

## Course Requirements

Students in the **MS program** are required to complete the following core courses: ADVS 6350, 6400, 6600 (taught alternate fall semesters), 6810; CHEM 5700, 5710; STAT 5200.

Students in the **PhD program** are required to complete the following core courses: ADVS 6350, 6400, 6600 (taught alternate fall semesters), 6810; BIOL 5600 or 5620; CHEM 5700, 5710; STAT 5200.

Additional coursework may be required, at the discretion of the student's advisory committee.

## Financial Assistance

Graduate students are eligible for competitive fellowships, teaching assistantships, and research assistantships. Out-of-state fees are waived, and in many cases, in-state fees are also waived. Hourly employment, which often permits waiver of out-of-state fees, is also available.

The Toxicology Graduate Program participates in the WICHE Western Regional Graduate Degree Program (WRGP). Residents of participating states may enroll in this program without paying nonresident tuition. To facilitate this process, applicants should inform the Toxicology Program of their WRGP status upon application.

## Toxicology Program Faculty

### Professors

*Anne J. Anderson*, plant toxicology (Biology)  
*Steven D. Aust*, biochemical toxicology and bioremediation (Chemistry and Biochemistry)  
*Roger A. Coulombe, Jr.*, molecular toxicology, cancer chemoprevention, natural product toxicology (ADVS)  
*Howard M. Deer*, pesticides and occupational health (ADVS)  
*William J. Doucette*, fate of environmental chemicals, phytoremediation (CEE)  
*R. Ryan Dupont*, biological waste treatment (CEE)  
*William J. Pependorf*, occupational toxicology and industrial hygiene (Biology)  
*Ronald C. Sims*, environmental engineering (CEE)

### Research Professor

*Darwin L. Sorensen*, aquatic toxicology (CEE)

### Associate Professors

*Paul R. Grossl*, soil chemistry and phytoremediation (PSC)  
*Jeffery O. Hall*, veterinary toxicology (ADVS)

### Collaborators at USDA Poisonous Plants Laboratory

*Dale R. Gardner*, natural product chemistry  
*Kip E. Panter*, poisonous plants  
*James A. Pfister*, behavioral toxicology  
*Bryan L. Stegelmeier*, veterinary pathology  
*Kevin Welch*, molecular toxicology

# Department of Watershed Sciences

**Department Head:** Chris Luecke  
**Location:** Natural Resources 210  
**Phone:** (435) 797-2459  
**FAX:** (435) 797-1871  
**E-mail:** watershed@aggiemail.usu.edu  
**WWW:** http://www.cnr.usu.edu/wats

**Undergraduate Advisor:** Maureen A. Wagner, Natural Resources  
120, (435) 797-2448, maureen.wagner@usu.edu

**Degrees offered:** Bachelor of Science (BS) in Fisheries and Aquatic Sciences; BS in Watershed and Earth Systems; Master of Science (MS) and Doctor of Philosophy (PhD) in Watershed Science; MS and PhD in Ecology; MS and PhD in Fisheries Biology

**Graduate specializations:** *MS, PhD in Ecology*—Aquatic Ecology; *MS, PhD in Fisheries Biology*—Aquatic Ecology, Conservation Biology, Fisheries Management

## Undergraduate Programs

### Objectives

Watershed science is the study of the physical, chemical, and biological processes associated with the movement of water across the landscape. Clean and adequate water supplies are essential elements of human societies. Understanding the interaction among water, earth materials, plants, and animals is essential to the management of wildland, agricultural, and urban ecosystems. The Department of Watershed Sciences offers comprehensive educational opportunities for undergraduate and graduate students interested in fisheries science, aquatic ecology, and the understanding of watershed ecosystems. Departmental faculty provide expertise in fish biology, the management and conservation of aquatic ecosystems, and the analysis of the water cycle. Degree programs within the Watershed Sciences Department help students learn how water links the physical, biological, and geographic aspects of watersheds. Knowledge of this linkage process is necessary for understanding and managing water supply, water quality, and ecosystem health.

### Career Opportunities

Watershed scientists work throughout the United States, as well as in the developed and developing world, performing the tasks of understanding, managing, and restoring water supplies, water quality, and ecosystem health. Graduates of programs within the Watershed Sciences Department become scientists and managers for natural resources agencies, professionals with consulting and nonprofit environmental firms, and teachers and researchers at major universities. Degree holders often work as environmental scientists, hydrologists, fisheries biologists, or specialists in geographic information analysis and remote sensing. With experience and/or advanced degrees, graduates of programs within the Watershed Sciences Department may do natural resource assessment, management planning, and resource impact analysis.

Federal agencies, such as the Forest Service, Fish and Wildlife Service, Geological Survey, Bureau of Land Management, Environmental Protection Agency, National Park Service, Bureau of Reclamation, and National Marine Fisheries Service, hire graduates of Department of Watershed Sciences academic programs. Graduates also find employment with state natural resource agencies, nongovernmental conservation organizations, and private consulting firms.

## Requirements

### Departmental Admission Requirements

Admission requirements for the department are the same as those described for the College of Natural Resources (see pages 138-139).

### Academic Advisement

First-year students are assigned to the department head for initial advising. After students have completed 20 credits in the program, they are assigned a faculty advisor. Students are encouraged to meet with their advisor each semester prior to enrolling for courses. If they do not know who their advisor is, students should contact the Department of Watershed Sciences (NR 210) or the College of Natural Resources Academic Service Center (NR 120).

### Graduation Requirements

All courses listed as major subject courses must be taken on an *A-B-C-D-F* basis. A grade of *C-* or better is required for all WATS courses used to meet the requirements for a major or minor in the department. The grade point average for all courses taught by the College of Natural Resources must be 2.5 or higher.

For information about changes in requirements, course sequence, and scheduling, students should confer with a departmental advisor. The undergraduate program can be readily tailored to individual student needs with the help of a faculty advisor.

In addition to completing the University Studies course requirements, all students earning an undergraduate degree in the Department of Watershed Sciences must complete the Common Departmental Core, as listed below. Some of these courses may be used toward the University Studies requirements, as indicated by the University Studies designations listed in parentheses following the course numbers.

### Common Departmental Core (19 credits)

<b>ENVS 4000 (DSS) Human Dimensions of Natural Resource Management (F)</b> .....	3
<b>WATS 1020 Watershed Sciences Professional Orientation (F)</b> .....	1
<b>WATS 3700 (CI) Fundamentals of Watershed Science (Sp)</b> .....	3
<b>WATS 4490 Small Watershed Hydrology (F)</b> .....	4
<b>WATS 4500 Limnology: Ecology of Inland Waters (Sp)</b> .....	3
<b>WATS 4930 Geographic Information Systems (F)</b> .....	4
<b>WATS 4980 Watershed Sciences Departmental Seminar (F,Sp)</b> .....	1

### Bachelor of Science in Fisheries and Aquatic Sciences

Students in the Fisheries and Aquatic Sciences major must meet the course requirements for University Studies, as well as complete the Common Departmental Core listed above. They must also complete the requirements listed below in sections *A* through *E*.

#### A. Scientific Foundation (35 credits)

<b>BIOL 1610 Biology I (F)</b> .....	4
<b>BIOL 1620 (BLS) Biology II (Sp)</b> .....	4
<b>CHEM 1210 Principles of Chemistry I (F,Sp)</b> .....	4
<b>CHEM 1215 Chemical Principles Laboratory I (F,Sp)</b> .....	1
<b>CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su)</b> .....	4
<b>CHEM 1225 Chemical Principles Laboratory II (F,Sp)</b> .....	1
<b>MATH 1050 (QL) College Algebra (F,Sp,Su)</b> .....	4
<b>MATH 1100 (QL) Calculus Techniques (F,Sp,Su)</b> .....	3
<b>NR 2220 General Ecology (F,Sp)</b> .....	3
<b>PHYS 2110 The Physics of Living Systems I</b> .....	4
<b>STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)</b> .....	3



# Department of Watershed Sciences

## B. Fisheries Courses (16 credits)

WATS 3100 (CI) Fish Diversity and Conservation (F)	3
WATS 3110 Fish Diversity Laboratory (F)	1
WATS 4310 Wetland Ecology and Management (Sp)	3
WATS 4650 Principles in Fishery Management (Sp)	3
WATS 5200 Fish Habitat Relationships in Managed Forests (F)	3
WATS/BIOL 5550 Freshwater Invertebrates (Sp)	3

## C. Capstone Courses (6 credits minimum)

WATS 4510 Aquatic Ecology Practicum (F)	3
WATS 4530 Water Quality and Pollution (F)	3
WATS 5930 Geographic Information Analysis (Sp)	3
Approved Natural Resources Capstone Experience	3

## D. Directed Elective Courses (20 credits)

Students must choose a minimum of 20 elective credits to complete the Fisheries and Aquatic Sciences degree requirements. The majority of these elective credits must come from courses directly related to the degree program. **All elective courses must be approved by the student's faculty advisor before enrollment.** The following is a list of recommended courses that could be used to satisfy this requirement. Courses listed in *Section C* that were not used to meet the Capstone Course requirement may be taken as part of the suggested electives.

ENVS 5320 Water Law and Policy in the United States (Sp)	3
HIST 3950 (DHA/CI) Environmental History	3
PHIL 3510 (DHA) Environmental Ethics (Sp)	3
POLS 4820 (DSS) Natural Resources and Environmental Policy: Political Economy of Environmental Quality (Sp)	3
WATS 3000 Oceanography (Sp)	3
WATS/CLIM 3820 (QI) Climate Change (Sp)	3
WATS/GEO 5150 Fluvial Geomorphology (F)	3
WATS 5640 Riparian Ecology and Management (Sp)	3
WILD 3810 Plant and Animal Populations (Sp)	3
WILD 4880 Genetics in Conservation and Management (F)	3

**Note:** Students wanting to pursue federal employment should check the following U.S. Office of Personnel Management website for a listing of required coursework:

<http://www.opm.gov/qualifications/SEC-IV/B/GS0400/0482.HTM>

## E. General Electives

Students may take the remainder of the 120 credits from any department. The guidelines described under *General Education Requirements* and *University Studies Depth Education Requirements* (see pages 67-75) should be consulted to ensure meeting University Studies Requirements.

## Fisheries Science Minor Requirements (18 credits)

All courses required for the Fisheries Science minor must be taken on an *A-B-C-D-F* basis. A grade of *C-* or better is required for all WATS courses used to meet requirements for this minor.

### A. Fisheries Science Core Courses (9 credits)

NR 2220 General Ecology (F,Sp)	3
WATS 3100 (CI) Fish Diversity and Conservation (F)	3
WATS 3700 (CI) Fundamentals of Watershed Science (Sp)	3

### B. Electives (9 credits)

Select three courses from the following:

WATS 4310 Wetland Ecology and Management (Sp)	3
WATS 4500 Limnology: Ecology of Inland Waters (Sp)	3
WATS 4650 Principles in Fishery Management (Sp)	3

WATS 5200 Fish Habitat Relationships in Managed Forests (F)	3
WATS/BIOL 5550 Freshwater Invertebrates (Sp)	3
WILD 3810 Plant and Animal Populations (Sp)	3

## Bachelor of Science in Watershed and Earth Systems

Students in the Watershed and Earth Systems major must meet the course requirements for University Studies, as well as complete the Common Departmental Core listed on page 540. They must also complete the requirements listed below in sections *A* through *E*.

### A. Science Foundation (19 credits)

CHEM 1210 Principles of Chemistry I (F,Sp)	4
GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp)	4
MATH 1210 (QL) Calculus I (F,Sp,Su)	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3
PHYS 2210 (QI) General Physics—Science and Engineering I	4

### B. Watershed and Earth Systems Courses (15 credits)

SOIL 3000 Fundamentals of Soil Science (F)	4
WATS/CLIM 3820 (QI) Climate Change (Sp)	3
WATS/GEO 5150 Fluvial Geomorphology (F)	3
WATS/GEO 5170 Fluvial Geomorphology Lab (F)	2
WILD 5750 Applied Remote Sensing (F)	3

### C. Capstone Courses (6 credits minimum)

WATS 4510 Aquatic Ecology Practicum (F)	3
WATS 4530 Water Quality and Pollution (F)	3
WATS 5760 Remote Sensing: Modeling and Analysis (Sp)	3
WATS 5930 Geographic Information Analysis (Sp)	3
Approved Natural Resources Capstone Experience	3

### D. Directed Elective Courses (31 credits)

Students must choose a minimum of 31 elective credits to complete the Watershed and Earth Systems degree requirements. The majority of these elective credits must come from courses directly related to the degree program. **All elective courses must be approved by the student's faculty advisor before enrollment.** The following is a list of recommended courses that could be used to satisfy this requirement. Courses listed in *Section C* that were not used to meet the Capstone Course requirement may be taken as part of the suggested electives.

CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su)	4
ENVS 5320 Water Law and Policy in the United States (Sp)	3
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II	4
STAT 6810 Topics in Statistics (Spatial Statistics) (F)	3
WATS 5200 Fish Habitat Relationships in Managed Forests (F)	3
WATS 5250 Remote Sensing of Land Surfaces (Sp)	4
WATS 5640 Riparian Ecology and Management (Sp)	3
WATS 5760 Remote Sensing: Modeling and Analysis (Sp)	3
WILD/SOIL 5350 Wildland Soils (Sp)	3

### E. General Electives

Students may take the remainder of the 120 credits from any department. The guidelines described under *General Education Requirements* and *University Studies Depth Education Requirements* (see pages 67-75) should be consulted to ensure meeting University Studies Requirements.

**Note:** Students wanting to pursue federal employment should check the following U.S. Office of Personnel Management website for a listing of required coursework:

<http://www.opm.gov/qualifications/SEC-IV/B/GS1300/1315.HTM>

## Geographic Information Science Minor Requirements (17-18 credits)

All courses required for the Geographic Information Science minor must be taken on an *A-B-C-D-F* basis. A grade of *C-* or better is required for all WATS courses used to meet requirements for this minor.

### A. Watershed and Earth Resources Core Courses (8 credits)

<b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su).....	3
<b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su).....	1
<b>WATS 4930</b> Geographic Information Systems (F) .....	4

### B. Electives (9-10 credits)

Select three courses from the following:

<b>CEE 6440</b> Geographic Information Systems in Water Resources (F).....	3
<b>WATS 5250</b> Remote Sensing of Land Surfaces (Sp).....	4
<b>WATS 5760</b> Remote Sensing: Modeling and Analysis (Sp) .....	3
<b>WATS 5930</b> Geographic Information Analysis (Sp).....	3
<b>WILD 5750</b> Applied Remote Sensing (F) .....	3

## Watershed Science Minor Requirements (16 credits)

All courses required for the Watershed Science minor must be taken on an *A-B-C-D-F* basis. A grade of *C-* or better is required for all WATS courses used to meet requirements for this minor.

### A. Required Courses (10 credits)

<b>WATS 3700 (CI)</b> Fundamentals of Watershed Science (Sp).....	3
<b>WATS 4490</b> Small Watershed Hydrology (F) .....	4
<b>WATS 4530</b> Water Quality and Pollution (F) .....	3

### B. Electives (6 credits)

Select two courses from the following:

<b>WATS/CLIM 3820 (DSC/QI)</b> Climate Change (Sp) .....	3
<b>WATS 4500</b> Limnology: Ecology of Inland Waters (Sp) .....	3
<b>WATS/GEO 5150</b> Fluvial Geomorphology (F).....	3
<b>WATS 5640</b> Riparian Ecology and Management (Sp) .....	3

## Recommended Four-year Plans

Recommended semester-by-semester four-year plans for students working toward bachelor's degrees within the Department of Watershed Sciences can be found at:  
<http://www.usu.edu/degreplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Financial Assistance

The main sources of undergraduate financial assistance include University scholarships, grants-in-aid, work-study, and loans. In addition, more than 65 scholarships are offered for eligible students in the College of Natural Resources.

Scholarships are awarded for scholastic and professional achievements at the department, College of Natural Resources, and University level. For more information, contact College of Natural Resources academic advisors. Grants-in-aid and work-study are available from the Financial Aid Office. In addition, departmental faculty often employ undergraduate students to assist in research, extension, and outreach projects. These projects often involve field and laboratory data collection, data management and analysis, and report preparation.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. The minimum GPA requirement for admission into departmental honors in any department within the College of Natural Resources is 3.30. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level.

For information about the campus-wide Honors Program, see page 310.

## Additional Information

For additional information about the Bachelor of Science requirements, course sequencing, and departmental specialization options and their related coursework, as well as updated information describing current programs and courses offered by the Department of Watershed Sciences, visit the Watershed Sciences main office, Natural Resources 210, or visit <http://www.cnr.usu.edu/wats>. Major requirement sheets may be obtained at the departmental office, or online at:  
<http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admission Requirements

General admission requirements apply, in addition to the requirements which follow. Although admission to the graduate program is treated on an application-by-application basis, the following are usually required: (1) a bachelor's degree from an accredited college or university; (2) a GPA of 3.2 or better (out of 4.0) for the most recent 60 credits of academic coursework; (3) combined verbal and quantitative GRE scores above the 40th percentile; and (4) a letter of "interest and purpose" detailing the applicant's reasons for seeking an advanced degree. Foreign students should have a TOEFL score of at least 550. The written statement of interest helps match applicants with faculty advisors. A faculty member must agree to serve as the major professor in order for an applicant to be accepted. Prospective students are encouraged to contact faculty members early in the application process to investigate mutual interests, projects, and prospects for financial support.

Previous training in the field is not a prerequisite for admission, although a sound background in the physical and biological sciences is recommended. Successful applicants without the necessary background will be expected to obtain it in the course of their studies for the advanced degree.

## Degree Programs

A Master of Science degree in Fisheries Biology, Ecology, or Watershed Science, with emphasis on the management of fisheries or watershed resources directed toward decision-making roles in natural resource agencies, is offered for the applicant with previous agency

# Department of Watershed Sciences

experience and for the student motivated toward an administrative career. A Doctor of Philosophy degree in Fisheries Biology, Ecology, or Watershed Science is provided for students interested in pursuing a research or academic career.

A thesis or dissertation based on original research performed by the student is required. Written comprehensive examinations are required of all students pursuing the PhD degree. At the discretion of the student's graduate supervisory committee, an additional oral examination may be required.

The minimum requirement for an MS degree is 30 credits, including at least 24 credits in residency and 6 credits of thesis research. The minimum requirement for a PhD degree is 60 approved graduate credits in addition to an MS degree, or 90 approved graduate credits with no MS degree. At least one year (a minimum of 32 credits), including a minimum of two consecutive semesters, of full-time registration must be in residence at USU.

With committee approval, graduate credit may be transferred from accredited graduate schools, provided the minimum residency requirement (including thesis and dissertation credit) at USU is met. Transfer credit, which must not have been used for any other degree, will be shown on official USU transcripts at completion of the degree.

## Specializations

The MS and PhD degrees in Fisheries Biology allow students to specialize in Aquatic Ecology, Conservation Biology, or Fisheries Management. The MS and PhD degrees in Ecology allow students to specialize in Aquatic Ecology.

## Master of Natural Resources

The department also participates in the College of Natural Resources Master of Natural Resources (MNR) degree program. For more information, see page 391.

## Financial Assistance

General aspects of financial support for graduate students at Utah State University are listed on pages 111-112 in the *Graduate Financial Assistance* section. This includes important information on the University-wide policies and terms of reference for research and teaching assistantships, graduate tuition obligations and benefits, Western Regional Graduate Programs, and competitive University-wide fellowships and scholarships.

## Assistantships

Research assistantships are available through individual faculty members who hold research grants or contracts. Occasionally, teaching assistantships are available through the department. Recipients of teaching assistantships are usually selected from among PhD students.

## Western Regional Graduate Programs

The MS and PhD in Watershed Science are Western Regional Graduate Programs. For more information, see page 112.

## Watershed Sciences Faculty

### Professors

*Todd A. Crawl*, aquatic ecology, conservation biology, tropical biology  
*Charles P. Hawkins*, aquatic ecology, stream and riparian ecosystems  
*Chris Luecke*, aquatic ecology, fisheries management  
*John C. Schmidt*, fluvial geomorphology and water policy  
*Helga Van Miegroet*, wildland soils and biogeochemistry  
*Wayne A. Wurtsbaugh*, limnology, fish ecology, and watershed biogeochemistry

### Adjunct Professors

*Christopher Neale*, remote sensing  
*David G. Tarboton*, geomorphology, hydrology  
*Peter R. Wilcock*, sediment transport and geomorphology

### Professor Emeritus

*John M. Neuhold*, fisheries biology

### Associate Professors

*Phaedra E. Budy*, assistant leader, fisheries, Utah Cooperative Fisheries and Wildlife Research Unit, fisheries management and conservation  
*Nancy O. Mesner*, water quality, water policy, and modeling  
*Michael A. White*, global change ecology

### Adjunct Associate Professors

*Michelle A. Baker*, ecology, hydrology  
*Joanna L. Endter-Wada*, cultural anthropology, natural resource policy and sociology  
*Robert R. Gillies*, remote sensing and meteorology  
*Joel L. Pederson*, geomorphology, paleoclimatology, and sedimentology

### Assistant Professors

*Nicholas Allmendinger*, hydrology, stream restoration  
*Jiming Jin*, remote sensing and analysis, global climate modeling  
*Karin Kettenring*, wetland ecology

### Research Assistant Professors

*Nicolaas W. Bouwes, Jr.*, fisheries management, aquatic ecology  
*Brett Roper*, USDA Forest Service Aquatic Monitoring Center Program Leader, aquatic ecologist

### Adjunct Assistant Professors

*Jayne Brim-Box*, population genetics and conservation biology  
*Robert E. Gresswell*, aquatic ecology and fish biology  
*Simon J. McKirdy*, plant biosecurity  
*Scott Miller*, freshwater and riparian ecology, stream restoration, and biomonitoring  
*David Naftz*, geochemist  
*Michael J. Paul*, bioassessment and stream ecosystem function  
*Michael L. Scott*, riparian plant ecology  
*John Van Sickle*, environmental statistics  
*J. Christopher Wilson*, director, State of Utah Division of Wildlife Resources Fisheries Experiment Station, fish pathologist/nutritionist

## Course Descriptions

Watershed Sciences (WATS), pages 675-678

# Department of Wildland Resources

**Department Head:** Johan du Toit  
**Location:** Natural Resources 206  
**Phone:** (435) 797-3219  
**FAX:** (435) 797-3796  
**E-mail:** lana.barr@usu.edu  
**WWW:** <http://www.cnr.usu.edu/wild>

## Undergraduate Advisor:

Maureen A. Wagner, Natural Resources 120, (435) 797-2448,  
[maureen.wagner@usu.edu](mailto:maureen.wagner@usu.edu)

**Degrees offered:** Bachelor of Science (BS) in Conservation and Restoration Ecology; BS, Master of Science (MS), and Doctor of Philosophy (PhD) in Forestry; BS in Rangeland Resources; BS in Wildlife Science; MS and PhD in Ecology; MS and PhD in Range Science; and MS and PhD in Wildlife Biology

**Graduate specializations:** *MS, PhD in Ecology*—Conservation Biology, Wildlife Ecology; *MS, PhD in Wildlife Biology*—Conservation Biology, Problem Wildlife Management, Wildlife Management

## Undergraduate Programs

### Objectives

The Department of Wildland Resources offers four undergraduate degrees: Conservation and Restoration Ecology, Forestry, Rangeland Resources, and Wildlife Science. These degree programs offer broad educational opportunities for students interested in the analysis and management of forest and rangeland ecosystems and their associated wildlife populations. The department's philosophy of education is to promote a broad interdisciplinary approach to natural resources analysis, management, and science.

The first two years of study in the Department of Wildland Resources are designed to provide students with a sound background in the natural sciences, an introduction to the field of natural resources management, and an introduction to their respective major. The last two years are designed to provide an advanced understanding of natural resource management and science, depth concentration in the major, and experience with the integration of scientific and management concepts across a diversity of disciplines and management scenarios. To maintain correct course sequencing and to stay on track for graduation, students are encouraged to enroll for 15 or more credits of coursework per semester.

### Career Opportunities

Graduates in Wildland Resources programs qualify for a broad range of career opportunities with state and federal land management agencies, environmental consulting firms, private industries with environmental divisions, private land owners, and nonprofit environmental organizations. The Bachelor of Science degrees in Forestry, Rangeland Resources, and Wildlife Science are designed to meet the U.S. Office of Personnel Management (OPM) requirements for professional, permanent, full-time jobs with the Forest Service, Fish and Wildlife Service, Bureau of Land Management, National Park Service, or other federal natural resources agencies. The Bachelor of Science in Conservation and Restoration Ecology is designed to meet OPM requirements for Ecologist, but is flexible and intended to meet the needs of nongovernmental careers, as well as state and county restoration and management agencies. Graduates in all degree programs receive a solid background in biological and quantitative sciences, as well as the communication skills needed to succeed in many career paths.

## Requirements

### Admission Requirements

Admission requirements for the Department of Wildland Resources are the same as those described for the College of Natural Resources on pages 138-139.

### Graduation Requirements

*General Science Foundation Courses, Departmental Common Courses*, and all courses listed as major subject courses must be taken on an *A-B-C-D-F* basis. A grade of *C-* or better is required for all WILD courses used to meet the requirements for a major or minor in the department. The grade point average for all courses taught by the College of Natural Resources must be 2.5 or higher.

In addition to completing the University Studies course requirements (see pages 67-75), all students earning an undergraduate degree in the Department of Wildland Resources must complete the *General Science Foundation Courses* and the *Departmental Common Courses*, as listed below. Some of these courses may be used toward the University Studies requirements, as indicated by the University Studies designations listed in parentheses following the course numbers.

#### A. General Science Foundation Courses (34 credits)

<b>BIOL 1610</b> Biology I (F).....	4
<b>BIOL 1620 (BLS)</b> Biology II (Sp).....	4
<b>MATH 1050 (QL)</b> College Algebra (F,Sp,Su).....	4
<b>MATH 1100 (QL)</b> Calculus Techniques (F,Sp,Su).....	3
<b>SOIL 3000</b> Fundamentals of Soil Science (F).....	4
<b>STAT 2000 (QI)</b> Statistical Methods (F,Sp) (3 cr) <b>or</b>	
<b>STAT 3000 (QI)</b> Statistics for Scientists (F,Sp,Su) (3 cr).....	3
<b>NR 2220</b> General Ecology (F,Sp).....	3

#### Select one of the following chemistry series (9 credits):

<b>CHEM 1110 (BPS)</b> General Chemistry I (F,Sp).....	4
<b>CHEM 1115</b> General Chemistry Laboratory (F,Sp).....	1
<b>CHEM 1120 (BPS)</b> General Chemistry II (Sp).....	4
<b>OR</b>	
<b>CHEM 1210</b> Principles of Chemistry I (F,Sp).....	4
<b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp).....	1
<b>CHEM 1220 (BPS)</b> Principles of Chemistry II (F,Sp,Su).....	4

#### B. Departmental Common Courses (27 credits)

<b>WILD 2000</b> Introduction to Forest, Range, and Wildlife Sciences (F,Sp).....	1
<b>WILD 3600</b> Wildland Plant Ecology and Identification (F).....	4
<b>WILD 3610</b> Wildland Animal Ecology and Identification (F).....	4
<b>WILD 3800</b> Wildland Ecosystems (Sp).....	3
<b>WILD 3810</b> Plant and Animal Populations (Sp).....	3
<b>WILD 4750 (CI)</b> Monitoring and Assessment in Natural Resource and Environmental Management (F).....	3
<b>WILD 4850</b> Vegetation and Habitat Management (F).....	3
<b>WILD 4900</b> Managing Dynamic Ecological Systems (Sp).....	3
<b>WILD 4910</b> Assessment and Synthesis in Natural Resource Science (Sp).....	3

### Bachelor of Science in Conservation and Restoration Ecology

Students in the Conservation and Restoration Ecology major must meet the course requirements for University Studies, as well as complete the *General Science Foundation Courses* and the *Departmental Common Courses* listed above. They must also complete 13 credits of Degree Program Courses, as follows:

# Department of Wildland Resources

## A. Degree Program Courses (13 credits)

ENVS 3000 Natural Resources Policy and Economics (F)	4
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management (F)	3
WILD 4600 Conservation Biology (Sp)	3
WILD 4700 Ecological Foundations of Restoration (Sp)	3

## B. Degree Program Electives (21 credits)

Students in the Conservation and Restoration Ecology major must meet with their advisor and plan a program of study for their 21 credits of degree program electives. Students must identify an organizing theme or comprehensive plan to guide the selection of their degree program electives, and all courses counted toward this requirement must be approved in advance by the student's advisor and department head. Courses taken to complete a dual major with another major within the College of Natural Resources may *not* be counted toward fulfillment of this requirement.

## C. Free Elective Credits

Students may take the remainder of the 120 credits from any department. Courses which meet General Education "Breadth Requirements" and University Studies "Depth Education Requirements" should be included to ensure meeting General Education and University Studies Requirements.

**Note:** Students wanting to pursue federal employment should check the following U.S. Office of Personnel Management website for a listing of required coursework:

<http://www.opm.gov/qualifications/SEC-IV/B/GS0400/0408.HTM>

## Bachelor of Science in Forestry

Students in the Forestry major must meet the course requirements for University Studies, as well as complete the *General Science Foundation Courses* and the *Departmental Common Courses* listed above. They must also complete 32 credits of *Professional Coursework*, including the following:

### A. Degree Program Courses (32 credits)

ENVS 3000 Natural Resources Policy and Economics (F)	4
ENVS 3300 Fundamentals of Recreation Resources Management (F)	3
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management (F)	3
WATS 3700 (CI) Fundamentals of Watershed Science (Sp)	3
WATS 4930 Geographic Information Systems (F)	4
WILD 5350 Wildland Soils (Sp)	3
WILD 5420 (CI) Forest and Shade Tree Pathology (Sp)	3
WILD 5700 Forest Assessment and Management (Sp)	3
WILD 5710 Wildland Disturbance: Ecology and Management (F)	3
WILD 5750 Applied Remote Sensing (F)	3

### B. Electives

Students may take the remainder of the 120 credits from any department. Courses which meet General Education "Breadth Requirements" and University Studies "Depth Education Requirements" should be included to ensure meeting University Studies Requirements.

**Note:** Students wanting to pursue federal employment should check the following U.S. Office of Personnel Management website for a listing of required coursework:

<http://www.opm.gov/qualifications/SEC-IV/B/GS0400/0460.HTM>

## Bachelor of Science in Rangeland Resources

Students in the Rangeland Resources major must meet the course requirements for University Studies, as well as complete the *General Science Foundation Courses* and the *Departmental Common Courses* listed above. They must also complete 19 credits of *Degree Program Courses* and 16 credits of *Degree Program Electives*, including the following:

### A. Degree Program Courses (19 credits)

ADVS 2080 Beef Production Practices (Sp) (2 cr) or	
ADVS 2090 Sheep Production Practices (Sp) (2 cr)	2
ENVS 3000 Natural Resources Policy and Economics (F)	4
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management (F)	3
SOIL 5130 Soil Genesis, Morphology, and Classification (F)	4
WATS 3700 (CI) Fundamentals of Watershed Science (Sp)	3
WILD 4000 Principles of Rangeland Management (Sp)	3

### B. Degree Program Electives (16 credits)

Students must meet with their advisor to plan a program of study for their 16 credits of degree program electives. Program option areas may include: agribusiness management, animal science, geographic information science, soil science, watershed science, and wildlife science. Students wanting to pursue employment with the Bureau of Land Management, U.S. Forest Service, Natural Resources Conservation Service, and other federal land management agencies should review the suggested electives listed below.

### Suggested Electives for Federal Employment

Students wanting to qualify as a rangeland management specialist or soil conservationist with a federal land management agency should check the U.S. Office of Personnel Management website.

A listing of required coursework for the **Rangeland Management Series** (GS-454) is shown at:

<http://www.opm.gov/qualifications/SEC-IV/B/GS0400/0454.HTM>

In addition to several of the courses listed under the *General Science Foundation*, *Departmental Common Courses*, and *Degree Program Courses* sections, students must also take the following courses to meet the minimum requirements for the Rangeland Management Series:

### Directly Related Plant Science Courses (select 2 courses)

BIOL 4400 (QI) Plant Physiology (F)	4
BIOL 4420 Plant Taxonomy (Sp odd, Su even)	3
PLSC 5550 Weed Biology and Control (F)	4
WILD 4950 ST: Dendrology (F)	3

### Related Resource Management Courses (select 1 course)

ENVS 3300 Fundamentals of Recreation Resources Management (F)	3
PLSC 4320 Forage Production and Pasture Ecology (F)	3
WATS 5640 Riparian Ecology and Management (Sp)	3
WILD 4500 Principles of Wildlife Management (Sp)	3
WILD 5300 Wildlife Damage Management Principles (Sp)	3
WILD 5710 Wildland Disturbance: Ecology and Management (F)	3

A listing of required coursework for the **Soil Conservation Series** (GS-457) is shown at:

<http://www.opm.gov/qualifications/SEC-IV/B/GS0400/0457.HTM>

# Department of Wildland Resources

In addition to several of the courses listed under the *General Science Foundation*, *Departmental Common Courses*, and *Degree Program Courses* sections, students must also take the following course to meet the minimum requirements for the Soil Conservation Series:

**Plant Science Course**  
**PLSC 5550** Weed Biology and Control (F)..... 4

## C. General Electives

Students may take the remainder of the 120 credits from any department. Courses which meet General Education "Breadth Requirements" and University Studies "Depth Education Requirements" should be included to ensure meeting University Studies Requirements.

## Bachelor of Science in Wildlife Science

Students in the Wildlife Science major must meet the course requirements for University Studies, as well as complete the *General Science Foundation Courses* and the *Departmental Common Courses* listed above. They must also complete 22 credits of Degree Program Courses, including the following:

### A. Degree Program Courses (22 credits)

**BIOL 5560** Ornithology (Sp) (3 cr) or  
**BIOL 5570** Herpetology (Sp) (3 cr) ..... 3  
**BIOL 5580** Mammalogy (F)..... 3  
**ENVS 3000** Natural Resources Policy and Economics (F)..... 4  
**ENVS 4000 (DSS)** Human Dimensions of Natural Resource Management (F)..... 3  
**WILD 3300 (CI)** Management Aspects of Wildlife Behavior (Sp)..... 3  
**WILD 4500** Principles of Wildlife Management (Sp) ..... 3  
**WILD 4880** Genetics in Conservation and Management (F)..... 3

### B. Electives

Students may take the remainder of the 120 credits from any department. Courses which meet General Education "Breadth Requirements" and University Studies "Depth Education Requirements" should be included to ensure meeting University Studies Requirements.

**Note:** Students wanting to pursue federal employment should check the following U.S. Office of Personnel Management website for a listing of required coursework:

<http://www.opm.gov/qualifications/SEC-IV/B/GS0400/0486.HTM>

## Recommended Four-year Plans

Recommended semester-by-semester four-year plans for students working toward bachelor's degrees within the Department of Wildland Resources can be found at: <http://www.usu.edu/degreetplans/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

## Financial Assistance

The main opportunities for undergraduates to find financial support through grants, work-study, and loans are listed on pages 46-47 in the *Financial Aid and Scholarship Information* section. In addition, more than 30 scholarships are available for eligible students in the College of Natural Resources. Some students may be able to find paid internships with private or governmental organizations, or work for a faculty member on a research project. Interested persons should contact the college's Academic Service Center for more information on financial assistance for undergraduate students.

## Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through original, independent work, Honors students enjoy the benefits of close supervision and mentoring, as they work one-on-one with faculty in select upper-division departmental courses. Honors students also complete a senior project, which provides another opportunity to collaborate with faculty on a problem that is significant, both personally and in the student's discipline. Participating in departmental honors enhances students' chances for obtaining fellowships and admission to graduate school. The minimum GPA requirement for admission into departmental honors in any department within the College of Natural Resources is 3.30. Students may enter the Honors Program at almost any stage in their academic career, including at the junior (and sometimes senior) level.

For information about the campus-wide Honors Program, see page 310.

## Additional Information

The undergraduate program may be tailored to individual student needs with the help of a faculty advisor. For additional information about the degree requirements, course sequencing, and departmental specialization options and their related coursework, as well as updated information describing current programs and courses offered by the Department of Wildland Resources, visit the Wildland Resources main office, Natural Resources 206, or visit:

<http://www.cnr.usu.edu/wild>

Major requirement sheets, which outline career opportunities and required courses for departmental majors, can be obtained from the department, or online at: <http://www.usu.edu/majorsheets/>

## Graduate Programs

### Admission Requirements

The Department of Wildland Resources offers opportunities for graduate study through MS and PhD degree programs in Ecology, Forestry, Range Science, and Wildlife Biology. The department also offers opportunities to participate in a college-wide Master of Natural Resources (MNR) degree program administered through the College of Natural Resources. The MNR is described more fully on page 391.

The programs of instruction and research leading to graduate degrees in the department are available only to students meeting high scholastic standards who are accepted for study by the departmental faculty. Students desiring entrance to these graduate programs should contact the department head for information concerning eligibility.

USU School of Graduate Studies general admission requirements are described on pages 36-37. Applicants for graduate study in the department should have a bachelor's degree from an accredited college or university, a cumulative GPA of at least 3.0 (out of 4.0), and GRE scores (quantitative and verbal) above the 40th percentile. Foreign students should submit a TOEFL score of at least 550. Exceptions to these standards will be considered on a case-by-case basis. Written statements of interest help match applicants with faculty advisors. A faculty member must agree to serve as the major professor in order for an applicant to be accepted for study. Prospective students are encouraged to contact faculty members early in the application process to investigate mutual interests, projects, and prospects for financial support.

# Department of Wildland Resources

A natural resources baccalaureate degree is not required for admission to the department, although a sound background in the natural sciences is strongly recommended. Students lacking the requisite background will work with their supervisory committee to address deficiencies.

## Degree Programs

The MS degree is offered for students motivated toward a management or administrative career in natural resources. The MS may be obtained through either a Plan A (research thesis) or Plan B (nonthesis) program, as described on page 116. The **Plan A** option requires a thesis based on original research conducted by the student. The **Plan B** option is recommended for professional forestry, rangeland, or wildlife managers who do not desire research training. The PhD degree is intended for students seeking a natural resources research or academic career. Comprehensive exams (both oral and written) are required in the doctoral program.

The minimum requirement for an MS degree is 30 credits, including at least 24 credits in residency and 6 credits of thesis research. The minimum requirement for a PhD degree is 60 approved graduate credits in addition to an MS degree, or 90 approved graduate credits with no MS degree. At least one year (a minimum of 32 credits), including a minimum of two consecutive semesters, of full-time registration must be in residence at USU.

With committee approval, graduate credit may be transferred from accredited graduate schools, provided the minimum residency requirement (including thesis and dissertation credit) at USU is met. Transfer credit, which must not have been used for any other degree, will be shown on official USU transcripts at completion of the degree.

## Research

Cooperation with other departments and research centers of the University, as well as with government collaborators, permits strong graduate programs in all aspects of forest, range, and wildlife-related sciences. Particular mention should be made of the USU Ecology Center, in which the Wildland Resources Department is very active; the Utah Agricultural Experiment Station, which has a full program in both applied and basic research; the Utah Cooperative Fisheries and Wildlife Research Unit; the Predator Ecology and Behavior Field Station; the Jack H. Berryman Institute; the U.S. Forest Service Rocky Mountain Forest and Range Experiment Station; and the USDA Agricultural Research Service.

## Financial Assistance

General aspects of financial support for graduate students at Utah State University are listed on pages 111-112 in the *Graduate Financial Assistance* section. This includes important information on the University-wide policies and terms of reference for research and teaching assistantships, graduate tuition obligations and benefits, Western Regional Graduate Programs, and competitive University-wide fellowships and scholarships. The College of Natural Resources also offers a limited number of Quinney Doctoral Fellowships for incoming doctoral students.

Graduate research assistantships may be available on a competitive basis to both MS and PhD students through major professors having contracts, grants, or other awards from the University, private sector, or government agencies. These assistantships vary in the amount of support offered, but they commonly offer a stipend to help cover living expenses and operating funds to carry out the research. Other benefits

may include assistance with tuition and student health insurance, as well as opportunities to travel.

The department also has a few graduate teaching assistantships for students who help with teaching, grading, or recitation in large courses. These typically pay only a modest supplement on a semester basis, however, and are not sufficient to cover living expenses. Domestic PhD students on a research assistantship in some departmental degree programs are required to hold at least one teaching assistantship during their program, to obtain experience in classroom (mainly undergraduate) instruction. MS students may also hold teaching assistantships, contingent upon availability of funds. Acceptance to pursue graduate study does not guarantee the student financial assistance.

## Additional Information

For more information about graduate programs and departmental faculty and their research emphasis areas, as well as updated information describing current programs and courses offered by the Department of Wildland Resources, visit the Wildland Resources main office, Natural Resources 206, or visit:

<http://www.cnr.usu.edu/wild>

## Wildland Resources Faculty

### Professors

*John A. Bissonette*, Leader, Utah Cooperative Fish and Wildlife Research Unit, landscape ecology, terrestrial vertebrate ecology  
*F. E. "Fee" Busby*, effects of livestock grazing  
*Michael R. Conover*, Berryman Institute, animal behavior, wildlife damage management  
*Raymond D. Dueser*, conservation ecology  
*Johan du Toit*, ecology and conservation of large mammals in terrestrial ecosystems  
*Thomas C. Edwards, Jr.*, Utah Cooperative Fish and Wildlife Research Unit, spatial ecology, habitat modeling, biostatistics  
*Michael R. Kuhns*, forestry extension specialist, urban forestry, tree physiology  
*James N. Long*, forest ecology, silviculture  
*Terry A. Messmer*, fisheries and wildlife extension specialist, wild ungulate and waterfowl management, wetlands ecology, private land management, conservation communication  
*Frederick D. Provenza*, range animal production  
*R. Douglas Ramsey*, remote sensing, geographic information systems, landscape ecology, spatial analysis  
*Terry L. Sharik*, academic administration and leadership, teaching and learning pedagogy, forest ecology  
*Helga Van Miegroet*, forest soils and biogeochemistry  
*Michael L. Wolfe*, wildlife ecology and management

### Adjunct Professors

*Mark W. Brunson*, social and psychological aspects of forest and rangeland management  
*Douglas A. Johnson*, plant ecophysiology

### Professors Emeritus

*Thadis W. Box*, range management  
*Martyn M. Caldwell*, plant physiological ecology  
*John A. Kadlec*, wetlands ecology, wildlife management  
*Frederick F. Knowlton*, National Wildlife Research Center, predator ecology, behavior and management  
*Ronald M. Lanner*, forest genetics, dendrology  
*John C. Malechek*, rangeland management  
*Frederic H. Wagner*, wildlife ecology, natural resources policy

# Department of Wildland Resources

*Neil E. West*, rangeland desertification/condition/trend  
*John P. Workman*, range economics

## Research Professor Emeritus

*Leila McReynolds Shultz*, plant taxonomy and geography

## Associate Professors

*Frederick A. Baker*, forest pathology, computer applications  
*Roger E. Banner*, range extension specialist  
*Karen H. Beard*, community ecology, ecosystem ecology, conservation biology  
*Christopher A. Call*, vegetation manipulation/management  
*Richard C. Etchberger*, wildlife-habitat interactions, natural resource education  
*Eric M. Gese*, National Wildlife Research Center, predator behavior and ecology  
*Michael J. Jenkins*, disturbance ecology and management, insects, fire, snow avalanches  
*Karen E. Mock*, conservation genetics and applied molecular ecology  
*Ronald J. Ryel*, plant physiological ecology  
*Eugene W. Schupp*, plant population ecology and restoration ecology  
*John A. Shivik*, National Wildlife Research Center, predator ecology

## Adjunct Associate Professors

*Dale L. Bartos*, forest ecology, aspen conservation  
*Barbara J. Bentz*, forest entomology  
*D. Layne Coppock*, animal production systems/technology transfer and international pastoral development  
*Thomas A. Jones*, native grass breeding  
*Kenneth C. Olson*, grazing livestock nutrition  
*James A. Pfister*, poisonous range plants  
*Michael H. Ralphs*, poisonous plants/grazing management  
*Robert H. Schmidt*, wildlife policy, wildlife damage management

## Associate Professors Emeritus

*Brien E. (Ben) Norton*, grazing ecology, international range management  
*Gar W. Workman*, wildlife ecology and management

## Assistant Professors

*Peter B. Adler*, plant community ecology  
*Brent D. Bibles*, wildlife ecology  
*Frank P. Howe*, avian ecology and management, riparian and shrubsteppe ecology, Utah Division of Wildlife Resources University Liaison  
*David N. Koons*, animal population ecology

## Research Assistant Professors

*Mary M. Conner*, wildlife population ecology  
*Patricia Cramer*, transportation ecology, wildlife connectivity, carnivore and ungulate movement  
*Shandra Nicole Frey*, Berryman Institute, resolution of human-wildlife conflict  
*Juan J. Villalba*, foraging behavior

## Adjunct Assistant Professors

*Tamsin C. McCormick*, desert ecology  
*Thomas A. Monaco*, research ecologist  
*Ben C. West*, wildlife damage management

## Assistant Professor Emeritus

*Barrie K. Gilbert*, wildlife ethology, behavioral ecology

## Course Descriptions

Wildland Resources (WILD), pages 679-682



# Women and Gender Studies

**Director:** Brenda Cooper  
**Location:** Animal Science 319C  
**Phone:** (435) 797-3253  
**E-mail:** [brenda.cooper@usu.edu](mailto:brenda.cooper@usu.edu)  
**WWW:** <http://www.usu.edu/womenstu/>

Women and Gender Studies (WGS) at Utah State University is a multidisciplinary program focusing on the role of gender in the everyday experiences of women and men. Students are provided with opportunities to examine the diverse experiences, perspectives, and contributions of women in the past, present, and future, both nationally and internationally. Specific courses examine the processes of gender role socialization and the resulting cultural beliefs and stereotyped images of women. As a result, students gain appreciation for the role of gender and its practical implications in their basic life experiences, thus preparing them to understand current and future changes in the social construction of gender.

Each semester, WGS courses are taught by a variety of faculty members from a variety of disciplines, including Anthropology, Biology, Journalism and Communication, English, Fine Arts, Health and Physical Education, History, Languages, Psychology, and Sociology. Throughout the year, several special topics courses are offered, and new courses are continually being developed. Two WGS scholarships are awarded to undergraduates.

Students may enroll in individual courses or apply coursework toward either a minor in WGS or an Area Studies certificate. At least 50 percent of the WGS coursework must be taken at USU.

## Area Studies Certificate in Women and Gender Studies (3.0 GPA)

Students desiring to explore WGS in depth may want an area studies certificate. To receive the certificate, students must complete 24 credits of courses from the list below or from the course list published each semester and earn a minimum grade point average of 3.0 in these courses. With preapproval of the WGS director, as well as a signed contract with a WGS faculty member, other courses may be applied toward the certificate if at least 50 percent of the class material is directly related to gender issues or if students complete a gender-related project in order to earn 50 percent of their grade in that course. Courses must be taken from at least three different academic areas; no more than 12 credits can be counted from a single discipline. Courses may come from major, minor, or University Studies programs. Area studies certificates may be earned by undergraduate and graduate students. Forms for the area studies certificate may be obtained in Taggart Student Center 302 or at the Center for Gender Programs, Taggart Student Center 315.

## Women and Gender Studies Minor (2.5 GPA)

To complete the minor, students must select 18 credits from the list below or from the course list published each semester and must earn a minimum grade point average of 2.5 in these courses.

**Courses for the Area Studies Certificate and Minor in Women and Gender Studies: (Area Studies, 24 credits; Minor, 18 credits)**

### Required Course (3 credits)

**WGS 1010 (BSS)** Introduction to Women and Gender Studies (Sp).... 3

## Electives

**(Minor, 15 credits; Area Studies, 21 credits)**

For the minor, select 15 credits from the following list. For the area studies certificate, select 21 credits.

<b>ANTH 5100 (DSS)/6100</b> Anthropology of Sex and Gender (F,Sp).....	3
<b>ARTH 4790</b> Art History Seminar: Gender Issues in Art (F,Sp,Su).....	3
<b>BIOL 4750/6750</b> ST: Women in Science (Sp).....	3
<b>ENGL 3030 (DHA)</b> Perspectives in Literature:	
Gender Focus (F,Sp,Su).....	3
<b>ENGL 3070/6700</b> Perspectives in Folklore: Gender Focus (F,Sp,Su)....	3
<b>ENGL 3300</b> Period Studies in American Literature:	
Gender Focus (F,Sp).....	3
<b>ENGL 3510</b> Young Adult Literature: Gender Focus (F,Sp).....	3
<b>ENGL 3520</b> Multicultural American Literature: Gender Focus (F,Sp)....	3
<b>ENGL 3620</b> Native American Studies: Gender Focus (F,Sp).....	3
<b>ENGL/HIST/RELS 3710 (CI)</b> Folklore Colloquium:	
Gender Focus (Sp).....	3
<b>ENGL 4320</b> British Writers: Gender Focus (F,Sp).....	3
<b>ENGL 4350</b> Studies in Poetry: Gender Focus (F).....	3
<b>ENGL 4360</b> Studies in Film: Genre and Gender in Hollywood (Sp).....	3
<b>ENGL 4370</b> Studies in Nonfiction Prose: Gender Focus (F).....	3
<b>ENGL 4610</b> Western American Literature: Gender Focus (F).....	3
<b>ENGL 5300 (CI)</b> Literature and Gender (F,Sp).....	3
<b>ENGL 5320 (CI)</b> Literature and Cultural Difference: Gender Focus (Sp).....	3
<b>ENGL 5340 (CI)</b> Studies in Literary Theory: Feminist Theory (F).....	3
<b>ENGL 6330</b> Topics in Literary Studies: Gender Focus (F,Sp).....	3
<b>ENVS 4950/6900</b> Special Topics: Gender and Environments (Sp).....	3
<b>FCHD 3110</b> Human Sexuality (F,Su).....	3
<b>HIST/WGS 4550 (DHA/CI)</b> Women and Gender in America (F).....	3
<b>HIST 4730 (CI)</b> History of Black America (Sp).....	3
<b>JCOM 3410 (DSS)</b> Film as Cultural Communication: Women, Feminism, and Film (F,Sp).....	3
<b>SOC 3010</b> Social Inequality (F,Sp).....	3
<b>SOC 4370</b> Sociology of Gender (F).....	3
<b>SOC 4730</b> Women in International Development (Sp).....	3
<b>SOC 6420</b> Gender and Social Inequality (Sp).....	3
<b>SOC 6730</b> Gender and International Development (Sp).....	3
<b>SPAN 4900</b> Topics of Spanish Literature: Gender Focus (F,Sp).....	3
<b>SPAN 4910</b> Topics of Latin American Literature:	
Gender Focus (F,Sp).....	3
<b>WGS 2010</b> Women and Leadership (Sp).....	3
<b>WGS/JCOM 4410/6410</b> Gender and the Mass Media (F).....	3
<b>WGS 4900</b> Directed Study: Women and Gender Studies (F,Sp,Su)....	1-3

For additional course offerings, please consult the Women and Gender Studies website: <http://www.usu.edu/womenstu/>

Further information may be obtained from the director or from the College of HASS Advising Center (Taggart Student Center 302) or at the Center for Gender Programs (Taggart Student Center 315).

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# Course Descriptions

## Accounting (ACCT)

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<b>ACCT 1050</b>	<b>Accounting Essentials</b>	<b>3</b>
Overview of accounting concepts, with special emphasis on practical applications. Taught only as a special extension course as requested. <sup>DE</sup>		
<b>ACCT 1550</b>	<b>Accounting Software for Small Business Applications</b>	<b>3</b>
Instruction in the use of small business accounting software. Prerequisite: ACCT 1050 or equivalent. <sup>DE</sup>		
<b>ACCT 2010</b>	<b>Survey of Accounting I</b>	<b>3</b>
Survey of uses of accounting information by investors and creditors for decision making. Emphasis on basic accounting principles used to prepare, analyze, and interpret financial statements. Prerequisites: STAT 1040 or MATH 1030 or 1050 (MATH 1050 or equivalent is required for Huntsman School of Business majors); and GPA of 2.5 or higher. (F,Sp,Su) <sup>DE</sup>		
<b>ACCT 2020</b>	<b>Survey of Accounting II</b>	<b>3</b>
Survey of uses of accounting information by managers for decision making, including planning, budgeting, and controlling operations. Emphasizes accumulation, analysis, and control of product and service costs. Prerequisite: ACCT 2010. (F,Sp,Su) <sup>DE</sup>		
<b>ACCT 3110</b>	<b>Intermediate Financial Accounting and Reporting I</b>	<b>3</b>
Study of accounting principles, theory, and practice relating to financial reporting of assets. Prerequisites: Cumulative GPA of 3.0 or higher; grade of B or better in ACCT 2010; ACCT 2020; admittance to a USU major; and completion of at least 40 credits. (F,Sp,Su)		
<b>ACCT 3120</b>	<b>Intermediate Financial Accounting and Reporting II</b>	<b>3</b>
Study of accounting principles, theory, and practice relating to liabilities, equities, and other contemporary issues. Prerequisite: ACCT 3110; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp,Su)		
<b>ACCT 3310</b>	<b>Strategic Cost Management</b>	<b>3</b>
Contemporary theory and applications in the accumulation, analysis, and interpretation of accounting information for internal decision-making and control. Prerequisites: Cumulative GPA of 3.0 or higher; grade of B or better in ACCT 2010; ACCT 2020; admittance to a USU major; and completion of at least 40 credits. (F,Sp,Su) <sup>DE</sup>		
<b>ACCT 3410</b>	<b>Income Taxation I</b>	<b>3</b>
Emphasis on Federal income taxation of individuals. Introduction to tax research methods and taxation of corporations and partnerships. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp,Su) <sup>DE</sup>		
<b>ACCT 4200</b>	<b>Advanced Accounting</b>	<b>3</b>
Study of accounting principles and theory relating to business combinations, nonprofit organizations, and governmental accounting. Prerequisites: ACCT 3120; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
<b>ACCT 4410</b>	<b>Income Taxation II</b>	<b>3</b>
Federal income taxation of partnerships, corporations, S-corporations, estates and trusts, and gifts. Prerequisites: ACCT 3410; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
<b>ACCT 4500</b>	<b>Accounting Information Systems</b>	<b>3</b>
Theoretical concepts underlying the accounting system's computerized support of business processes. Topics include accounting systems development, controls, security, and audit. Prerequisites: ACCT 3110; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
<b>ACCT 4510</b>	<b>Auditing Principles and Techniques</b>	<b>3</b>
Fundamental principles and techniques of auditing and reporting of audits presented in the context of the audit logic sequence. Integrative applications emphasizing audits of organizational resources, processes, and systems. Also addresses ethics, legal environment, auditing standards, and fraud. Prerequisites: ACCT 3110; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits (F,Sp)		
<b>ACCT 4900</b>	<b>Independent Research and Readings</b>	<b>1-3<sup>®</sup></b>
Selected reading and research individually assigned, handled, and directed. Problems of mutual interest to students and the instructor are investigated and reported. Prerequisite: Departmental permission. (F,Sp,Su)		
<b>ACCT 4950</b>	<b>Senior Honors Thesis/Project</b>	<b>3</b>
Creative project that will then be written up, and presented, as a Senior Thesis as required for an Honors Plan. (Sp)		
<b>ACCT 5480</b>	<b>Case Studies in Taxation</b>	<b>3</b>
<b>(dual listing 6480)</b> Contemporary case studies in taxation researched, analyzed, documented, and communicated in a team setting. Prerequisite: Permission of instructor. (F)		
<b>ACCT 6010</b>	<b>Financial and Managerial Accounting</b>	<b>3</b>
Introduction to financial and managerial accounting at the graduate level. Prerequisite: Admission to a Huntsman School of Business graduate program. (Su)		
<b>ACCT 6200</b>	<b>Advanced Topics in Financial Reporting</b>	<b>3</b>
Study of accounting principles and theory related to advanced consolidations, multinational accounting, segment reporting, SEC reporting, partnerships, and financial distress. Prerequisites: ACCT 3120, 4200. (F,Su)		
<b>ACCT 6250</b>	<b>International Accounting and Financial Reporting</b>	<b>3</b>
Explores international accounting issues, including the standard-setting process, the conceptual framework, the regulatory interface, international auditing standards, and a comparison of U.S. and international accounting standards. Prerequisite: ACCT 4200. (Sp)		
<b>ACCT 6310</b>	<b>Cost Management Systems to Support World-Class Operations</b>	<b>3</b>
Examination of appropriate cost management systems and performance measures to support decision making in world-class business operations. Cases, projects, simulations, and field studies to reinforce concepts. Prerequisite: ACCT 3310. (Sp)		
<b>ACCT 6350</b>	<b>Accounting Strategies for Achieving Profit Goals</b>	<b>3</b>
Action-oriented case studies to demonstrate management accounting techniques to achieve profit goals and business strategies in a variety of organizations. International accounting and ethical issues are addressed. Prerequisites: ACCT 2010 and 2020, or ACCT 6010. (F) <sup>DE</sup>		
<b>ACCT 6410</b>	<b>Tax Research and Procedures</b>	<b>3</b>
Methods of researching tax problems, case studies in tax administration, civil procedures and penalties, professional responsibility, and tax ethics for the tax practitioner. Prerequisites: ACCT 3410 and 4410. (F,Su)		
<b>ACCT 6420</b>	<b>Taxation of Corporations and Shareholders</b>	<b>3</b>
Concepts and principles governing the taxation of corporations and shareholders. Effect of taxes on corporation formation, capital structure, distributions, liquidations, and reorganizations. Prerequisites: ACCT 3410 and 4410. (Su)		
<b>ACCT 6440</b>	<b>Taxation of Partnerships, Estates, and Trusts</b>	<b>3</b>
Concepts and principles governing the taxation of partnerships and partners and estates, trusts, and beneficiaries. Uses of partnerships and trusts in tax planning. Prerequisites: ACCT 3410 and 4410. (F)		
<b>ACCT 6460</b>	<b>Tax Topics</b>	<b>3</b>
Topics of current interest to tax professionals. Prerequisites: ACCT 3410 and 4410. (Su)		

# Course Descriptions

<b>ACCT 6480</b> <b>(dual listing 5480)</b>	<b>Case Studies in Taxation</b>	<b>3</b>
Contemporary case studies in taxation researched, analyzed, documented, and communicated in a team setting. Prerequisite: Permission of instructor. (F)		
<b>ACCT 6500</b>	<b>Advanced Accounting Information Systems</b>	<b>3</b>
Study of contemporary issues in accounting information systems, including emerging information technologies for supporting enterprise decision making. Prerequisite: ACCT 4500. (Sp) <sup>DE</sup>		
<b>ACCT 6510</b>	<b>Financial Auditing</b>	<b>3</b>
Application of generally accepted auditing standards to accounting systems. Some study of auditing theory and current issues, and an introduction to statistical auditing. Prerequisite: ACCT 4510. (F,Sp)		
<b>ACCT 6540</b>	<b>Forensic Accounting</b>	<b>3</b>
Study of forensic accounting. Topics covered include types of fraud, recognition of red flags, and fraud investigation techniques. Also includes practice with computer-aided fraud detection, interrogation techniques, and case studies. (F)		
<b>ACCT 6600</b>	<b>Information Systems Auditing and Control</b>	<b>3</b>
Study of information systems auditing methodologies, including risk assessment, systems controls, and the use of computer-assisted audit techniques. (F)		
<b>ACCT 6610</b>	<b>Accounting Theory and Research</b>	<b>3</b>
Analytical approach to understanding the financial reporting environment. Integration of accounting theory and practical research methodology in the resolution of financial reporting problems. Prerequisite: ACCT 3120 (may be taken concurrently). (Sp,Su) <sup>DE</sup>		
<b>ACCT 6800</b>	<b>Accounting Communications and Professional Conduct</b>	<b>3</b>
Study of written and oral communication skills appropriate for the accounting profession. Covers interpersonal skills and professional conduct, including ethical conduct, in various business settings. (Sp)		
<b>ACCT 6900</b>	<b>Independent Reading and Research</b>	<b>1-3<sup>®</sup></b>
Independent work in accounting areas: theory, auditing, taxation, and other related areas. Prerequisite: Departmental permission. (F,Sp,Su)		
<b>ACCT 6960</b>	<b>Professional Paper</b>	<b>1-3</b>
A paper of professional quality prepared by the student. Designed to demonstrate the ability to complete a major business-related project and to effectively present the results. Prerequisite: Departmental permission. (F,Sp,Su)		
<b>ACCT 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-3<sup>®</sup></b>
Continuing enrollment at the University required after completing coursework. Graded Pass/Fail only. Prerequisite: Departmental permission. (F,Sp,Su)		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Animal, Dairy and Veterinary Sciences (ADVS)

See Department of Animal, Dairy and Veterinary Sciences, pages 156-165

<b>ADVS 1010</b>	<b>Artificial Insemination and Reproduction</b>	<b>2</b>
Principles of reproduction, artificial insemination, and handling of semen. Anatomy and physiology of the bovine reproductive tract and reproductive management of the dairy farm. (F) <sup>DE</sup>		
<b>ADVS 1020</b>	<b>Dairy Cattle Nutrition and Feeding</b>	<b>3</b>
Applied approach to nutrients, feeds, digestion, and nutrient utilization by dairy cattle. Dietary requirements and feeding practices. (F) <sup>DE</sup>		
<b>ADVS 1030</b>	<b>Lactation and Milking Systems</b>	<b>3</b>
The mammary gland, udder health, and mastitis and its control. Milk quality and marketing. Principles involved in the function, design, and maintenance of dairy equipment. (Sp) <sup>DE</sup>		

<b>ADVS 1040</b>	<b>Records and Financial Aspects of Dairy Herd Operations</b>	<b>3</b>
Record keeping systems, tax records, estate planning, DHI records, and computer record systems. Principles of credit and finance. Accessing loan sources. (Sp) <sup>DE</sup>		
<b>ADVS 1050</b>	<b>Dairy Genetics</b>	<b>3</b>
Principles of dairy genetics, mating, pedigrees, and breeding. Purebred cattle type traits and classification. (F) <sup>DE</sup>		
<b>ADVS 1060</b>	<b>Applied Feeding and Management of Dairy Calves and Basic Construction of Facilities</b>	<b>3</b>
Practical experience in feeding and management of dairy calves from birth to weaning. Students participate in actual calf-raising programs. Development of basic skills required for planning and building agricultural structures. (Sp) <sup>DE</sup>		
<b>ADVS 1100</b>	<b>Small Scale Animal Production</b>	<b>3</b>
Fundamentals of raising domestic farm animals in a semi-rural, noncommercial setting. Considerations of feeding, breeding, housing, marketing, sanitation, general health care, and community zoning factors. For nonmajors. (Su)		
<b>ADVS 1110</b>	<b>Introduction to Animal Science</b>	<b>4</b>
Influence and contributions of animal production and its commodities to society. Introductory scientific principles of animal science, livestock production systems, and contemporary issues. Introduction to professions and careers in animal agriculture and veterinary sciences. (F,Sp)		
<b>ADVS 1250 QI</b>	<b>Applied Agricultural Computations</b>	<b>2</b>
Development of understanding and proficiency in the application of basic mathematical skills, including algebra and geometry, to practical computational situations encountered in the agricultural sciences. (F,Sp) <sup>DE</sup>		
<b>ADVS 1500</b>	<b>Fundamentals of Equine Science and Management</b>	<b>2</b>
Application of basic horse terminology, including parts of the horse, hoof, tack, and gaits. Examines evolution and history of the equine species, including explanation of breed types, colors, markings, and health issues. (F,Sp,Su)		
<b>ADVS 1600</b>	<b>Riding Fundamentals I</b>	<b>2</b>
Lectures explore the theory necessary to be a successful rider. Includes information on use of natural and artificial aids with hunt seat and western-style riding. In riding labs, students develop their riding skills and understanding of riding theory. (F,Sp)		
<b>ADVS 1720</b>	<b>Dairy Cattle Evaluation and Judging</b>	<b>1</b>
Evaluation of cattle based on exterior anatomical traits functional for improving longevity and milk production. Explanation of classification systems used by breed associations and the artificial insemination industry. Development of basic skills for preparing dairy cattle for show. (Sp) <sup>DE</sup>		
<b>ADVS 1910</b>	<b>Orientation to Animal and Dairy Science</b>	<b>0.5</b>
Introduction to the Animal Science and Dairy Science programs, and to the opportunities in animal agriculture and related fields. (F)		
<b>ADVS 1920</b>	<b>Orientation to Bioveterinary Science</b>	<b>1</b>
Introduction to the profession of veterinary medicine and related fields, and to the preparation required for veterinary medical careers. (F)		
<b>ADVS 2040</b>	<b>Introduction to Biotechnology</b>	<b>1</b>
Introduces students to the emerging field of biotechnology and the impact this technology has on society. Also taught as BIOL 2040, NFS 2040, and PSC 2040. (Sp)		
<b>ADVS 2080</b>	<b>Beef Production Practices</b>	<b>2</b>
Production practices in the handling, selection, and care of beef cattle. Demonstrations of equipment, facilities, and skills relevant to beef cattle production. Prerequisite: ADVS 1110 (may be taken concurrently) or permission of instructor. (Sp)		
<b>ADVS 2090</b>	<b>Sheep Production Practices</b>	<b>2</b>
Production practices in the handling, selection, and care of sheep. Demonstrations of equipment, facilities, and skills relevant to sheep and wool production. Prerequisite: ADVS 1110 (may be taken concurrently) or permission of instructor. (Sp)		

# Course Descriptions

<p><b>ADVS 2120 Swine Production Practices 2</b> Production practices in the selection, handling, and care of swine. Demonstrations of equipment, facilities, and skills relevant to swine industry. Prerequisite: ADVS 1110 (may be taken concurrently) or permission of instructor. (F)</p> <p><b>ADVS 2130 Dairy Production Practices 3</b> Basic husbandry skills needed to carry out day-to-day operations on a dairy farm. Principles of dairy herd health, disease prevention, and treatment. Prerequisite: ADVS 1020 or 1110 (may be taken concurrently) or permission of instructor. (F) DE</p> <p><b>ADVS 2190 Horse Production Practices 2</b> Production practices in the selection, care, and evaluation of horses. Survey of breeds of horses, their characteristics, and their uses, as well as equine behavior, health care, nutrition, reproduction, anatomy, and physiology. Prerequisite: ADVS 1110 (may be taken concurrently) or permission of instructor. (F)</p> <p><b>ADVS 2200 Anatomy and Physiology of Animals 4</b> Normal structure and function studied systematically. Comparative livestock, poultry, pleasure and companion animals, laboratory animals, and humans. (Sp)</p> <p><b>ADVS 2250 Cooperative Work Experience 1-12®</b> For students who require animal industry experience to prepare them for advanced curriculum in Animal, Dairy, or Bioveterinary Science. (F,Sp,Su) DE</p> <p><b>ADVS 2300 Stable Management I 3</b> Students work at Equine Educational Center to gain valuable skills in management and further develop skills introduced in other equine courses. Students assist with feeding, care of sick or lame horses, horse handling, and facility upkeep. (F,Sp)</p> <p><b>ADVS 2310 Stable Management II 3</b> Students work at Equine Educational Center to gain valuable skills in management and further develop skills introduced in other equine courses. Students assist with feeding, care of sick or lame horses, horse handling, and facility upkeep. Prerequisite: ADVS 2300. (F,Sp)</p> <p><b>ADVS 2600 Riding Fundamentals II—Western 2</b> Lecture includes detailed discussion of upper-level riding skills necessary for western-style riding. Riding labs provide students with opportunity to develop more advanced riding skills. Prerequisite: ADVS 1600. (Sp)</p> <p><b>ADVS 2650 Riding Fundamentals II—Hunter 2</b> Lecture includes detailed discussion of upper-level riding skills necessary for hunter-style riding. Riding labs provide students with opportunity to develop more advanced riding skills. Prerequisite: ADVS 1600. (F)</p> <p><b>ADVS 2920 Orientation to Veterinary Medicine 0.5</b> Preparation of preveterinary students for successful application and admission to professional veterinary schools. Taught first half of spring semester. (Sp)</p> <p><b>ADVS 3000 Animal Health and Hygiene 3</b> Introduction to basic principles of disease. Agents, mechanisms, and preventive measures for common diseases of farm animals will be emphasized. Prerequisite: ADVS 2200. (Sp)</p> <p><b>ADVS 3020 Biotechnology in Agriculture 3</b> Broad view of biotechnology in agriculture. Contributions of advances in recombinant DNA technology, molecular genetics, and genetic engineering toward animal breeding and development of new medicines. Prerequisites: BIOL 1620, CHEM 2310. (F)</p> <p><b>ADVS 3100 Equine Evaluation I** 2</b> Study of equine conformation, using multiple breeds. Development of skills in evaluating balance, leg structure, and muscling. Students organize and present oral reasons. (F)</p> <p><b>ADVS 3150 Equine Evaluation II** 2</b> Study of equine performance horses, including western pleasure, hunter under saddle, reining, western riding, and jumping. Discussion of multiple breeds. Presentation of oral reasons. Prerequisite: ADVS 3100. (Sp)</p>	<p><b>ADVS 3200 DSC Ethical Issues in Genetic Engineering and Biotechnology 3</b> Critical evaluation of ethical issues of genetic engineering in biotechnology, including biological engineering and cloning of plants, animals, and humans. Presents basic science of genetic engineering and biotechnology. (Sp)</p> <p><b>ADVS 3500 Principles of Animal Nutrition 3</b> Biochemical characterization and chemical analysis of feedstuffs for farm animals, with regard to carbohydrates, proteins, lipids, minerals, and vitamins. Catabolic/anabolic pathways associated with utilization of these nutrients with respect to production, general health, and nutritional disorders. Prerequisites: ADVS 2200; CHEM 1120, 1220, or 2320. (F)</p> <p><b>ADVS 3510 QI Applied Animal Nutrition 3</b> Categorization of farm animal feeds into energy feeds, protein feeds, dry forages, silages and haylages, pasture and range plants, and vitamin-mineral supplements. Emphasis placed on practical diet formulation, including computerization and aspects of feed delivery and nutritional management. Prerequisite: ADVS 3500 or CHEM 3700. (Sp)</p> <p><b>ADVS 3520 Equine Nutrition 1</b> Covers digestive tract, design, function, and associated problems, as well as nutrient requirements. Prerequisite: ADVS 3500. (Sp)</p> <p><b>ADVS 3600 Equine Behavior and Training I 2</b> Students work with a young horse on ground manners and training. These skills include: haltering, leading, tying, round penning, sacking out, trailer loading, and introduction to saddling. Prerequisite: ADVS 2600. (F)</p> <p><b>ADVS 3650 Live Animal and Carcass Evaluation 3</b> Judging, grading, and pricing of market animals and carcasses, with emphasis on comparative evaluation of live animals and carcasses. (F)</p> <p><b>ADVS 3690 Equine Behavior and Training II 2</b> Students work with a young horse on ground manners and under saddle. Includes work on suppleness at the walk, jog (trot), lope (canter), and backing. Students learn to use soft cues in teaching the horse all aspects. Prerequisite: ADVS 3600. (Sp)</p> <p><b>ADVS 3710 Advanced Livestock Judging 2</b> Advanced methods of selection and identification of superior animals for breeding stock. Emphasis on performance records, judging, grading, and oral reasons. (F,Sp)</p> <p><b>ADVS 3900 Special Problems and Readings 1-3®</b> Students conduct short-term studies and/or literature review with critical analysis of individualized subject matter. Formal written reports required. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>ADVS 3910 Special Topics 1-5®</b> Topics of special interest to those who have needs not satisfied by courses currently offered. (F,Sp,Su) DE</p> <p><b>ADVS 3920 Internship in Veterinary Medicine 1-3®</b> A directed and evaluated work experience with a veterinarian. For each credit, student must document at least 54 hours of work time. Graded Pass/Fail only. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>ADVS 4200 CI Physiology of Reproduction and Lactation 4</b> Introduction to principles of physiology as they relate to the reproductive and lactation processes in domestic mammals. Factors affecting reproductive and lactation performance and their applications in animal management. Prerequisites: ADVS 2200; CHEM 1120, 1220, or 2310. (Sp)</p> <p><b>ADVS 4250 Internship in Animal Industry 1-12®</b> Directed and evaluated educational work experience with an animal production unit, related business, or government facility in cooperation with the Livestock Education Foundation. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>ADVS 4260 Internship in Animal Biotechnology Industry 2-12®</b> Directed and evaluated educational work experience with an animal biotechnology unit, or with a related business or government facility. Prerequisite: ADVS 5160 or 5240 or 5260 and permission of instructor. (F,Sp,Su)</p>
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# Course Descriptions

<p><b>ADVS 4270 Internship in Equine Industry 1-12®</b> Directed and evaluated work experience with an equine facility. Prerequisite: Permission of instructor. (F,Sp,Su)</p>	<p>merchandising. Prerequisites: ADVS 2090; ADVS 3510, 4200, 4560 (may be taken concurrently). (Sp)</p>
<p><b>ADVS 4300 Stable Management III 3</b> Students work at Equine Educational Center in a leadership role. Senior-level students work as mentors in all aspects of management. Allows students to develop leadership qualities and further develop their management skills. Graded Pass/Fail <i>only</i>. Prerequisite: ADVS 2310. (F,Sp)</p>	<p><b>ADVS 5120 Swine Management 3</b> <b>(dual listing 6120)</b> Management decisions based on nutrition, breeding programs, herd health practices, herd records, and marketing opportunities. Prerequisites: ADVS 2120; ADVS 3510, 4200, 4560 (may be taken concurrently). (F)</p>
<p><b>ADVS 4310 Stable Management IV 3</b> Students work at Equine Educational Center in a leadership role. Senior-level students work as mentors in all aspects of management. Allows students to develop leadership qualities and further develop their management skills. Graded Pass/Fail <i>only</i>. Prerequisite: ADVS 4300. (F,Sp)</p>	<p><b>ADVS 5130 Dairy Cattle Management 3</b> <b>(dual listing 6130)</b> Capstone course drawing together concepts and applying them to a total dairy farm management program. Prerequisites: ADVS 2130; ADVS 3510, 4200, 4560 (may be taken concurrently). (Sp)</p>
<p><b>ADVS 4560 QI Principles of Animal Breeding 3</b> Genetic influences affecting animal performance and the application of selection principles, breeding systems, and methods of improvement to farm animals, including beef and dairy cattle, sheep, swine, and horses. Prerequisite: BIOL 1010 or 1620. (F)</p>	<p><b>ADVS 5160 Methods in Biotechnology: Cell Culture 3</b> Techniques and fundamental knowledge for culturing mammalian and insect cells. Students will learn maintenance, growing, genetic engineering of cells, cytotoxicity, hybridoma creation, cloning, etc. Extensive laboratory experience is provided. Also taught as BIOL 5160, NFS 5160, and PSC 5160. (Sp)</p>
<p><b>ADVS 4800 Undergraduate Research or Creative Opportunity 1-6®</b> Research or creative activity pertaining to animals. May include management, production, medical, or basic science, with consideration of biological, chemical, or physical aspects, or instrument design. Prerequisite: Permission of instructor. (F,Sp,Su)</p>	<p><b>ADVS 5190 Horse Management 3</b> <b>(dual listing 6190)</b> Management decisions in horse enterprises emphasizing business procedures, including merchandising, records, selection, uses, housing, facilities, nutrition, feeding, health care, and breeding. Emphasizes total management of horse enterprise, rather than husbandry. Prerequisites: ADVS 2190; ADVS 3510, 4200, 4560 (may be taken concurrently). (Sp)</p>
<p><b>ADVS 4810 Thesis/Project Seminar 1</b> Oral presentation and discussion of Honors senior thesis/projects. Guest presentations focus on essential contrasts and similarities in "ways of knowing" among various academic specialties. (F,Sp)</p>	<p><b>ADVS 5220 Endocrine Aspects of Nutrition 2</b> <b>(dual listing 6220)</b> Provides physiological background into hormones involved in nutrient regulation, as well as mechanisms of hormone action at the cellular and molecular levels. Includes action of steroids in the nucleus and membrane-based signal transduction pathways. Course includes lectures and literature reviews/presentations. Prerequisite: CHEM 3700 or permission of instructor. Also taught as BIOL 5220/6220 and NFS 5220/6220. (Sp)</p>
<p><b>ADVS 4900 Senior Thesis/Project 1-3</b> All Honors students are required to submit a senior thesis/project for graduation with an Honors degree. Thesis/project may be in any area of student's choice, prepared in cooperation with an advisor drawn from the faculty at large. (F,Sp,Su)</p>	<p><b>ADVS 5240 Methods in Biotechnology: Protein Purification Techniques 3</b> Reviews basic methods of protein purification, including scaled-up use of 100L fermenter, large-scale centrifugation, diafiltration, chromatography, and use of BioCAD. Prerequisite: CHEM 3700. Also taught as BIOL 5240, NFS 5240, and PSC 5240. (Sp)</p>
<p><b>ADVS 4910 Preprofessional Orientation 0.5</b> Survey of the professional opportunities in the animal industries to enable graduating students to make the transition to careers and/or postgraduate study. Prerequisite: Junior standing. (F)</p>	<p><b>ADVS 5260 Methods in Biotechnology: Molecular Cloning 3</b> Laboratory-oriented course designed to teach molecular biology techniques such as DNA cloning, genetic probes, polymerase chain reaction, and DNA sequencing. Prerequisite: CHEM 3700 or 5710; or BIOL 3060; or permission of instructor. Also taught as BIOL 5260, NFS 5260, and PSC 5260. (F)</p>
<p><b>ADVS 4920 CI Undergraduate Seminar 2</b> Current developments in agricultural field selected by student. Each student is responsible for the research and oral presentation of a topic in the animal industries. Group investigations, preparations, and deliberations on issues in animal agriculture. Prerequisite: Senior standing. (F)</p>	<p><b>ADVS 5280 Animal Molecular Biology 3</b> <b>(dual listing 6280)</b> Laboratory-based course designed to present the theory and provide an in-depth laboratory experience in RNA detection, differential gene expression analysis, real-time RT-PCR, protein detection and purification, 2-D gel electrophoresis, and microarrays. Prerequisite: ADVS 5260 or permission of instructor. (Sp)</p>
<p><b>ADVS 4930 Undergraduate Seminar in Veterinary Medicine 2</b> Prepares preveterinary students for successful application and admission to professional veterinary school. Also includes discussion of current developments in the field of veterinary medicine. Students conduct research and give oral presentations on current topics in the field of professional veterinary medicine. Prerequisite: Junior standing. (F)</p>	<p><b>ADVS 5350 Introductory Pharmacology and Pharmacokinetics 3</b> <b>(dual listing 6350)</b> Basic principles of pharmacology and pharmacokinetics providing basis for extrapolation of biological kinetics of foreign compounds to a wide variety of xenobiotics encountered in toxicology, biology, and research. Prerequisites: BIOL 5600, CHEM 3700. (Sp)</p>
<p><b>ADVS 5030 Sustainable Agricultural Production Systems with Animals 3</b> Study of various domestic animal production systems in relation to sustainable agriculture and integrated ranch and farm management strategies. Consideration of environmental factors and overall profitability. Prerequisite: ADVS 1110. (F)</p>	<p><b>ADVS 5400 Environmental Toxicology 3</b> <b>(dual listing 6400)</b> Presents in-depth survey of toxic chemicals present in the environment, environmental factors impacting fate of chemicals, potential biological effects associated with chemical exposures, and methods of reducing associated risks. Also taught as BIOL 5400/6400 and PUBH 5400/6400. (Sp)</p>
<p><b>ADVS 5080 Beef Cattle Management 3</b> <b>(dual listing 6080)</b> Managing the beef enterprise to yield optimum returns through integrating resource use and applying breeding, nutrition, reproduction, and animal health practices. Prerequisites: ADVS 2080; ADVS 3510, 4200, 4560 (may be taken concurrently). (Sp)</p>	
<p><b>ADVS 5090 Sheep Management and Wool Technology 4</b> <b>(dual listing 6090)</b> Detailed study of the managerial considerations for range and farm flock operations. Examinations of wool, and review of wool clip handling and</p>	

# Course Descriptions

<p><b>ADVS 5500</b>                    <b>Animal Nutrition Research Techniques</b>                    <b>2</b> <b>(dual listing 6500)</b> Laboratory intensive course in routine feedstuff evaluation and research techniques to evaluate nutritional and metabolic responses under in vivo, in situ, and in vitro conditions using feed, digesta, feces, urine, tissue, metabolites, and products. Students enrolled in ADVS 6500 will be required to conduct an animal study. Prerequisite: ADVS 3510. (F)</p> <p><b>ADVS 5520</b>                    <b>Grazing Livestock Nutrition and Management**</b>                    <b>2</b> <b>(dual listing 6520)</b> Principles of livestock nutrition and production applied to the grazing environment and the relationships of livestock and range management for optimizing values from both. Prerequisites: ADVS 3510; WILD 4000 (recommended). (Sp)</p> <p><b>ADVS 5530</b>                    <b>Nutritional Management of Farm Animals*</b>                    <b>3</b> <b>(dual listing 6530)</b> Nutritional management, problem solving, and feeding strategies as they influence performance of farm animals. Optimization of nutrition for various species and classes of domestic livestock. Prerequisite: ADVS 3510. (Sp)</p> <p><b>ADVS 5690</b>                    <b>Animal Histology</b>                    <b>3</b> <b>(dual listing 6690)</b> Microscopic anatomy and physiology of normal domestic animal's cells, tissues, organs, and system. Prerequisite: ADVS 2200 or permission of instructor. (F)</p> <p><b>ADVS 5700 CI</b>                    <b>General Animal Pathobiology</b>                    <b>3</b> <b>(dual listing 6700)</b> Introduction to the principles of gross, microscopic, and physiological changes associated with diseases of domestic animals. Prerequisite: ADVS 5690/6690 or permission of instructor. (Sp)</p> <p><b>ADVS 5750</b>                    <b>Parasitology</b>                    <b>4</b> Introduction to biology of parasitism. Discussion of representative examples of human and animal parasites. Emphasizes classification, life cycles, and clinical significance of medically important parasites. Laboratories concentrate on taxonomy and morphology of parasites. Prerequisite: BIOL 1620. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>ADVS 5820</b>                    <b>Animal Cytogenetics and Gene Mapping**</b>                    <b>3</b> <b>(dual listing 6820)</b> Structure and properties of chromosomes, chromosome behavior during cell division, chromosomal influence on phenotype, and factors causing changes in chromosome structure and number. Gene markers and gene mapping, with emphasis on applications for livestock. Prerequisite: ADVS 4560 or BIOL 3060. (F)</p> <p><b>ADVS 5860</b>                    <b>Poisonous Range Plants Affecting Livestock**</b>                    <b>3</b> Poisonous plants of rangelands and their effects on grazing animals, especially livestock. Management practices to reduce or prevent poisoning. Also taught as WILD 5860. (Sp)</p> <p><b>ADVS 6010</b>                    <b>Animal Research Orientation</b>                    <b>1</b> Orientation to graduate study and to research procedures and methods in the animal sciences, with introduction to the design and analysis of experiments, research ethics, and accessing research databases. For beginning graduate students. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>ADVS 6080</b>                    <b>Beef Cattle Management</b>                    <b>3</b> <b>(dual listing 5080)</b> Managing the beef enterprise to yield optimum returns through integrating resource use and applying breeding, nutrition, reproduction, and animal health practices. Prerequisites: ADVS 2080; ADVS 3510, 4200, 4560 (may be taken concurrently). (Sp)</p> <p><b>ADVS 6090</b>                    <b>Sheep Management and Wool Technology</b>                    <b>4</b> <b>(dual listing 5090)</b> Detailed study of the managerial considerations for range and farm flock operations. Examinations of wool, and review of wool clip handling and merchandising. Prerequisites: ADVS 2090; ADVS 3510, 4200, 4560 (may be taken concurrently). (Sp)</p>	<p><b>ADVS 6120</b>                    <b>Swine Management</b>                    <b>3</b> <b>(dual listing 5120)</b> Management decisions based on nutrition, breeding programs, herd health practices, herd records, and marketing opportunities. Prerequisites: ADVS 2120; ADVS 3510, 4200, 4560 (may be taken concurrently). (F)</p> <p><b>ADVS 6130</b>                    <b>Dairy Cattle Management</b>                    <b>3</b> <b>(dual listing 5130)</b> Capstone course drawing together concepts and applying them to a total dairy farm management program. Prerequisites: ADVS 2130; ADVS 3510, 4200, 4560 (may be taken concurrently). (Sp)</p> <p><b>ADVS 6190</b>                    <b>Horse Management</b>                    <b>3</b> <b>(dual listing 5190)</b> Management decisions in horse enterprises emphasizing business procedures, including merchandising, records, selection, uses, housing, facilities, nutrition, feeding, health care, and breeding. Emphasizes total management of horse enterprise, rather than husbandry. Prerequisites: ADVS 2190; ADVS 3510, 4200, 4560 (may be taken concurrently). (Sp)</p> <p><b>ADVS 6200</b>                    <b>Physiology of Reproduction**</b>                    <b>3</b> Study of processes of reproduction in mammals, including fertilization, embryonic development, reproductive endocrinology, and mechanisms of control. Prerequisites: ADVS 4200, CHEM 3700. (Sp)</p> <p><b>ADVS 6210</b>                    <b>Molecular Reproduction and Development*</b>                    <b>3</b> <b>(dual listing 7210)</b> Lecture-based course focusing on current knowledge of genes associated with gametogenesis, fertilization, nuclear reprogramming, and embryonic and fetal development. Prerequisite: ADVS 6200 or permission of instructor. (Sp)</p> <p><b>ADVS 6220</b>                    <b>Endocrine Aspects of Nutrition</b>                    <b>2</b> <b>(dual listing 5220)</b> Provides physiological background into hormones involved in nutrient regulation, as well as mechanisms of hormone action at the cellular and molecular levels. Includes action of steroids in the nucleus and membrane-based signal transduction pathways. Course includes lectures and literature reviews/presentations. Prerequisite: CHEM 3700 or permission of instructor. Also taught as BIOL 6220/5220 and NFS 6220/5220. (Sp)</p> <p><b>ADVS 6280</b>                    <b>Animal Molecular Biology</b>                    <b>3</b> <b>(dual listing 5280)</b> Laboratory-based course designed to present the theory and provide an in-depth laboratory experience in RNA detection, differential gene expression analysis, real-time RT-PCR, protein detection and purification, 2-D gel electrophoresis, and microarrays. Prerequisite: ADVS 5260 or permission of instructor. (Sp)</p> <p><b>ADVS 6320</b>                    <b>Animal Genomics and Proteomics*</b>                    <b>3</b> <b>(dual listing 7320)</b> Presents in-depth study of current animal genomic and proteomic technologies. Investigates the genetics of animal development, physiology, and disease through the application of techniques used to study genes and the modification of the animal genome. (F)</p> <p><b>ADVS 6350</b>                    <b>Introductory Pharmacology and Pharmacokinetics</b>                    <b>3</b> <b>(dual listing 5350)</b> Basic principles of pharmacology and pharmacokinetics providing basis for extrapolation of biological kinetics of foreign compounds to a wide variety of xenobiotics encountered in toxicology, biology, and research. Prerequisites: BIOL 5600, CHEM 3700. (Sp)</p> <p><b>ADVS 6400</b>                    <b>Environmental Toxicology</b>                    <b>3</b> <b>(dual listing 5400)</b> Presents in-depth survey of toxic chemicals present in the environment, environmental factors impacting fate of chemicals, potential biological effects associated with chemical exposures, and methods of reducing associated risks. Also taught as BIOL 6400/5400 and PUBH 6400/5400. (Sp)</p> <p><b>ADVS 6500</b>                    <b>Animal Nutrition Research Techniques</b>                    <b>2</b> <b>(dual listing 5500)</b> Laboratory intensive course in routine feedstuff evaluation and research techniques to evaluate nutritional and metabolic responses under in vivo, in situ, and in vitro conditions using feed, digesta, feces, urine, tissue, metabolites, and products. Students enrolled in ADVS 6500 will be required to conduct an animal study. Prerequisite: ADVS 3510. (F)</p>
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# Course Descriptions

<p><b>ADVS 6510</b>                    <b>Rumen Physiology and Metabolism*</b>                    <b>2</b>  <b>(dual listing 7510)</b>            Discussion of some key aspects of physiology and metabolism of the ruminant digestive tract, with emphasis on the rumen. Topics include anatomy and function; motility; metabolism of protein, carbohydrates, and lipids; rumen microbiology; and common digestive disorders. Prerequisite: ADVS 3510. (Sp)</p>	<p>prepare a USDA/NIH grant application. This course is not currently being offered. For information about when it may be offered, contact the department.</p>
<p><b>ADVS 6520</b>                    <b>Grazing Livestock Nutrition</b>                    <b>2</b>  <b>(dual listing 5520)</b>                    <b>and Management**</b>            Principles of livestock nutrition and production applied to the grazing environment and the relationships of livestock and range management for optimizing values from both. Prerequisites: ADVS 3510; WILD 4000 (recommended). (Sp)</p>	<p><b>ADVS 6900</b>                    <b>Special Problems</b>                    <b>1-3®</b>            Readings, discussions, lectures, literature reviews, and research problems in animal, dairy, and bioveterinary sciences. Prerequisite: Consent of instructor and department. (F,Sp,Su)<sup>DE</sup></p>
<p><b>ADVS 6530</b>                    <b>Nutritional Management of Farm Animals*</b>                    <b>3</b>  <b>(dual listing 5530)</b>            Nutritional management, problem solving, and feeding strategies as they influence performance of farm animals. Optimization of nutrition for various species and classes of domestic livestock. Prerequisite: ADVS 3510. (Sp)</p>	<p><b>ADVS 6910</b>                    <b>Readings and Conference in</b>                    <b>1-3®</b>  <b>Pharmacology and Toxicology</b>            Independent readings and conferences in the area of pharmacology and toxicology with particular emphasis on current literature. Prerequisite: ADVS 6350/5350. (F)</p>
<p><b>ADVS 6540</b>                    <b>Animal Energetics and Nutrient</b>                    <b>3</b>  <b>(dual listing 7540)</b>                    <b>Metabolism**</b>            Techniques and procedures in measurement of heat production; factors affecting heat production; efficiency of energy utilization in body processes such as work, growth, and synthesis of fats, proteins, and carbohydrates; and the energetic costs of nutrient interconversion and turnover. Prerequisites: ADVS 6510/7510; CHEM 5700, 5710. (Sp)</p>	<p><b>ADVS 6970</b>                    <b>Research and Thesis</b>                    <b>1-12®</b>            Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>
<p><b>ADVS 6550</b>                    <b>Protein Metabolism and Utilization**</b>                    <b>3</b>  <b>(dual listing 7550)</b>            Processes involved in the digestion, synthesis, and degradation of protein in the rumen, with special emphasis on protein-energy relationships in the rumen and whole animal. Discussion of protein requirements and efficiency of protein utilization. Prerequisite: ADVS 6510/7510. (F)</p>	<p><b>ADVS 6990</b>                    <b>Continuing Graduate Advisement</b>                    <b>1-3®</b>            Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>
<p><b>ADVS 6560</b>                    <b>Mineral and Vitamin Metabolism*</b>                    <b>3</b>  <b>(dual listing 7560)</b>            Principal roles of minerals and vitamins in nutrient metabolism as they apply to animal nutrition. Prerequisite: ADVS 6510/7510. (F)</p>	<p><b>ADVS 7210</b>                    <b>Molecular Reproduction and</b>                    <b>3</b>  <b>(dual listing 6210)</b>                    <b>Development *</b>            Lecture-based course focusing on current knowledge of genes associated with gametogenesis, fertilization, nuclear reprogramming, and embryonic and fetal development. Prerequisite: ADVS 6200 or permission of instructor. (Sp)</p>
<p><b>ADVS 6600</b>                    <b>Principles of Toxicology**</b>                    <b>3</b>  <b>(dual listing 7600)</b>            Mechanisms of action and effects of toxicants on living organisms. Prerequisite: ADVS 5350/6350. (F)</p>	<p><b>ADVS 7320</b>                    <b>Animal Genomics and Proteomics*</b>                    <b>3</b>  <b>(dual listing 6320)</b>            Presents in-depth study of current animal genomic and proteomic technologies. Investigates the genetics of animal development, physiology, and disease through the application of techniques used to study genes and the modification of the animal genome. (F)</p>
<p><b>ADVS 6690</b>                    <b>Animal Histology</b>                    <b>3</b>  <b>(dual listing 5690)</b>            Microscopic anatomy and physiology of normal domestic animal's cells, tissues, organs, and system. Prerequisite: ADVS 2200 or permission of instructor. (F)</p>	<p><b>ADVS 7510</b>                    <b>Rumen Physiology and Metabolism*</b>                    <b>2</b>  <b>(dual listing 6510)</b>            Discussion of some key aspects of physiology and metabolism of the ruminant digestive tract, with emphasis on the rumen. Topics include anatomy and function; motility; metabolism of protein, carbohydrates, and lipids; rumen microbiology; and common digestive disorders. Prerequisite: ADVS 3510. (Sp)</p>
<p><b>ADVS 6700</b>                    <b>General Animal Pathobiology</b>                    <b>3</b>  <b>(dual listing 5700)</b>            Introduction to the principles of gross, microscopic, and physiological changes associated with diseases of domestic animals. Prerequisite: ADVS 6690/5690 or permission of instructor. (Sp)</p>	<p><b>ADVS 7540</b>                    <b>Animal Energetics and</b>                    <b>3</b>  <b>(dual listing 6540)</b>                    <b>Nutrient Metabolism**</b>            Techniques and procedures in measurement of heat production; factors affecting heat production; efficiency of energy utilization in body processes such as work, growth, and synthesis of fats, proteins, and carbohydrates; and the energetic costs of nutrient interconversion and turnover. Prerequisites: ADVS 7510/6510; CHEM 5700, 5710. (Sp)</p>
<p><b>ADVS 6800</b>                    <b>Graduate Student Seminar</b>                    <b>1</b>            Seminars on topics of interest in Animal, Dairy and Veterinary Sciences. (F,Sp)</p>	<p><b>ADVS 7550</b>                    <b>Protein Metabolism and Utilization**</b>                    <b>3</b>  <b>(dual listing 6550)</b>            Processes involved in the digestion, synthesis, and degradation of protein in the rumen, with special emphasis on protein-energy relationships in the rumen and whole animal. Discussion of protein requirements and efficiency of protein utilization. Prerequisite: ADVS 7510/6510. (F)</p>
<p><b>ADVS 6810</b>                    <b>Seminar in Toxicology</b>                    <b>1®</b>            Graduate seminar in toxicology and related topics. (Sp)</p>	<p><b>ADVS 7560</b>                    <b>Mineral and Vitamin Metabolism*</b>                    <b>3</b>  <b>(dual listing 6560)</b>            Principal roles of minerals and vitamins in nutrient metabolism as they apply to animal nutrition. Prerequisite: ADVS 7510/6510. (F)</p>
<p><b>ADVS 6820</b>                    <b>Animal Cytogenetics and Gene Mapping**</b>                    <b>3</b>  <b>(dual listing 5820)</b>            Structure and properties of chromosomes, chromosome behavior during cell division, chromosomal influence on phenotype, and factors causing changes in chromosome structure and number. Gene markers and gene mapping, with emphasis on applications for livestock. Prerequisite: ADVS 4560 or BIOL 3060. (F)</p>	<p><b>ADVS 7600</b>                    <b>Principles of Toxicology*</b>                    <b>3</b>  <b>(dual listing 6600)</b>            Mechanisms of action and effects of toxicants on living organisms. Prerequisite: ADVS 5350/6350. (F)</p>
<p><b>ADVS 6890</b>                    <b>Mechanisms of Animal Disease</b>                    <b>3</b>  <b>(dual listing 7890)</b>            Discussion course dealing with biochemical and microbial mechanisms in disease processes, including cellular reaction to injury, host-viral interactions, and host-toxin interactions. Students enrolled in ADVS 7890 will be required to</p>	<p><b>ADVS 7890</b>                    <b>Mechanisms of Animal Disease</b>                    <b>3</b>  <b>(dual listing 6890)</b>            Discussion course dealing with biochemical and microbial mechanisms in disease processes, including cellular reaction to injury, host-viral interactions, and host-toxin interactions. Students enrolled in ADVS 7890 will be required to prepare a USDA/NIH grant application. This course is not currently being offered. For information about when it may be offered, contact the department.</p>



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**ADVS 7970 Dissertation Research 1-12<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

**ADVS 7990 Continuing Graduate Advisement 1-9<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

## Agriculture (AG)

See *College of Agriculture*, pages 121-122

**AG 4250 Advanced Internship and Cooperative Experience 1-9**  
Advanced or middle-level internship or cooperative experience to be approved by the Dean's Office. Intended for nonformal students interested in a broad agricultural experience. (F,Sp,Su)

## Anthropology (ANTH)

See *Department of Sociology, Social Work and Anthropology*, pages 448-462

**ANTH 1010 BSS Cultural Anthropology 3**  
Role of cultural concepts within discipline of anthropology. Relationship of cultural concepts to survival and adaptation, society and social life, ideology and symbolism, and cultural change and diversity. Applications to contemporary world problems. (F [F,Sp,Su online]) <sup>DE</sup>

**ANTH 1020 BLS Biological Anthropology 3**  
Survey of multidisciplinary field of biological anthropology. Includes study of fossil and living primates, fossil evidence for human evolution, bioarchaeology, contemporary human variation and adaptation, principles of evolutionary theory, and introductory population genetics. (F) <sup>DE</sup>

**ANTH 1030 BSS World Archaeology 3**  
Surveys archaeology and the means by which inferences about the past are made. Examines major processes shaping humans, including world colonization, our foraging legacy, origins of agriculture and civilization, and implications of our past for the present and future. (F [Sp online]) <sup>DE</sup>

**ANTH 1099 Resources in Anthropology at USU 1**  
Familiarizes incoming freshmen, new majors, and transfer students with the academic resources available to Anthropology students at USU. Covers program, department, library, college, campus, intercampus, and internet resources. (F)

**ANTH 2010 BSS Peoples of the Contemporary World 3**  
Introduces different ways of life, rural and urban, from the world's major culture areas. Focuses on how contemporary societies have evolved in ecological, historical, and political context. Introduces problems arising from third world social change. (Sp) <sup>DE</sup>

**ANTH 2210 BHU Introduction to Folklore 3**  
Introduction to major genres of folklore (folk narrative, custom, folk music and song, vernacular architecture and arts), folk groups (regional, ethnic, occupational, familial), and basic folklore research method (collecting and archiving). Also taught as ENGL 2210 and HIST 2210. (F,Sp) <sup>DE</sup>

**ANTH 2330 Principles of Archaeology 3**  
Addresses different ways of interpreting the past by exploring archaeology's historical, theoretical, and methodological development. Provides students with the basic tools for conducting archaeological research and with an understanding of the background of the discipline. (Sp)

**ANTH 2720 Survey of American Folklore 3**  
Principal ethnic, regional, and occupational folk groups in America. Relations between folklore and American history, literature, and society. Key genres in American folklore (narrative, art, song, etc.) and their role in American culture. Also taught as ENGL 2720 and HIST 2720. (Sp)

**ANTH 3110 North American Indian Cultures 3**  
Introduces ethnography of native cultures found within the USA and Canada, documenting their pre-contact adaptations and their interactions with changing national policies leading to today's resurgence of native peoples. (F) <sup>DE</sup>

**ANTH 3130 CI Peoples of Latin America 3**  
Survey of Latin American cultures, past and present. Emphasis on culture as a dynamic, adaptive system and on contemporary issues in rural and urban Andean South America, Amazonia, and Mesoamerica. Appropriate for both majors and nonmajors. (F)

**ANTH 3150 Applied Anthropology Survey: History, Uses, Methods, and Careers 3**  
Surveys the field of applied anthropology, including discussions of emergence, application, and usefulness. Introduces students to methods and skills used by practitioners, as well as to those used to prepare for careers in applied anthropology. (Sp)<sup>1,2</sup>

**ANTH 3160 DSS Anthropology of Religion 3**  
Cross-cultural description and theoretical analysis of religion and its functional relationships to human psychology, society, and the natural environment. (F)<sup>1</sup>

**ANTH 3200 DSS/CI Perspectives on Race 3**  
Study of the processes of racial differentiation, the basis of biological differences found among existing human groups, the influence of biology and culture on human variation, and the influence of social context on perceptions of race. (Sp)<sup>1</sup>

**ANTH 3250 Osteology 3**  
Detailed hands-on study of human skeleton, including component of comparative vertebrate skeletal anatomy. Applications to fields of archaeology, forensic science, paleopathology, and zoology. Includes methods component. (F)<sup>2</sup>

**ANTH 3300 DSS Archaeology in North America 3**  
Prehistoric and historic archaeology of the North American continent. Explores initial colonization and Native American origins; variability among foraging adaptations; spread of farming; cultural complexity in Midwest, Southwest, and West Coast; Indian-environment relationships; European contact; depopulation; and historic archaeology of Euro-Americans. (Sp)<sup>1</sup>

**ANTH 3310 CI Introduction to Museum Studies 3**  
Explores all aspects of museum work, from the acquisition and storage of collections to fundraising and educational programs. As part of course requirements, students tour area museums and get first-hand perspectives on the challenges and rewards of museum work from professionals in the field. Course fee for field trip(s) required. (Sp)<sup>1,2</sup>

**ANTH 3320 DSS Ancient Humans and the Environment 3**  
Explores human-environment relationships during the past 40,000-plus years, from small-scale societies to ancient civilizations. In this problem-oriented, topical course, emphasis placed on small group projects, discussion, writing, and oral presentation. This course is not currently being taught. For information about when it may be taught, contact the department.

**ANTH 3350 DSS Archaeology of Ancient Civilizations 3**  
Surveys primary states in antiquity, including Mesopotamia, China, Egypt, South America, and Mesoamerica. In-depth study of the process of their formation and theories of their origins. Emphasis is anthropological and scientific to complement the classical and humanistic. (Sp)<sup>1</sup>

**ANTH 3360 Utah Archaeology 3**  
Popular introduction to the archaeology and prehistory of Utah and surrounding regions. Employs approachable texts with some supplementary readings. Features liberal use of photographs and maps to illustrate lectures. Class website provides context, discussion forums, and study aids. (F)<sup>1</sup>

**ANTH 3370 Archaeology of Prehistoric Europe 3**  
Explores major issues in European prehistory, from the arrival of the first hominids through the establishment of settled farming and pastoral communities just before the rise of the state societies. (F)<sup>1</sup> <sup>DE</sup>

**ANTH 3550 DHA Culture of East Asia 3**  
Helps students explore and appreciate the culture of three East Asian countries: China, Japan and Korea. Students gain sincere view and understanding of these East Asian cultures through readings, hands-on cultural activities, viewing video materials, writing, and discussions. Topics include: major historical and social

# Course Descriptions

events, customs and traditions, thoughts and beliefs, people, food, contemporary issues, art, literature, and film. Also taught as HIST 3550 and LANG 3550. <sup>DE</sup>

**ANTH 4100 The Study of Language 3**  
Investigates ways in which human languages are structured, how they change, how they reflect the cultures in which they are used, and how they are learned. Also taught as LING 4100. (F,Sp)

**ANTH 4110 DSS Southwest Indian Cultures, Past and Present 3**  
(dual listing 6110)  
Reviews past and present Indian cultures of greater southwest region. Examines the prehistoric Anasazi, the Pueblos, the canyon and desert peoples, the Utes, and the Navajos. Interprets these cultures in ecological, historic, and political contexts. (Sp) <sup>DE</sup>

**ANTH 4120 CI/DSS Anthropology of Childhood 3**  
Focuses on the anthropological study of childhood. Students design and carry out an ethnology (using library and archival sources) on an issue in the study of children. Readings of ethnographic studies of childhood from the U.S. and abroad. Includes methods component. (Sp) <sup>1,2</sup>

**ANTH 4230 DSS Medical Anthropology: Matter, Culture, Spirit, and Health 3**  
Examines the bio-ecological (matter) and socio-cultural aspects of disease/illness in human populations and examines "spiritual" dimensions of health in cross-cultural context. Includes methods component for anthropology majors and serves as a Liberal Arts cluster capstone course. (Sp) <sup>1,2</sup>

**ANTH 4370 Archaeology and Paleoenvironments Field Trip 2**  
Two-hour class session and assigned readings prepare students for a three-day field trip to explore the archaeology and paleoenvironments of the northern Bonneville Basin. Post-field writing assignment integrates the field experience with readings and discussion. Prerequisite: Instructor permission. (F) <sup>1</sup>

**ANTH 4800 Topics in Anthropology 1-3<sup>®</sup>**  
Focuses on special topics in anthropology. Topics and course format vary. <sup>DE</sup>

**ANTH 4980 History and Theories of Anthropology 3**  
Explores the epistemological foundations of anthropology. Traces the history of anthropology, including the main currents of theoretical thought, the paradigm shifts that revitalize the discipline, and the major scholars that illustrate each period. This is an advanced course that benefits from some anthropology and familiarity with the intellectual traditions of the Western World. Prerequisite: ANTH 1010 and at least one other upper-division course in cultural anthropology. (Sp) <sup>3</sup>

**ANTH 4990 Contemporary Issues in Anthropology 3**  
Capstone course in anthropological theory and method, required for all majors. Prerequisite: ANTH 1010. Recommended Prerequisite: ANTH 4980. (Sp) <sup>1,3</sup>

**ANTH 5100 DSS Anthropology of Sex and Gender 3**  
(dual listing 6100)  
Increases awareness of sexuality and gender, and of feminist perspectives about social problems related to gender and sexuality that cross-cut cultural boundaries. Emphasizes gender-related social problems in contemporary world societies. (F)

**ANTH 5120 Applied Rural Development 3**  
(dual listing 6120)  
Reviews development anthropology for practitioners. Examines human dimensions of planned policy, program, and project interventions. Examines how rural development occurs and how it is analyzed and managed in selected real-world cases. Includes methods component. This course is not currently being taught. For information about when it may be taught, contact the department.

**ANTH 5130 Ethnographic Field School 3-6**  
(dual listing 6130)  
Provides practical training in use of ethnographic field methods, qualitative data analysis, and ethnographic report-writing. Combines classroom instruction with supervised off-campus field research, while living in a cross-cultural setting. Fulfills program methods requirement. Application and additional fee required. Also taught as SOC 5130/6130. (Su)

**ANTH 5160 DSS Cities and Development 3**  
(dual listing 6160)  
Examines role of emergent urban areas in national development. Employs ethnographic case studies of selected cities, coupled with a policy perspective on problems of hyperurbanization in both poor and more advanced societies. Includes methods component. This course is not currently being taught. For information about when it may be taught, contact the department.

**ANTH 5190 Applied Anthropology Practicum 1-5<sup>®</sup>**  
(dual listing 6190)  
Seminar with supervised projects in applied anthropology for advanced students. Integrates academic knowledge and field technique. Includes methods component. Prerequisite: Instructor approval. <sup>1,2,3</sup>

**ANTH 5210 Physical Anthropology Lab 1-3**  
Laboratory experience enabling participation in analysis/reporting stages of physical anthropology projects. Includes methods component. Prerequisite: Permission of instructor. <sup>2,3</sup>

**ANTH 5250 QI Problems in Bioarchaeology 3<sup>®</sup>**  
(dual listing 6250)  
Examines various approaches to the study of human biocultural adaptation through the analysis of human remains from archaeological sites. Includes methods component. Graduate students complete a more substantial research project than undergraduates, which must include a quantitative component. Prerequisite: STAT 1040 or ANTH 3250 or permission of instructor. (Sp) <sup>1,2,3</sup>

**ANTH 5300 Archaeology Field School 3-5<sup>®</sup>**  
(dual listing 6300)  
Internship on archaeological field project, including survey, excavation, recording, mapping, and scientific conduct of archaeological problem solving. Application process may begin as early as December. Additional field support fee required. Prerequisites: ANTH 1030 and instructor's permission. (Su) <sup>2,3</sup>

**ANTH 5310 Archaeology Lab 1-3<sup>®</sup>**  
(dual listing 6310)  
Laboratory experience enabling participation in analysis/reporting stages of archaeology projects. Includes methods component. Prerequisite: Graduate standing or permission of instructor. (F,Sp,Su) <sup>2,3</sup>

**ANTH 5320 Zooarchaeology 3**  
(dual listing 6320)  
Advanced undergraduate and graduate course on laboratory methods in zooarchaeology. Structured to address anthropologically significant questions that can be investigated through zooarchaeological analysis, and to provide students with the basic analytical skills to address these questions. Graduate students will be required to conduct a more extensive research project and write-up. Taught on the Brigham City campus. (Sp) <sup>1,2,DE</sup>

**ANTH 5330 Geoarchaeology 3**  
(dual listing 6330)  
Explores the ways that the earth sciences are employed in archaeological analysis. Topics include: sedimentology, pedology, geomorphology, paleoclimatology, geophysical methods of dating archaeological materials, artifact and materials sourcing, and modeling environment-human interaction. Prerequisites: Graduate standing; or ANTH 1020 and 1030; or GEO 1110 and 3200 and upper-division standing. (Sp) <sup>1,2</sup>

**ANTH 5380 Peopling of the New World 3**  
(dual listing 6380)  
Explores how, when, and why humans first populated the Americas. Through emphasis on critical thinking and hypothesis testing, students scientifically evaluate evidence for initial colonization drawn from the fields of archaeology, biological anthropology, genetics, and linguistics. (Sp) <sup>1</sup>

**ANTH 5650 DSS Developing Societies 3**  
(dual listing 6650)  
Reviews how sociology, cultural geography, and economic anthropology analyze processes of globalization in postcolonial societies. Examines changing livelihoods, patterns of spatial incorporation and societal evolution, and emergent policy problems associated with rapid socioeconomic change. Also taught as GEOG 5650/6650 and SOC 5650/6650. (Sp) <sup>DE</sup>

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<p><b>ANTH 5700 Folk Narrative</b> 3 Forms and functions of folk narrative genres: myth, legend, folktale, memorate, and ballad. Also taught as ENGL 5700 and HIST 5700. (Sp)</p> <p><b>ANTH 5800 Museum Development</b> 1-3® Apprenticeship in the USU Museum of Anthropology to learn the operation of a small museum. Entails close ongoing consultation with museum director and other staff members. Possible projects include artifact curation, exhibit development, public outreach, and others. Prerequisite: Instructor's permission. (F,Sp,Su)<sup>2,3</sup></p> <p><b>ANTH 5900 Independent Studies</b> 1-3® Customized study or readings for upper-division or graduate students on topics not covered in regular courses. Prerequisite: Approval, prior to registration, of proposal written by student in consultation with instructor.</p> <p><b>ANTH 5980 Senior Project</b> 1 Develops advanced research and writing skills in a specialty area, and results in a research project/report. Completed in consultation with faculty instructor and subject to approval.</p> <p><b>ANTH 6100 Anthropology of Sex and Gender</b> 3 <b>(dual listing 5100)</b> Increases awareness of sexuality and gender, and of feminist perspectives about social problems related to gender and sexuality that cross-cut cultural boundaries. Emphasizes gender-related social problems in contemporary world societies. (F)</p> <p><b>ANTH 6110 Southwest Indian Cultures, Past and Present</b> 3 <b>(dual listing 4110)</b> Reviews past and present Indian cultures of greater southwest region. Examines the prehistoric Anasazi, the Pueblos, the canyon and desert peoples, the Utes, and the Navajos. Interprets these cultures in ecological, historic, and political contexts. (Sp) <sup>DE</sup></p> <p><b>ANTH 6120 Applied Rural Development</b> 3 <b>(dual listing 5120)</b> Reviews development anthropology for practitioners. Examines human dimensions of planned policy, program, and project interventions. Examines how rural development occurs and how it is analyzed and managed in selected real-world cases. Includes methods component. This course is not currently being taught. For information about when it may be taught, contact the department.</p> <p><b>ANTH 6130 Ethnographic Field School</b> 3-6 <b>(dual listing 5130)</b> Provides practical training in use of ethnographic field methods, qualitative data analysis, and ethnographic report-writing. Combines classroom instruction with supervised off-campus field research, while living in a cross-cultural setting. Fulfills program methods requirement. Application and additional fee required. Also taught as SOC 6130/5130. (Su)</p> <p><b>ANTH 6160 Cities and Development</b> 3 <b>(dual listing 5160)</b> Examines role of emergent urban areas in national development. Employs ethnographic case studies of selected cities, coupled with a policy perspective on problems of hyperurbanization in both poor and more advanced societies. Includes methods component. This course is not currently being taught. For information about when it may be taught, contact the department.</p> <p><b>ANTH 6190 Applied Anthropology Practicum</b> 1-5® <b>(dual listing 5190)</b> Seminar with supervised projects in applied anthropology for advanced students. Integrates academic knowledge and field technique. Includes methods component. Prerequisite: Instructor approval.<sup>1,2,3</sup></p> <p><b>ANTH 6250 Problems in Bioarchaeology</b> 3® <b>(dual listing 5250)</b> Examines various approaches to the study of human biocultural adaptation through the analysis of human remains from archaeological sites. Includes methods component. Graduate students complete a more substantial research project than undergraduates, which must include a quantitative component. Prerequisite: STAT 1040 or ANTH 3250 or permission of instructor. (Sp)<sup>1,2,3</sup></p>	<p><b>ANTH 6300 Archaeology Field School</b> 3-5® <b>(dual listing 5300)</b> Internship on archaeological field project, including survey, excavation, recording, mapping, and scientific conduct of archaeological problem solving. Application process may begin as early as December. Additional field support fee required. Prerequisites: ANTH 1030 and instructor's permission. (Su)<sup>2,3</sup></p> <p><b>ANTH 6310 Archaeology Lab</b> 1-3® <b>(dual listing 5310)</b> Laboratory experience enabling participation in analysis/reporting stages of archaeology projects. Includes methods component. Prerequisite: Graduate standing or permission of instructor. (F,Sp,Su)<sup>2,3</sup></p> <p><b>ANTH 6320 Zooarchaeology</b> 3 <b>(dual listing 5320)</b> Advanced undergraduate and graduate course on laboratory methods in zooarchaeology. Structured to address anthropologically significant questions that can be investigated through zooarchaeological analysis, and to provide students with the basic analytical skills to address these questions. Graduate students will be required to conduct a more extensive research project and write-up. Taught on the Brigham City campus. (Sp)<sup>1,2,DE</sup></p> <p><b>ANTH 6330 Geoarchaeology</b> 3 <b>(dual listing 5330)</b> Explores the ways that the earth sciences are employed in archaeological analysis. Topics include: sedimentology, pedology, geomorphology, paleoclimatology, geophysical methods of dating archaeological materials, artifact and materials sourcing, and modeling environment-human interaction. Prerequisites: Graduate standing; or ANTH 1020 and 1030; or GEO 1110 and 3200 and upper-division standing. (Sp)<sup>1,2</sup></p> <p><b>ANTH 6340 Archaeology of the Western United States</b> 3 Examines human adaptive variability in Western North America, focusing on prehistoric Great Basin, Colorado Plateau, and California cultures. Includes in-depth examination of regional archaeological sequences and applications of evolutionary ecology to understanding regional lifeway variation over time. Prerequisite: Graduate standing. (F)<sup>1</sup></p> <p><b>ANTH 6350 Archaeological Theory</b> 3 Survey and critique of archaeological theory from the 19th century to current issues in the 21st century. Emphasizes shifting paradigms and research strategies. As a seminar course, includes reading, discussion, and critical writing. (F)<sup>1</sup></p> <p><b>ANTH 6360 Research Design and Quantitative Methods in Archaeology</b> 3 Develops skills required for conducting original research at the professional level. Focuses on linking research with relevant theoretical, empirical, and methodological questions; developing statistically sound sampling strategies; using statistics to interpret data; and deriving conclusions from data. Prerequisite: Graduate standing. (F)<sup>1</sup></p> <p><b>ANTH 6370 GIS in Archaeology</b> 3 Presents background and develops skills necessary to use geographic information systems (GIS) for recording and maintaining archaeological data. Provides overview on how to use GIS to analyze and interpret these types of data. Prerequisite: Graduate standing. (Sp)<sup>1</sup></p> <p><b>ANTH 6380 Peopling of the New World</b> 3 <b>(dual listing 5380)</b> Explores how, when, and why humans first populated the Americas. Through emphasis on critical thinking and hypothesis testing, students scientifically evaluate evidence for initial colonization drawn from the fields of archaeology, biological anthropology, genetics, and linguistics. (Sp)<sup>1</sup></p> <p><b>ANTH 6390 Cultural Resources Management Policy</b> 3 Reviews the history of Cultural Resource Management (CRM) legislation, addressing how laws are interpreted and implemented by contract archaeologists working mainly in the United States. Focuses on how to run modern CRM projects within this legislative framework. Prerequisite: Graduate standing. (F)<sup>1</sup></p>
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# Course Descriptions

**ANTH 6410 Writing for Archaeologists 3**  
Teaches future archaeologists to communicate effectively in the various genres of the discipline demanding writing proficiency. Emphasizes professional writing, including research papers, grant proposals, bids for archaeological work, curriculum vitae, and cover letters. (F)<sup>1</sup>

**ANTH 6420 Lithic Analysis 1**  
Laboratory course emphasizing techniques used to study stone tools and other lithic technologies. Focuses on morphological analysis and how to generate data from laboratory measurements. Includes applications of lithic analyses to empirical and theoretical research questions. Prerequisite: Graduate standing. (F)<sup>1</sup>

**ANTH 6650 Developing Societies 3**  
**(dual listing 5650)**  
Reviews how sociology, cultural geography, and economic anthropology analyze processes of globalization in postcolonial societies. Examines changing livelihoods, patterns of spatial incorporation and societal evolution, and emergent policy problems associated with rapid socioeconomic change. Also taught as GEOG 6650/5650 and SOC 6650/5650. (Sp)<sup>DE</sup>

**ANTH 6700 Archaeology Internship 3-6<sup>®</sup>**  
Internship placement in governmental agency or department, museum, or private archaeology firm. Arranged and overseen by the Anthropology graduate director, in conjunction with the committee chair and professional supervisor. Prerequisite: Graduate standing (F,Sp,Su)

**ANTH 6900 Independent Studies 1-3<sup>®</sup>**  
Customized study or readings for graduate students on topics not covered in regular courses. Prerequisite: Approval of proposal written by student in consultation with instructor.

**ANTH 6970 Thesis Research 1-12<sup>®</sup>**  
Graded Pass/Fail *only*. (F,Sp,Su)

<sup>1</sup>This course is taught alternating years. Check with department for information about when course will be taught.

<sup>2</sup>This course may be used to satisfy the methods component requirement for the anthropology major.

<sup>3</sup>This course has one or more prerequisites. Check with the department for details.

<sup>4</sup>This course is offered infrequently. Check with department for information about when course will be taught.

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Applied Economics (APEC)

See *Department of Applied Economics*, pages 166-170

**Note:** Effective Fall Semester 2009, courses previously listed under the ECON prefix will be taught under *either* the APEC prefix *or* the ECN prefix. (ECN courses are shown on pages 545-546.) Students registering for Summer Semester 2009 Economics courses can find them under the ECON prefix by logging into Access at: <http://www.usu.edu/myusu/>

**APEC 2010 BSS Introduction to Microeconomics 3**  
Designed to build an understanding of the economics of the marketplace from the perspectives of individual consumer and producer or business. Development and application of microeconomic principles to demonstrate the role and limitations of competitive markets in motivating socially efficient consumer, business, and public sector choices. Prerequisite: ECN 1500. Also taught as ECN 2010. (F,Sp,Su)<sup>DE</sup>

**APEC 3010 Introduction to Agricultural Economics and Agribusiness 3**  
Introduction to economic principles as they apply to the food and agricultural industry. Emphasizes production and consumption of food and fiber products, the structure of the agricultural/agribusiness industry, major farm problems, and public policy issues impacting agribusiness firms. (Sp)

**APEC 3012 Introduction to Natural Resource and Regional Economics 3**  
Introduction to economic principles as they apply to the use of natural resources and as they affect environmental quality. Analysis of changes in natural resource use and environmental quality, in order to determine the economic impact upon rural communities and regions. (F)

**APEC 3020 Firm Finance and Records Analysis 3**  
Construction, analysis, and comparison of key financial statements using cash and accrual systems of accounting. Introduction to computerized financial and management record-keeping systems to meet tax and management purposes. Prerequisites: ACCT 2010 and APEC 3010 (APEC 3010 may be taken concurrently). (Sp)

**APEC 3310 Mathematics in Agricultural and Resource Economics 3**  
Explores application of mathematics to agricultural, resource, environmental, and regional economics. Reviews algebraic, single-variable calculus (differentiation and integration); multivariate calculus optimization; and linear algebra and applications to economics. Prerequisites: MATH 1100 and APEC/ECN 2010; or instructor's approval. (F)

**APEC 4010 Intermediate Microeconomics 3**  
Analysis of behavior of consumers and business firms. Application of theory to the solution of real world problems. Credit will not be given for both ECN 3010 and APEC/ECN 4010. Prerequisites: APEC/ECN 2010, MATH 1100, and STAT 2300. Also taught as ECN 4010. (Sp)

**APEC 4020 Macroeconomics and Trade 3**  
Explores the business cycle, monetary policy, interest rates, inflation, employment, and production as they apply to agribusiness and related industries. Includes discussion of exchange rates, balance of trade, comparative advantage, and various policy tools used to influence trade. Prerequisite: ECN 1500. (Sp)

**APEC 5010 QI Firm Marketing and Price Analysis 3**  
Students learn strategies for product and commodity marketing. Explores risk management, including futures and options, as well as price analysis and forecasting techniques. Prerequisites: APEC 3310 and APEC/ECN 4010. (F)

**APEC 5015 Firm Management, Planning, and Optimization 3**  
Application of principles and practices used by managers of agribusiness firms. Evaluation of alternative actions using budgeting (enterprise, cash flow, partial, whole firm, and capital) and optimization programs. Prerequisites: APEC 3020, 3310, APEC/ECN 4010, and ACCT 2020. (F)

**APEC 5020 Strategic Firm Management 3**  
Explores principles and concepts needed to evaluate the impact of industry structure, policies, and international forces on the management of agribusiness firms. Emphasizes the evaluation of producing and marketing new or differentiated products or services. Prerequisites: APEC 3310 and APEC/ECN 4010. (Sp)

**APEC 5330 QI Applied Econometrics 3**  
Introduction to basic statistics, simple linear regression, multiple regression, and simultaneous equation models for economics. Prerequisites: STAT 2000 or 2300 or 3000. Also taught as ECN 5330. (Sp)

**APEC 5560 Natural Resource and Environmental Economics 3**  
Economics of developing, managing, and conserving natural resources and the environment. Topics include resource use and conservation, environmental quality, public and private resource management, and valuation of nonmarket goods. Prerequisite: APEC/ECN 2010 or APEC 3012. (Sp)

**APEC 5850 Regional and Community Economic Development 3**  
Building on microeconomic theory, models for regional and urban structure and change are explored. Policy decision models are also developed. Prerequisite: APEC 3012 or ECN 3010 or APEC/ECN 4010. (F)

**APEC 5950 Senior Project 3**  
Identification and analysis of a current economic problem. Throughout this process, other agricultural economics course concepts and methods are brought together. (F,Sp)

# Course Descriptions

<p><b>APEC 6000</b>                      <b>Macroeconomic Theory I</b>                      <b>3</b>  <b>(dual listing 7230)</b>  Lays a foundation of advanced macroeconomic analysis, integrating theory, data, and computational methods. Special attention given to real-world issues, with an emphasis on how economists use macro models and data to improve business and public policy decisions. Topics covered include neoclassical and endogenous growth theories, real business cycle and new Keynesian theories of economic fluctuations, monetary theory, macroeconomic policy, and open-economy macroeconomics. Also taught as ECN 6000/7230. (F)</p>	<p>models, IMPLAN models, and computable CGE modeling approaches as they are used in a planning environment. Prerequisite: APEC 6700. (F)</p>
<p><b>APEC 6030</b>                      <b>Agricultural Marketing</b>                      <b>3</b>  Covers a variety of topics relating to price analysis for agricultural commodities. Explores econometric and time series modeling and forecasting of agricultural prices. Includes a section on futures and options on futures contracts, focusing on fundamental and technical analysis. Prerequisite: APEC/ECN 6330. (F)</p>	<p><b>APEC 6910</b>                      <b>Independent Research</b>                      <b>1-3®</b>  Directed readings. Credits from this course toward any economics graduate degree require approval of the student's advisory committee, the department graduate committee, and the department head. Prerequisites: APEC/ECN 4010 and ECN 5000. (F,Sp,Su)</p>
<p><b>APEC 6040</b>                      <b>Agribusiness Production and Supply Chain Management</b>                      <b>3</b>  Uses economics to explain resource allocations within agribusiness production units and supply chains. This includes, but is not limited to, development of understanding of supply chains and how to use supply chains to effectively address markets for food and fiber. Prerequisite: APEC 6030. (F)</p>	<p><b>APEC 6970</b>                      <b>Thesis Research</b>                      <b>1-9®</b>  Master's level research. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>
<p><b>APEC 6100</b>                      <b>Microeconomic Theory I</b>                      <b>3</b>  Provides a rigorous introduction to graduate-level microeconomic theory. While the specific focus is on the theoretical construct of graduate-level microeconomic models, the broad objective of the class is to lay the foundation for empirical applications in microeconomics. To meet this broad objective, the course covers theory of the firm, consumer theory, market structure, theory of public goods and externalities, and welfare economics. (F)</p>	<p><b>APEC 6990</b>                      <b>Continuing Graduate Advisement</b>                      <b>1-9®</b>  Master's level advisement. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>
<p><b>APEC 6250</b>                      <b>Graduate Internship</b>                      <b>1-3®</b>  (F,Sp,Su)</p>	<p><b>APEC 7130</b>                      <b>Microeconomic Theory I</b>                      <b>3</b>  Provides a rigorous introduction to graduate-level microeconomic theory. While the specific focus is on the theoretical construct of graduate-level microeconomic models, the broad objective of the class is to lay the foundation for empirical applications in microeconomics. To meet this broad objective, the course covers theory of the firm, consumer theory, market structure, theory of public goods and externalities, and welfare economics. Also taught as ECN 7130. (F)</p>
<p><b>APEC 6300</b>                      <b>Quantitative Analysis for Business and Policy Decisions</b>                      <b>3</b>  Provides an introduction to applied mathematical programming, operations research, simulation, risk analysis, adaptive management, and other decision theoretic tools used by government policy makers and managers of firms. (Sp)</p>	<p><b>APEC 7140</b>                      <b>Microeconomic Theory II</b>                      <b>3</b>  Extends the theoretical foundations of microeconomics with an emphasis on model building in economics. Topics include static games of complete and incomplete information, dynamic games of complete and incomplete information, imperfectly competitive markets, risk and uncertainty, public goods, general equilibrium, and information economics. Prerequisites: APEC/ECN 7130 and APEC/ECN 7360. Also taught as ECN 7140. (Sp)</p>
<p><b>APEC 6330</b>                      <b>Applied Econometrics</b>                      <b>3</b>  Provides graduate-level introduction to applied regression tools, including: simple and multivariate regression analysis; linear, nonlinear, and qualitative dependent variable models; distributed lags; seemingly unrelated regression; and model specification and validation tests. Prerequisite: Background in statistics and calculus. Also taught as ECN 6330. (F) <sup>DE</sup></p>	<p><b>APEC 7150</b>                      <b>Microeconomic Theory III</b>                      <b>3</b>  Explores the uses of microeconomic theory in fields such as Game Theory, Industrial Organization, and Labor Economics. Study of topics such as multi-stage and repeated games, bargaining, principal-agent models of economic behavior, auctions and bidding, labor market discrimination, price discrimination and two-part tariffs, and the labor-leisure choice. Course is based on both classic and contemporary papers in each of these fields. Prerequisite: APEC/ECN 7140. (F)</p>
<p><b>APEC 6500</b>                      <b>Introduction to Natural Resource Economics</b>                      <b>3</b>  Introduction to the legal and regulatory foundations of natural resource policy, with specific attention to water, minerals, rangelands, forests, fish, and off-site impacts of agricultural and industrial production. Topics include externalities, property rights, public goods, public choice, and public trust. Prerequisite: ECN 3010 or APEC/ECN 4010 or APEC 5560. (Sp)</p>	<p><b>APEC 7230</b>                      <b>Macroeconomic Theory I</b>                      <b>3</b>  <b>(dual listing 6000)</b>  Lays a foundation of advanced macroeconomic analysis, integrating theory, data, and computational methods. Special attention given to real-world issues, with an emphasis on how economists use macro models and data to improve business and public policy decisions. Topics covered include neoclassical and endogenous growth theories, real business cycle and new Keynesian theories of economic fluctuations, monetary theory, macroeconomic policy, and open-economy macroeconomics. Also taught as ECN 7230/6000. (F)</p>
<p><b>APEC 6510</b>                      <b>Introduction to Environmental Economics</b>                      <b>3</b>  Introduction to the foundations of environmental economics. Adaptation of market mechanisms to ameliorate pollution problems and provide amenity services. Methods for determining the value of nonmarketed goods and services. Topics include economic principles regarding social choice and market exchange, as well as current and historical issues involving pollution, environmental regulation, and the effects of environmental regulation on the profitability of private and public entities. Prerequisite: ECN 3010 or APEC/ECN 4010 or APEC 5560 or APEC 6500. (F)</p>	<p><b>APEC 7240</b>                      <b>Macroeconomic Theory II</b>                      <b>3</b>  Extends the foundations of APEC 7230/6000 with a more in-depth look at the theory and computational aspects of various models of economic growth and business cycles. Prerequisites: APEC/ECN 7230/6000 and APEC/ECN 7360. Also taught as ECN 7240. (Sp)</p>
<p><b>APEC 6700</b>                      <b>Regional and Community Economic Development</b>                      <b>3</b>  Extension of microeconomic foundations of regional and urban economics to recent advances in economic growth and development, economic structure, land-use, public finance, housing, social welfare, environmental quality, and transportation. Prerequisite: APEC 6100. (Sp)</p>	<p><b>APEC 7310</b>                      <b>Econometrics I</b>                      <b>3</b>  Begins with a review of probability and statistics. Remainder of course is spent discussing the Classical linear regression model, least squares and maximum likelihood estimation, finite and asymptotic sample properties, inference, prediction, and nonlinear optimization. Prerequisite: APEC/ECN 7360. Also taught as ECN 7310. (F)</p>
<p><b>APEC 6710</b>                      <b>Community Planning and Impact Analysis</b>                      <b>3</b>  Focuses on tools used by local and regional economic development specialists as they relate to planning and impact assessment. Specific topics will include I/O</p>	<p><b>APEC 7320</b>                      <b>Econometrics II</b>                      <b>3</b>  Extension of APEC 7310, covering topics such as nonspherical disturbances, panel data, simultaneous equations, time series and distributed lag models, and limited and qualitative dependent variable models. Prerequisite: APEC/ECN 7310. Also taught as ECN 7320. (Sp)</p>
	<p><b>APEC 7330</b>                      <b>Econometrics III</b>                      <b>3</b>  Provides in-depth coverage of current topics/techniques in applied econometric time series analysis, with an emphasis on econometric model development, estimation, and interpretation. Topics include difference equations, lag operators, stationary ARMA processes, modeling economic time series including trends and volatility, testing for trends and unit roots, vector autoregressions, the Kalman</p>

# Course Descriptions

filter including the state space representation of a dynamic system, cointegration, and error-correction models. Prerequisite: APEC/ECN 7320. (F)

**APEC 7350 Mathematical Economics I 3**  
Includes linear equations, matrix algebra, multivariate calculus, static optimization, comparative static analysis, constrained optimization, and Kuhn-Tucker conditions. Also taught as ECN 7350. (F)

**APEC 7360 Mathematical Economics II 3**  
Extends the presentation of APEC 7350 by covering applications of constrained optimization, the envelope theorem and applications, differential equations, dynamic economics, and optimal control. Prerequisite: APEC/ECN 7350. (Sp)

**APEC 7400 International Trade and the Environment 3**  
Focuses on recent developments in the theory of trade and trade policy, including: (1) imperfect competition, (2) factor movements, (3) trade flows, and (4) the effect of trade policies on environmental quality. Prerequisites: APEC/ECN 7140 and APEC/ECN 7240. (Sp)

**APEC 7500 Resource Economics 3**  
Focuses on formal economic models associated with optimal exploitation of renewable and nonrenewable resources. Applications to minerals, groundwater, energy resources, soil, forests, fisheries, rangelands, watersheds, wildlife, etc. Prerequisites: APEC/ECN 7140 and APEC/ECN 7240. (F)

**APEC 7510 Environmental Economics 3**  
Covers the theory of environmental policy. Topics include, but are not limited to, externalities, uncertainty and the choice of policy instruments, market imperfections and the number of participants, nonconvexities in the production set, the charges and standards approach, marketable emission permits, the environment and development, international environmental issues, and ecological economics. Prerequisite: APEC 7500. (Sp)

**APEC 7950 Department of Economics Graduate Seminar 1®**  
Exposes students to new developments in research and management in the field of economics. Features participation by students, faculty, and guest lecturers. Graded Pass/Fail *only*. (F,Sp)

**APEC 7970 Dissertation Research 1-9®**  
PhD dissertation research. Graded Pass/Fail *only*. (F,Sp,Su)

**APEC 7990 Continuing Graduate Advisement 1-9®**  
PhD-level advisement. Graded Pass/Fail *only*. (F,Sp,Su)

® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

DE This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Art (ART)

See Department of Art, pages 171-176

**ART 1010 BCA Exploring Art 3**  
Introduction to the visual arts, including the language, elements, and history of art. (F) DE

**ART 1020 Drawing I 3**  
Introduction to the visual language of drawing, the graphic elements, various drawing media, and the creative problems involved. (F,Sp) DE

**ART 1050 Introduction to Photography 3**  
Overview of photography. Operation of camera and related equipment, exposure and development of black and white and color positive film materials, and enlarging and printing of black and white negatives, with a strong emphasis on composition and photographic aesthetics. (F) DE

**ART 1110 Drawing I (Art Majors Only) 3**  
Development of foundation drawing skills for art majors. Introduction to fundamental drawing principles and various drawing media through creative applications. Required for art majors. Enrollment limited to art majors having freshman standing (30 or less earned credits) *only*. (F,Sp)

**ART 1120 Two-dimensional Design 3**  
Study and problem solving of form, space, texture, value, and color theory. (F,Sp)

**ART 1130 Three-dimensional Design 3**  
Fosters development of basic understanding of three-dimensional form and space relationships. Includes three-dimensional problem solving, as well as use of a range of materials. (F,Sp)

**ART 1150 Two-dimensional Design (Art Majors Only) 3**  
Foundation design course for art majors. Exploration of the elements and principles of two-dimensional design. Extensive use of a variety of media in creative problem solving. Required for art majors. Enrollment limited to art majors having freshman standing (30 or less earned credits) *only*. (F,Sp)

**ART 1160 Three-dimensional Design (Art Majors Only) 3**  
Foundation design course for art majors. Exploration into the principles and vocabulary of visual organization in three dimensions. Through the manipulation of a variety of materials, students gain understanding of form and space. Required for art majors. Enrollment limited to art majors having freshman standing (30 or less earned credits) *only*. (F,Sp)

**ART 2110 Drawing II 3**  
A continuation of ART 1020 or 1110, with an emphasis on more complex problems and techniques. Prerequisite: ART 1020 or 1110 or permission of instructor. Enrollment limited to art majors having freshman standing (30 or less earned credits) *only*. (F,Sp) DE

**ART 2200 Painting I 3**  
Introduction to visual language of painting. Focuses on organization of visual ideas and basic oil painting techniques. Provides experience in both direct and indirect painting methods, as well as introducing applied color concepts. Prerequisites: ART 1020 or 1110; and ART 1120 or 1150. (F) DE

**ART 2220 Watercolor Painting 3**  
Exploration of formal, technical, and conceptual problems in water media, for students with basic painting experience. Emphasis on gaining proficiency in both transparent and opaque watercolor techniques. Prerequisite: ART 2200. (F,Sp)

**ART 2230 Basic Printmaking 3**  
Introductory course to acquaint students with the broader aspects of relief, intaglio, and planographic processes. Prerequisites: ART 1020 or 1110; and ART 1120 or 1150. (F)

**ART 2400 Computers and Art 3**  
Basic course dealing with the study and use of the personal computer as a creative medium. Emphasizes hands-on software training directed toward the art of visual design and aesthetic expression. Several projects created using the computer and related peripherals. Discusses various forms of digital output and communications. Critical reviews of art projects focus on the elements and principles of visual design, as well as basic graphic design concepts. Enrollment limited to Art majors *only*. (F)

**ART 2600 Basic Sculpture 3**  
Introduction to additive and subtractive processes in the realization of sculptural ideas. Student involvement in carving, clay modeling, and construction projects. Prerequisite: ART 1130 or 1160. (F,Sp)

**ART 2650 Introduction to Ceramics 3**  
Introduction to basic processes of ceramics and the operation of the USU ceramics lab. Includes handbuilding, throwing, and firing. (F,Sp,Su) DE

**ART 2810 Photography I 3**  
Black and white photography, including camera operation, exposure and development, and enlarging and printing of black and white negatives, with a concern for advancing technical controls, aesthetics, and darkroom experimentation. Introduction to electronic imaging. (F,Sp) DE

**ART 2900 Introductory Internship/Coop 3®**  
Introductory level educational work experience in an internship/cooperative education position approved by the Department of Art. (F,Sp)

# Course Descriptions

<p><b>ART 3000</b>                    <b>Secondary Art Methods I</b>                    <b>3</b><sup>®</sup> Focuses on developing art curricula by formulating objectives for teaching art history, art appreciation, and the making of art in the secondary schools. Required for art education majors. (F,Sp)</p> <p><b>ART 3050</b>                    <b>Japanese Calligraphy</b>                    <b>1</b><sup>®</sup> Study of Japanese writing system through practicing the art of calligraphy. No prerequisites. Also taught as JAPN 3050. (Sp)</p> <p><b>ART 3200</b>                    <b>Painting II</b>                    <b>3</b> Continuation of concepts and techniques covered in ART 2200, emphasizing more complex formal and conceptual problems. Prerequisite: ART 2200. (Sp)</p> <p><b>ART 3210</b>                    <b>Classical Mythology*</b>                    <b>3</b> Introduces major myths of the Classical world. Explores how these myths serve as keys to understanding the documents and arts of Classical civilization. Also taught as CLAS 3210. (F,Sp)</p> <p><b>ART 3220</b>                    <b>Screen Printing</b>                    <b>3</b> Investigation of the basic processes employed in screen printing. Includes surface preparation, image preparation, drawing techniques, registration, and printing of the screen. Prerequisite: ART 2230. (Sp)</p> <p><b>ART 3230</b>                    <b>Lithography</b>                    <b>3</b> Investigation of the basic processes employed in lithography, including surface preparation, basic drawing techniques, registration, processing, and printing of the stone or plate, as well as photo, transfer, and color methods. Prerequisite: ART 2230. (F,Sp)</p> <p><b>ART 3240</b>                    <b>Intaglio</b>                    <b>3</b> Investigation of the basic processes employed in intaglio, including acid (line etch, aquatint, lift grounds, soft ground) and nonacid (dry point, mezzotint, engraving) techniques, as well as transfer and color methods. Prerequisite: ART 2230. (Sp)</p> <p><b>ART 3250</b>                    <b>Relief Prints</b>                    <b>3</b><sup>®</sup> Introduction to relief printing, including woodcut, linoleum cut, and wood engraving. Prerequisite: ART 2230. (F,Sp)</p> <p><b>ART 3260</b>                    <b>Anatomy for Artists</b>                    <b>3</b> Study of principles of anatomical structure of the figure as it applies to two-dimensional and three-dimensional art media. Prerequisites: ART 1020 or 1110; and ART 2110. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>ART 3270</b>                    <b>Color: Theory and Practice</b>                    <b>3</b> Explores both the theory and application of color in the visual arts. Special emphasis placed on the development of applied color skills. (Su)</p> <p><b>ART 3300</b>                    <b>Clinical Experience I</b>                    <b>1</b><sup>®</sup> First clinical practicum (30 hours minimum) in middle and secondary schools, arranged by special methods instructors in department. Required at level I. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>ART 3350</b>                    <b>Drawing for Illustration</b>                    <b>3</b><sup>®</sup> Encourages drawing with a variety of media. Students will draw from the model in class. Homework consists of filling two 100-page sketchbooks with drawings from life, memory, or photographs.</p> <p><b>ART 3370</b>                    <b>Illustration Concepts*</b>                    <b>3</b><sup>®</sup> Students learn to develop visual ideas for illustrations and carry an idea through the stage of roughs to a comprehensive and finished image, using both digital and traditional media. Prerequisites: ART 1020 or 1110; ART 1120 or 1150; and ART 2400. (F)</p> <p><b>ART 3400</b>                    <b>Typography</b>                    <b>3</b><sup>®</sup> Introductory graphic design course, dealing with concepts and principles related to the exploration of typography as an art and design element. Series of exercises designed to give students professional and philosophical look at aesthetic and functional use of type and related visual elements. Prerequisites: ART 1120 or 1150; and ART 2400. (Sp)</p> <p><b>ART 3420</b>                    <b>Communication Arts Seminar</b>                    <b>1</b><sup>®</sup> Lecture seminars by professional guest artists in illustration and graphic design. (F,Sp)</p>	<p><b>ART 3610</b>                    <b>Intermediate Sculpture</b>                    <b>3</b> Further development in the materials, techniques, and traditions of sculpture. Expands on specific explorations, such as modeling, construction, and carving. Emphasizes strong relationship between concept and the technical execution of a sculptural form. Prerequisite: ART 2600. (F)</p> <p><b>ART 3650</b>                    <b>Intermediate Ceramics: Handbuilding</b>                    <b>3</b><sup>®</sup> Application of traditional ceramic construction techniques to vessel and sculptural subjects. Prerequisite: ART 2650. (F)</p> <p><b>ART 3660</b>                    <b>Intermediate Ceramics: Throwing on the Potter's Wheel</b>                    <b>3</b><sup>®</sup> Focuses on throwing and trimming techniques using the potter's wheel. Emphasizes production of multiples. Prerequisite: ART 2650. (Sp)</p> <p><b>ART 3700</b>                    <b>Elementary Art Methods</b>                    <b>3</b><sup>®</sup> Focuses on developing art curricula by formulating objectives for teaching art processes, art history, and art appreciation in the elementary schools. Required preparation for a grade school teacher. (F,Sp)<sup>DE</sup></p> <p><b>ART 3710</b>                    <b>Fine Art Seminar</b>                    <b>1</b><sup>®</sup> Lecture seminars given by professionals as part of the Art Department visiting artist program. (F,Sp)</p> <p><b>ART 3810</b>                    <b>Photography II</b>                    <b>3</b> Advanced black and white photography emphasizing technical controls, including the zone system and introduction to the 4x5 camera. Application of technical skills to enhance creative photographic expression. Continuation of digital imaging and use of computer for sensitometry graphing. Prerequisite: ART 2810 or equivalent experience. (Sp)</p> <p><b>ART 4000</b>                    <b>Secondary Art Methods II</b>                    <b>3</b><sup>®</sup> Focuses on developing methodologies for presenting art concepts and techniques in the secondary schools. Prerequisite: ART 3000. (F)</p> <p><b>ART 4200</b>                    <b>Advanced Drawing and Painting Studio</b>                    <b>3-6</b><sup>®</sup> Advanced individual painting and drawing projects. Students may use a variety of painting and drawing methods to execute a series of closely related paintings and drawings that are intended to develop a focused and personal portfolio. Prerequisite: ART 2200. (F,Sp,Su)</p> <p><b>ART 4210</b>                    <b>Figure Painting</b>                    <b>3</b><sup>®</sup> Painting from the model, with emphasis on solving problems of the planar structure of the human form. Prerequisite: ART 4260. (Sp)</p> <p><b>ART 4250</b>                    <b>Advanced Printmaking Studio</b>                    <b>1-9</b><sup>®</sup> In-depth investigation of one printmaking process with emphasis placed on both technical and aesthetic considerations. Prerequisites: ART 2230 and consent of instructor. (F,Sp)</p> <p><b>ART 4260</b>                    <b>Life Drawing</b>                    <b>3</b><sup>®</sup> Drawing from live models with emphasis on exploring interpretation, techniques, and compositional approach. Prerequisites: ART 1110 and 2110. (F)</p> <p><b>ART 4270</b>                    <b>Special Topics: Drawing and Painting</b>                    <b>3</b><sup>®</sup> Focuses on various issues in the field of drawing and painting. Allows students to pursue production of their own creative endeavors related to the topic of the course. Course content varies from semester to semester. (F,Sp,Su)</p> <p><b>ART 4300</b>                    <b>Clinical Experience II</b>                    <b>1</b><sup>®</sup> Second clinical practicum (30 hours minimum) in middle and secondary schools, arranged by special methods instructors in department. Required at level II. Graded Pass/Fail <i>only</i>. Prerequisite: ART 3300. (F)</p> <p><b>ART 4370</b>                    <b>Illustration Studio</b>                    <b>3</b><sup>®</sup> Students build and enhance their portfolios through solving a series of advanced illustration problems. Emphasizes development of personal style through an examination of content, materials, and techniques. Explores both digital and traditional media. Prerequisite: ART 3370. (Sp)</p>
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# Course Descriptions

<p><b>ART 4410</b>                    <b>Graphic Interface Design I</b>                    <b>3<sup>®</sup></b>            Concentrates on development of graphic design techniques and theories necessary to create successful graphical user interfaces. Students explore aesthetic and functional uses of motion, sound, interactivity, information architecture, branding, and typography as they relate to graphic interface design. Prerequisites: ART 4420, 4440. (F)</p>	<p><b>ART 4820</b>                    <b>Nineteenth Century Photography Printing Processes*</b>                    <b>3</b>            Introduction to hand-made photographic emulsions invented and used in the nineteenth century. Production of gum prints, cyanotypes, photogravures, carbon prints, and platinum prints. Explores unique visual characteristics of each process. Includes basic bookbinding. Prerequisite: ART 3810. (F)</p>
<p><b>ART 4420</b>                    <b>Brand Identity Design</b>                    <b>3</b>            Advanced studio course focusing on the visual expression of a brand. Students study the design and application of trademarks/logos, related brand strategies, positioning, and processes of research and analysis. Students complete a series of symbol design and application projects. Prerequisite: ART 3400. (F)</p>	<p><b>ART 4830</b>                    <b>Independent Projects in Photography</b>                    <b>1-9<sup>®</sup></b>            Student-initiated, independent projects in photography. Provides opportunity for students to gain technical proficiency and aesthetic creativity. Major emphasis on critiques and group discussions. Prerequisite: ART 3810 or permission of instructor. (F,Sp,Su)</p>
<p><b>ART 4430</b>                    <b>Graphic Interface Design II</b>                    <b>3<sup>®</sup></b>            Advanced graphic design course exploring dynamic interactivity. Students take a professional and philosophical look at the use of multimedia as it relates to business and society. Emphasizes research and the exploration of innovative ideas using interactive interface as a vehicle for communicating information. Prerequisite: ART 4410. (Sp)</p>	<p><b>ART 4840</b>                    <b>Color Photography I*</b>                    <b>3</b>            Introduction to technical, conceptual, aesthetic, and digital explorations available with exposure and development of color positive and negative films. Investigation of color theory accompanied by production of correctly balanced color prints. Prerequisite: ART 3810. (F)</p>
<p><b>ART 4440</b>                    <b>Type, Image, and Visual Continuity</b>                    <b>3<sup>®</sup></b>            Examines the application of design theory and process to complex information organization systems. Focuses on relationships between typography, imagery, and visual continuity. Students design varied text-intensive publications and image-intensive poster projects. Prerequisite: ART 3400. (Sp)</p>	<p><b>ART 4850</b>                    <b>Color Photography II*</b>                    <b>3</b>            Continuation of study with color materials including digital investigations. Explores alternative techniques and manipulative capabilities with color processes. Stresses individual pursuit of color print portfolio. Prerequisite: ART 4840. (Sp)</p>
<p><b>ART 4450</b>                    <b>Portfolio Preparation</b>                    <b>1-9<sup>®</sup></b>            Builds students' job-seeking portfolios through lectures, critiques, and studio work. Existing projects are refined and gaps are filled in with new projects. All work must meet professional standards, with focus on quality and job-related subject matter. Prerequisites: ART 4410, 4420, 4440. (F)</p>	<p><b>ART 4860</b>                    <b>Color Photography II*</b>                    <b>3</b>            Continuation of study with color materials including digital investigations. Explores alternative techniques and manipulative capabilities with color processes. Stresses individual pursuit of color print portfolio. Prerequisite: ART 4840. (Sp)</p>
<p><b>ART 4460</b>                    <b>Advanced Computer Graphics Studio</b>                    <b>1-9<sup>®</sup></b>            Independent research and development of advanced projects in the field of digital graphics. Prerequisite: ART 4440. (F,Sp,Su)</p>	<p><b>ART 4870</b>                    <b>Photographic Studio**</b>                    <b>3</b>            Exploration of the photographic studio, 4x5 view camera, the principles of applied lighting, and the communication of an idea through photography. Commercial, editorial, portrait, and digital photography directed toward professional portfolio preparation. All students required to have 4x5 camera. Enrollment limited to BFA students <i>only</i>. Prerequisite: ART 3810. (F)</p>
<p><b>ART 4470</b>                    <b>Special Topics in Graphic Design and Illustration</b>                    <b>1-9<sup>®</sup></b>            Focuses on various issues in the field of visual communications design. Allows students to pursue production of digital and traditional projects related to the topic of the course. Content of this studio course varies from semester to semester. Prerequisite: Permission of instructor. (F,Sp,Su)</p>	<p><b>ART 4880</b>                    <b>Photographic Portfolio**</b>                    <b>3</b>            Advanced photography class in preparation for life after graduation. Strong emphasis on work toward a personal professional portfolio (fine art and commercial) and written support documentation (resumes, cover letters, artist statement, etc.). Enrollment limited to BFA students <i>only</i>. Prerequisite: ART 4860. (Sp)</p>
<p><b>ART 4610</b>                    <b>Sculpture Projects</b>                    <b>3<sup>®</sup></b>            Develops skills in a particular sculptural methodology. Investigates genres of public sculpture, installation, and advanced modeling, from traditional to contemporary. Stresses ideas based in a broader context of social and cultural issues. Prerequisite: ART 3610. (Sp)</p>	<p><b>ART 4880</b>                    <b>Imaging Services</b>                    <b>3</b>            Internship situation at a commercial photographic studio and lab facility. Prerequisites: ART 4810, 4840. Enrollment limited to BFA candidates <i>only</i>. (F,Sp,Su)</p>
<p><b>ART 4620</b>                    <b>Sculpture Seminar</b>                    <b>3</b>            Designed to focus on and challenge current assumptions in regard to contemporary issues in sculpture. Prerequisite: ART 4660. (F)</p>	<p><b>ART 4900</b>                    <b>Advanced Internship/Coop</b>                    <b>1-9<sup>®</sup></b>            Internship/cooperative education work experience in art. For those students needing complexity and a more professional level of experience in the workplace. (F,Sp)</p>
<p><b>ART 4640</b>                    <b>Technology of Ceramic Art</b>                    <b>3<sup>®</sup></b>            Selected topics in aesthetics and technology of ceramic art, including ceramic history, glaze chemistry and calculation, firing techniques, kiln design and construction, etc. Students enrolling for more than 3 credits arrange credit for directed studies in specific topics. Prerequisites: ART 3650, 3660. (F,Sp,Su)</p>	<p><b>ART 4910</b>                    <b>Senior BFA Exhibition</b>                    <b>2</b>            Professional presentation and exhibition procedures. Enrollment limited to senior standing and BFA candidates <i>only</i>. Required for all BFA candidates. Prerequisite: Approval of advisor. (Sp)</p>
<p><b>ART 4650</b>                    <b>Advanced Ceramic Studio</b>                    <b>3-6<sup>®</sup></b>            Provides time, equipment, and facilities for advanced students to pursue directed studies leading to personal expression through ceramic media. To be repeated during at least four semesters by art majors with ceramics emphasis. Prerequisites: ART 3650, 3660. (F,Sp,Su)</p>	<p><b>ART 4920</b>                    <b>Independent Projects</b>                    <b>1-9<sup>®</sup></b>            Student-planned projects, executed through individual initiative and scheduled consultation with instructor. Prerequisites: ART 1020 or 1110; ART 1120 or 1150; and ART 1130 or 1160. (F,Sp,Su)</p>
<p><b>ART 4660</b>                    <b>Advanced Sculpture Studio</b>                    <b>1-9<sup>®</sup></b>            Advanced directed study in specific technical, aesthetic, and/or conceptual issues in sculpture. Prerequisite: ART 4610. (Sp)</p>	<p><b>ART 4930</b>                    <b>Student Teaching at University Level</b>                    <b>3</b>            Teaching methods and procedures for university-level classes, working directly with faculty in lower-division classes. Prerequisite: Approval of instructor. (F,Sp,Su)</p>
<p><b>ART 4810</b>                    <b>Digital Photography**</b>                    <b>3<sup>®</sup></b>            Continued exploration of digital photography, from computer to studio, with strong ties to traditional image making. Digital image processing and use of both software and hardware of digital photography. Study of ethical, artistic, and personal issues. Prerequisite: ART 3810. (F)</p>	<p><b>ART 5500</b>                    <b>Student Teaching Seminar</b>                    <b>2</b>            Capstone seminar focused upon student teaching issues, professional development, and principles of effective instruction, emphasizing a reflective methodology. Graded Pass/Fail <i>only</i>. Prerequisites: Level 1 and Level 2 completion, and student teaching placement. (F,Sp)</p>
	<p><b>ART 5630</b>                    <b>Student Teaching in Secondary Schools</b>                    <b>10</b>            Thirteen-week culminating practicum in which students assume full-time teaching responsibilities under direction of cooperating teachers in major and minor fields. Graded Pass/Fail <i>only</i>. Prerequisites: Level 1 and Level 2 completion, and student teaching placement. (F,Sp)</p>



# Course Descriptions

<b>ART 6200</b>	<b>Graduate Drawing and Painting Studio</b>	<b>1-9<sup>®</sup></b>
Emphasizes individual attainment of personal conviction or direction in painting. Prerequisite: Graduate status. (F,Sp,Su)		
<b>ART 6250</b>	<b>Graduate Printmaking Studio</b>	<b>1-9<sup>®</sup></b>
Intensive individual production in advanced printmaking techniques. Prerequisite: Graduate status. (F,Sp,Su)		
<b>ART 6370</b>	<b>Graduate Illustration Studio</b>	<b>3-9<sup>®</sup></b>
(Advertising, Editorial, Fashion.) Techniques in advertising illustration meeting the needs of client and his or her audience. Prerequisite: Graduate status. (F,Sp,Su)		
<b>ART 6400</b>	<b>Graduate Graphic Design Studio</b>	<b>3-9<sup>®</sup></b>
Graphic design problems leading to understanding of major concepts in this area. Prerequisite: Graduate status. (F,Sp,Su)		
<b>ART 6640</b>	<b>Technology of Ceramic Art</b>	<b>3<sup>®</sup></b>
Selected topics in aesthetics and technology of ceramic art, including ceramic history, glaze chemistry and calculation, firing techniques, kiln design and construction, etc. Prerequisite: Graduate status. (F,Sp,Su)		
<b>ART 6650</b>	<b>Graduate Ceramic Studio</b>	<b>3-9<sup>®</sup></b>
Arranged to provide time, equipment, and facilities for graduate students to pursue directed studies. Tutorial format with group critiques. Prerequisite: Graduate status. (F,Sp,Su)		
<b>ART 6660</b>	<b>Graduate Sculpture Studio</b>	<b>3-9<sup>®</sup></b>
Advanced individual problems in various media and technique. Prerequisite: Graduate status. (F,Sp,Su)		
<b>ART 6710</b>	<b>Graduate Greek and Roman Art</b>	<b>3</b>
Origin and development of the art and architecture of Crete, Mycenae, Greece, and the Roman world. Prerequisite: Graduate status. (Sp)		
<b>ART 6800</b>	<b>Graduate Photography Studio</b>	<b>3-9<sup>®</sup></b>
Designed to cover several phases of photography, with emphasis on composing what we see in an artistic manner. Allows graduate students to further emphasize their thesis project area of study. Prerequisite: Graduate status. (F,Sp,Su)		
<b>ART 6900</b>	<b>Graduate Seminar</b>	<b>3<sup>®</sup></b>
Deals with general topic of professional practice, including art criticism and how contemporary work relates to current social issues. Prerequisite: Graduate status. (F,Sp)		
<b>ART 6910</b>	<b>Graduate Interdisciplinary Critique</b>	<b>1<sup>®</sup></b>
Focuses on current work of critique participants. Brings disciplinary analysis to specific problem. Prerequisite: Graduate status. (F,Sp)		
<b>ART 6920</b>	<b>Graduate Independent Projects in Art</b>	<b>1-9<sup>®</sup></b>
Advanced problems in emphasis, medium, and idiom of student's choice. Student plans project and executes it through individual initiative and scheduled consultation with the instructor. Prerequisites: Consent of instructor, graduate status. (F,Sp,Su)		
<b>ART 6940</b>	<b>Graduate Internship/Coop</b>	<b>1-9<sup>®</sup></b>
Internship/cooperative education work experience in art. Designed to allow graduate students to receive more complex and professional workplace experience. Prerequisite: Graduate status. (F,Sp,Su)		
<b>ART 6970</b>	<b>Research and Thesis</b>	<b>3<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . Prerequisite: Candidacy status. (F,Sp,Su)		
<b>ART 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-3<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>®E</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

## Art History (ARTH)

See *Department of Art, pages 171-176*

<b>ARTH 2710 BHU</b>	<b>Survey of Western Art: Prehistoric to Medieval</b>	<b>3</b>
Prehistoric art through the end of the Gothic era. (F)		
<b>ARTH 2720 BHU</b>	<b>Survey of Western Art: Renaissance to Post-Modern</b>	<b>3</b>
Renaissance through modern. (Sp)		
<b>ARTH 3110 DHA/CI</b>	<b>Ancient Near East*</b>	<b>3</b>
Survey of history and civilization of ancient Mesopotamia, Egypt, and Israel, from prehistory to 500 B.C. Writing intensive. Prerequisite: Fulfillment of Communications Literacy CL2 requirement. Also taught as HIST 3110. (Sp)		
<b>ARTH 3820</b>	<b>History of Early Photography*</b>	<b>3</b>
Reviews early history of photography, beginning before the 1839 public announcement by Daguerre and continuing through the early twentieth century. Explores social change, invention, and the fulfillment of the artist's desire to represent reality. (Sp)		
<b>ARTH 3830</b>	<b>History of Contemporary Photography*</b>	<b>3</b>
Reviews history of contemporary photography, beginning with the modernist movements of the 1920s and progressing through the aesthetic, technical, and communicative changes, up to today's contemporary uses of the medium. Examines photography's relationship to the historical changes in society, through its evolution as an art form, a commercial venue, and a visual record. (Sp)		
<b>ARTH 4210</b>	<b>Celtic Europe*</b>	<b>3</b>
History of Celtic peoples in British Isles, Scandinavia, and continental Europe, from Neolithic times to the Norman Conquest in 1066. Computer intensive. Also taught as HIST 4210. (F)		
<b>ARTH 4510 DHA</b>	<b>Islamic Visual Cultures*</b>	<b>3</b>
<b>(dual listing 6510)</b> Explores the emergence and development of Islamic visual cultures in Asia and around the Mediterranean between 622 and 1250. Recommended prerequisite: ARTH 2710. (Sp)		
<b>ARTH 4610 CI</b>	<b>Greek and Roman Art*</b>	<b>3</b>
<b>(dual listing 6610)</b> Origin and development of art and architecture of Crete, Mycenae, Greece, and the Roman world.		
<b>ARTH 4620 DHA</b>	<b>Byzantine Art*</b>	<b>3</b>
<b>(dual listing 6620)</b> Focuses on the art and architecture of the Byzantine empire from late antiquity to the fifteenth century. In addition to including study of the visual arts, course incorporates readings in the history of religion and gender studies. Recommended prerequisite: ARTH 2710. (F)		
<b>ARTH 4630 DHA</b>	<b>Medieval Art*</b>	<b>3</b>
<b>(dual listing 6630)</b> Covers art and architecture in Europe between 450 and 1450, with an emphasis on cultural diversity and artistic variety. Study of the visual arts is complemented by readings in history and literature. Recommended prerequisite: ARTH 2710. (Sp)		
<b>ARTH 4720 CI</b>	<b>Renaissance Art</b>	<b>3</b>
Development of European art and architecture from the thirteenth to the sixteenth century.		
<b>ARTH 4730</b>	<b>Baroque and Rococo Art</b>	<b>3</b>
Development of painting, sculpture, and architecture in Europe from the late sixteenth through the eighteenth centuries.		
<b>ARTH 4740</b>	<b>Nineteenth Century Art</b>	<b>3</b>
Painting and sculpture from Neoclassicism to Symbolism. Prerequisite: ARTH 2720.		

# Course Descriptions

**ARTH 4750 Twentieth Century Art\*** 3  
History of painting, sculpture, and architecture from post-impressionists to the present. Prerequisite: ARTH 4610.

**ARTH 4760 American Art** 3  
History of painting, sculpture, and architecture in America from colonial times to the present. Prerequisite: ARTH 2720. (Sp)

**ARTH 4790 Art History Seminar and Special Problems** 1-6®  
Capstone course for art history emphasis area. Focuses on special topics in the discipline of art history. Allows students to develop advanced research projects related to the topic of the course. Covers critical theory and methods of art history research and writing. Prerequisite: Completion of at least one art history course at the 3000 level or above; or permission of instructor. (Sp)

**ARTH 4800 Directed Reading and Research in Art History** 1-3  
Directed reading, writing, and research in art history. Prerequisite: Permission of instructor. (F,Sp)

**ARTH 4810 Museum Internship** 1-3  
Through this course, advanced art history students may arrange for credit in conjunction with a local museum. Supervisor at museum oversees student's work. A faculty member in Art History oversees the written component, including portfolio, documentation, and research paper, depending on number of credits student is enrolled for. Prerequisite: Permission of instructor. (F,Sp)

**ARTH 5710 Gender Issues in Art\*** 3  
Discussion of major issues and debates regarding gender in the visual arts. Topics include: revising the canon, representing gender, and theories of gender and spectatorship. Readings are discussed and applied to visual works of art. (Sp)

**ARTH 5720 Central European Art\*** 3  
Discussion-based seminar covering the traditionally neglected theme of art in Central Europe. Emphasizes modern art, with the theme of national identity as a constant concern. (F)

**ARTH 5730 The Art Museum\*** 3  
The history of museums and display practice has become a significant field in studies of contemporary art and art history. Topics covered include: cabinets of curiosity and historical origins, art museums and their publics, blockbuster, revisionism, architecture, museums, and memory.

**ARTH 5740 Art and Religion: Topics in Sacred Art** 3  
Discussion-based course investigating relationships between religion and the arts. May focus on any period of history or region of the world, depending on scholarly interests of instructor. Also taught as RELS 5740. (Alt Sp)

**ARTH 6510 DHA Islamic Visual Cultures\*** 3  
**(dual listing 4510)**  
Explores the emergence and development of Islamic visual cultures in Asia and around the Mediterranean between 622 and 1250. Recommended prerequisite: ARTH 2710. (Sp)

**ARTH 6610 Greek and Roman Art\*** 3  
**(dual listing 4610)**  
Origin and development of art and architecture of Crete, Mycenae, Greece, and the Roman world.

**ARTH 6620 Byzantine Art\*** 3  
**(dual listing 4620)**  
Focuses on the art and architecture of the Byzantine empire from late antiquity to the fifteenth century. In addition to including study of the visual arts, course incorporates readings in the history of religion and gender studies. Recommended prerequisite: ARTH 2710. (F)

**ARTH 6630 DHA Medieval Art\*** 3  
**(dual listing 4630)**  
Covers art and architecture in Europe between 450 and 1450, with an emphasis on cultural diversity and artistic variety. Study of the visual arts is complemented by readings in history and literature. Recommended prerequisite: ARTH 2710. (Sp)

**ARTH 6720 Graduate Renaissance Art** 3  
Development of European art and architecture from the thirteenth to the sixteenth centuries. Prerequisite: Graduate status. (F)

**ARTH 6730 Graduate Baroque and Rococo Art** 3  
Development of art and architecture in Europe from the sixteenth to the eighteenth centuries. Prerequisite: Graduate status. (Sp)

**ARTH 6740 Graduate Nineteenth Century Art** 3  
Painting and sculpture from Neoclassicism to Symbolism. Prerequisites: ARTH 2720 or consent of instructor, graduate status. (F)

**ARTH 6750 Graduate Twentieth Century Art** 3  
History of painting, sculpture, and architecture from the post-impressionists to the present. Prerequisite: Graduate status. (Sp)

**ARTH 6760 Graduate American Art** 3  
History of painting, sculpture, and architecture from the post-impressionists to the present. Prerequisite: Graduate status. (F)

**ARTH 6770 Graduate Gender Issues in Art** 3  
Discussion of major issues and debates regarding gender in the visual arts. Topics include: revising the canon, representing gender, and theories of gender and spectatorship. Readings are discussed and applied to visual works of art. (Sp)

**ARTH 6790 Art History Seminar and Special Problems** 1-6®  
Focuses on special topics in the discipline of art history. Allows students to develop advanced research projects related to the topic of the course. Covers critical theory and methods of art history research and writing. Prerequisite: Graduate status and consent of instructor. (Sp)

**ARTH 6900 Graduate Seminar: Issues in Contemporary Art** 3  
Sessions devoted to select issues prevalent in contemporary art, including the body, the real, text, gender, display, and conceptualism. Requires intensive verbal and written participation. (Sp)

\*Taught alternate years. For further information, consult department.

## Aerospace Studies (AS)

See Department of Aerospace Studies, pages 147-148

**AS 1010 Introduction to the Air Force Today** 1  
**AS 1020 Introduction to the Air Force Today** 1  
Introduces the United States Air Force and Air Force Reserve Officer Training Corps. Air Force mission and organization, officership and professionalism, military customs and courtesies, officer opportunities, group leadership problems, and communication skills. Leadership Laboratory is mandatory for cadets. (F) (Sp)

**AS 1110 Leadership Laboratory I** 1  
**AS 1120 Leadership Laboratory I** 1  
Air Force customs and courtesies, drill and ceremonies, military commands, environment of the Air Force officer, and officer opportunities. Graded Pass/Fail only. AS 1110 must be taken concurrently with AS 1010; AS 1120 must be taken concurrently with AS 1020. (F) (Sp)

**AS 2010 The Evolution of U.S. Aerospace Power** 1  
**AS 2020 The Evolution of U.S. Aerospace Power** 1  
Examines general aspects of air and space power through a historical perspective. Illustrates Air Force Core Values with historical examples and continues development of communications skills. Leadership Laboratory is mandatory for cadets. (F) (Sp)

**AS 2110 Leadership Laboratory II** 1  
**AS 2120 Leadership Laboratory II** 1  
Air Force customs and courtesies, drill and ceremonies, military commands, environment of the Air Force officer, and officer opportunities. Graded Pass/Fail only. AS 2110 must be taken concurrently with AS 2010; AS 2120 must be taken concurrently with AS 2020. (F) (Sp)

# Course Descriptions

<b>AS 3010</b>	<b>Air Force Leadership and Management</b>	<b>3</b>
<b>AS 3020</b>	<b>Air Force Leadership and Management</b>	<b>3</b>
Presents advanced leadership and management skills. Cadets given opportunity to practice these leadership skills and management techniques in a supervised environment. Leadership Laboratory is mandatory for cadets. (F) (Sp)		
<b>AS 3060</b>	<b>Physical Fitness Training</b>	<b>1-2<sup>®</sup></b>
Early morning workout to build stamina. Organized to keep cadets in shape to pass the Physical Fitness Test (PFT). Team instructed. (F, Sp)		
<b>AS 3110</b>	<b>Leadership Laboratory III</b>	<b>1</b>
<b>AS 3120</b>	<b>Leadership Laboratory III</b>	<b>1</b>
Advanced leadership experiences to include the planning and controlling of cadet corps activities, and the preparation and presentation of briefings and other oral and written communications. Graded Pass/Fail <i>only</i> . AS 3110 must be taken concurrently with AS 3010; AS 3120 must be taken concurrently with AS 3020. (F) (Sp)		
<b>AS 3400</b>	<b>Field Training (4 Weeks)</b>	<b>1-4</b>
Students in the four-year program participate in four weeks of Field Training. Major areas of study include junior officer training, career orientation, survival training, base functions, Air Force environment, and physical training. Graded Pass/Fail <i>only</i> . (Su)		
<b>AS 3500</b>	<b>Field Training (6 Weeks)</b>	<b>1-6</b>
Students in the two-year program participate in six weeks of Field Training. Major areas of study include junior officer training, career orientation, survival training, base functions, Air Force environment, and physical training. Graded Pass/Fail <i>only</i> . (Su)		
<b>AS 4010</b>	<b>National Security Affairs/Preparation for Active Duty</b>	<b>3</b>
<b>AS 4020</b>	<b>National Security Affairs/Preparation for Active Duty</b>	<b>3</b>
Designed to give college seniors the foundation to understand military officer's role in American society. Overviews complex social and political issues facing the military profession. Leadership Laboratory is mandatory for cadets. (F) (Sp)		
<b>AS 4110</b>	<b>Leadership Laboratory IV</b>	<b>1</b>
<b>AS 4120</b>	<b>Leadership Laboratory IV</b>	<b>1</b>
Advanced leadership experiences to include the planning and controlling of cadet corps activities, and the preparation and presentation of briefings and other oral and written communications. Graded Pass/Fail <i>only</i> . AS 4110 must be taken concurrently with AS 4010; AS 4120 must be taken concurrently with AS 4020. (F) (Sp)		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

## Agricultural Systems Technology and Education (ASTE)

See Department of Agricultural Systems Technology and Education, pages 149-155

<b>ASTE 1010</b>	<b>Introduction to Agricultural Systems Technology</b>	<b>3</b>
Introduction to problem solving related to the areas of agricultural power and machinery, soil and water conservation, structures and animal environments, electrical circuits, and emerging technologies. (F)		
<b>ASTE 1120</b>	<b>Forage and Harvest Equipment</b>	<b>3</b>
Fundamentals and principles in operations, adjustments, and maintenance of technologies utilized in agricultural forage and combine harvesting. (F)		
<b>ASTE 1130</b>	<b>Planting and Tillage Equipment</b>	<b>3</b>
Fundamentals and principles in operation, maintenance, and repair of planting and tillage equipment. Exploration of different systems and their applications. (Sp)		

<b>ASTE 1610</b>	<b>Agricultural Machinery Engines</b>	<b>3</b>
Fundamental principles and components utilized in the power production for agricultural machinery. Diesel engines, as power plants, will be overhauled using a systems approach. (F)		
<b>ASTE 1615</b>	<b>Agricultural Machinery Engine Laboratory</b>	<b>3</b>
Gives students practical hands-on experience in engine diagnostics and repairs. Prerequisite: ASTE 1610 (may be taken concurrently). (F)		
<b>ASTE 1620</b>	<b>Agricultural Machinery Power Trains</b>	<b>3</b>
Fundamental principles and components utilized in agricultural machinery transmittal of power through drive trains. A systems approach to overhauling these components will be developed. (Sp)		
<b>ASTE 1625</b>	<b>Agricultural Machinery Power Trains Laboratory</b>	<b>3</b>
Gives students practical hands-on experience in power trains diagnostics and repairs. Prerequisite: ASTE 1620 (may be taken concurrently). (Sp)		
<b>ASTE 1710</b>	<b>Introduction to Agricultural Communication</b>	<b>3</b>
Overview of the history, importance to society, and role of mass communication in agriculture. Introduces students to the use of mass media in the agricultural industry. (F)		
<b>ASTE 2200</b>	<b>Electricity in Agricultural Systems</b>	<b>3</b>
Fundamentals of electricity (AC) as used on farms and ranches. Residential and commercial agricultural applications of the National Electric code. Electrical supply and service, distribution, proper grounding, and installation of components. (Sp)		
<b>ASTE 2250</b>	<b>Occupational Experience in Agriculture</b>	<b>1-6</b>
Supervised occupational experiences for technical vocational preparation. Graded Pass/Fail <i>only</i> . (F,Sp)		
<b>ASTE 2710</b>	<b>Orientation to Agricultural Education</b>	<b>2<sup>®</sup></b>
Students examine the framework of agricultural education, with a special emphasis on the nature of the programs, career opportunities, and the qualifications and preparation requirements of future agricultural educators. (F)		
<b>ASTE 2830</b>	<b>Agribusiness Sales and Marketing</b>	<b>3</b>
Basic principles of agribusiness sales and marketing. After completing a series of self-assessments relating to sales, learning, and personality preferences, students learn to complete each major step of the sales process. (F)		
<b>ASTE 2900 BSS</b>	<b>Humanity in the Food Web</b>	<b>3</b>
Provides broad overview of food systems in conjunction with detailed analysis of particular issues, such as different theories and supporting data on the domestication of plants and animals, the use of human labor, the development and operation of complex technologies, and the analysis of socioeconomic data on human population growth and well-being. (F,Sp) <sup>DE</sup>		
<b>ASTE 2930</b>	<b>Individualized Projects in Agricultural Mechanics</b>	<b>1-3<sup>®</sup></b>
Basic skill preparation for employment in agricultural industry. (F,Sp)		
<b>ASTE 3030</b>	<b>Metal Welding Processes and Technology in Agriculture</b>	<b>3</b>
Selection of ferrous and nonferrous welding techniques in agricultural applications. Welding, cold- and hot-working metal in agricultural construction and maintenance. (F) <sup>DE</sup>		
<b>ASTE 3040 QI</b>	<b>Fabrication Practices in Agricultural Buildings</b>	<b>2</b>
Selection and use of agricultural building materials, including concrete and masonry, lumber, plywood, finishes, and fasteners. Application of hand and power tools and procedures in agricultural construction. (Sp)		
<b>ASTE 3050 CI</b>	<b>Technical and Professional Communication Principles in Agriculture</b>	<b>3</b>
Technical communication principles and practices used in the agricultural industry. Emphasizes technical writing of reports and correspondence using electronic information retrieval and presentation. Prerequisite: Fulfillment of Communications Literacy CL2 requirement. (F,Sp)		

# Course Descriptions

<p><b>ASTE 3080</b>      <b>Compact Power Units for Agricultural and Turfgrass Applications</b>      <b>3</b></p> <p>Operation and application of agricultural and turfgrass equipment powered by internal combustion engines having less than 40 horsepower. (Sp)<sup>DE</sup></p> <p><b>ASTE 3090</b>      <b>Computer Applications in Agriculture</b>      <b>3</b></p> <p>Overview of computer systems and software currently used in agriculture. Emphasis placed on spreadsheet development, file management, computer ethics, and design of materials for print, presentation, and web media. Prerequisite: Satisfactory completion of University computer and information literacy exam. (F)</p> <p><b>ASTE 3100</b>      <b>Leadership Applications in Agricultural Science, Management, and Development</b>      <b>2</b></p> <p>Study of leadership styles and their applications in development of agricultural programs for youth and adults. Emphasizes leadership and communication principles for effective community resource management in rural environments. Experiences provided in leadership styles, program planning, and meeting organization. (Sp)</p> <p><b>ASTE 3200</b>      <b>Irrigation Principles and Practices</b>      <b>3</b></p> <p>Introduction to planning principles for irrigation systems and farm water resource development. Layout of system components and coverage of practices common to the Intermountain West. (Sp)</p> <p><b>ASTE 3240 CI</b>      <b>Teaching in Laboratory Settings</b>      <b>3<sup>®</sup></b></p> <p>Basic principles of teaching students in laboratory settings. Overview of major concepts, considerations, and practices used for developing and evaluating agriscience curricula. Students should be admitted into the Secondary Teacher Education Program (STEP) prior to enrollment in this course. Prerequisite: ASTE 2710. (Sp)</p> <p><b>ASTE 3300</b>      <b>Clinical Experience I in Agricultural Education</b>      <b>1</b></p> <p>In-school clinical observation experience. Students involved in observing management and assisting in teaching. Designed to provide familiarity with agricultural education classroom. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>ASTE 3440 DSC</b>      <b>Science, Technology, and Modern Society</b>      <b>3</b></p> <p>Designed to challenge students from all academic majors to develop an understanding of the dynamic interaction between science, technology, and society. Explores responsibility of humans for directing the utilization of technology as a creative enterprise. Also taught as ETE 3440. (F,Sp)</p> <p><b>ASTE 3500</b>      <b>Teaching Apprenticeship in Agricultural Education</b>      <b>2</b></p> <p>Each student serves as an apprentice to professional agricultural educator. Students complete competencies leading to early preparation for student teaching. (F,Sp,Su)</p> <p><b>ASTE 3600 QI</b>      <b>Management of Agricultural Machinery Systems</b>      <b>3</b></p> <p>Management principles for evaluation and selection of agricultural implements for performance, optimization, economics, environmental impact, and long-term sustainable agricultural practices. Prerequisite: MATH 1050 or STAT 1040. (Sp)</p> <p><b>ASTE 3620</b>      <b>Managing the FFA and SAE Programs</b>      <b>2</b></p> <p>Introduction to basic concerns, understandings, and practices needed to effectively advise an FFA chapter. Students learn appropriate philosophies and skills for operation of a comprehensive supervised agricultural experience program. Prerequisite: Admission to Secondary Teacher Education Program. (Sp)</p> <p><b>ASTE 3670</b>      <b>Agricultural Equipment Business Management, Marketing, and Communications</b>      <b>3</b></p> <p>Introduction to principles and operation of computer software systems related to marketing and management within the agricultural machinery business industry. Emphasis on business communication principles for effective transfer of information and problem resolution. Prerequisites: MATH 1050; fulfillment of Communications Literacy CL1 requirement or instructor's permission. (Sp)</p> <p><b>ASTE 3710</b>      <b>Agricultural Machinery Hydraulic Systems and Diagnosis</b>      <b>3</b></p> <p>Fundamental principles and components overhaul of hydraulic systems as applied in agricultural machinery. Exploration of techniques for diagnosing malfunctions and related failures with a systems approach. (F)</p>	<p><b>ASTE 3720</b>      <b>Agricultural DC Electrical Systems and Diagnosis</b>      <b>3</b></p> <p>Fundamental principles and components overhaul of DC electrical systems as applied in agricultural machinery. Exploration of techniques for diagnosing malfunctions and related failures with a systems approach. Prerequisite: ASTE 1620 or approval of instructor. (F)</p> <p><b>ASTE 3730</b>      <b>Agricultural Machinery Auxiliary Systems and Diagnosis</b>      <b>3</b></p> <p>Application of theory, testing, diagnosis, and repairs of auxiliary systems, including air conditioning, fuel injection, analog, electronic monitoring, and GPS as utilized in agricultural equipment. Prerequisite: ASTE 3720 or approval of instructor. This course is currently inactive. Contact department for information about when this course may be taught.</p> <p><b>ASTE 3900</b>      <b>Special Problems in Agricultural Systems Technology and Education</b>      <b>1-6</b></p> <p>Students conduct short-term investigation and/or literature analysis with critical review of contemporary issues in Agricultural Systems Technology. Formal contract with approved faculty. Activities culminate with a written report. (F,Sp,Su)</p> <p><b>ASTE 4100</b>      <b>Agricultural Structures and Environment**</b>      <b>3</b></p> <p>Overview of agricultural structures and environmental considerations related to livestock, livestock waste management, and commodity storage. Planning, layout, construction materials, concrete masonry, ventilation, insulation, and energy. (Sp)</p> <p><b>ASTE 4150 CI</b>      <b>Methods of Teaching Agriculture</b>      <b>3<sup>®</sup></b></p> <p>Introduction to basic practices of classroom teaching and program planning. Through participation in discussions, activities, and assignments, students refine their abilities to develop programs, diagnose the learner, prepare the instruction, and guide student learning. Prerequisites: ASTE 2710, 3240. (F)</p> <p><b>ASTE 4250</b>      <b>Occupational Experiences in Agriculture</b>      <b>1-6</b></p> <p>Supervised occupational experience for technical and professional preparation in teacher education and/or agricultural business. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>ASTE 4300</b>      <b>Clinical Experience II in Agricultural Education</b>      <b>1</b></p> <p>Continued in-school observation of agricultural education teaching. Requires student participation in teaching, management, and program development in agricultural education. Graded Pass/Fail <i>only</i>. (F)</p> <p><b>ASTE 4400</b>      <b>Advising Applied Technology Education Student Organizations</b>      <b>1</b></p> <p>Principles and practices for advising applied technology student organizations in secondary education. Examination of leadership organizations supporting applied technology education. Emphasis on program planning, leadership development, and evaluation. This course is currently inactive. Contact department for information about when this course may be taught.</p> <p><b>ASTE 4900</b>      <b>Senior Project Research and Creative Opportunity</b>      <b>1-6</b></p> <p>Returning student teachers work to strengthen their weaknesses in areas such as scaled drawing, cost estimating, machine shop practices, construction, and small engines. (Sp)</p> <p><b>ASTE 5100 (dual listed 6100)</b>      <b>Electrical Controls and Motors for Agri-Industrial Applications</b>      <b>3</b></p> <p>Operation and application of electrical motors, electrical and electronic controls, and circuit and overload protection utilized in agricultural and industrial installations. This course is currently inactive. Contact department for information about when this course may be taught.</p> <p><b>ASTE 5200</b>      <b>Assessment in Applied Technology Education</b>      <b>3</b></p> <p>Principles and practices in assessing performance and development of applied technology students. Emphasizes testing and evaluation techniques used in applied technology education. (Sp,Su)</p>
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# Course Descriptions

<b>ASTE 5260 CI</b> <b>(dual listed 6260)</b>	<b>Environmental Impacts of Agricultural Systems</b>	<b>3</b>
Investigation of relationship between agricultural practices and environmental quality, including control of agricultural nonpoint-source pollution. (F)		
<b>ASTE 5400</b> <b>(dual listed 6400)</b>	<b>Food, Land, and People</b>	<b>1-3<sup>®</sup></b>
Designed for pre-service (undergraduate, elementary education) or practicing, in-service (graduate) teachers. Offers development for infusing agriculture and the concepts of food, land, and people into existing curriculum standards and objectives. Presentation of agricultural-related instructional units, as well as research-based teaching strategies will be demonstrated. (F,Sp,Su) <sup>DE</sup>		
<b>ASTE 5500</b>	<b>Agricultural Education Secondary Curriculum Seminar</b>	<b>2<sup>®</sup></b>
Cooperative examination of considerations and processes for teaching secondary students. Reflection on the practice of teaching. Preparation for entry into the teaching profession. Graded Pass/Fail <i>only</i> . (Sp)		
<b>ASTE 5630</b>	<b>Agricultural Education Student Teaching in Secondary Schools</b>	<b>10</b>
Students teach agriscience and technology courses in secondary and middle school settings under the guidance of clinical and Utah State University supervisors. Graded Pass/Fail <i>only</i> . (Sp)		
<b>ASTE 6000</b>	<b>Methods of Equipment Testing, Diagnosis, and Repair</b>	<b>3</b>
Investigation and demonstration of methods and procedures for testing, troubleshooting, and diagnosis of tractors, power units, and all types of agricultural equipment. This course is currently inactive. Contact department for information about when this course may be taught.		
<b>ASTE 6070</b>	<b>Program and Curriculum Development in Career and Technical Education</b>	<b>3<sup>®</sup></b>
Program planning for locally applied curriculum design to meet student interests and community needs for career and technical educators. (F,Sp,Su)		
<b>ASTE 6100</b> <b>(dual listing 5100)</b>	<b>Electrical Controls and Motors for Agri-Industrial Applications</b>	<b>3</b>
Operation and application of electrical motors, electrical and electronic controls, and circuit and overload protection utilized in agricultural and industrial installations. This course is currently inactive. Contact department for information about when this course may be taught.		
<b>ASTE 6110</b>	<b>Applied Technology Education Program Planning and Evaluation</b>	<b>3</b>
Program planning and evaluation. Study of strategies used in applied technology. Demonstration of manpower surveys and job analysis for curriculum development. (F)		
<b>ASTE 6130</b>	<b>Electrical and Hydraulic Component Testing, Diagnosis, and Repair</b>	<b>3</b>
Involves supervision and demonstration of procedures for testing, diagnosis, and repair of all types of electrical and hydraulic components on modern agricultural equipment. (F)		
<b>ASTE 6140</b>	<b>Agricultural Development and Evaluation</b>	<b>3</b>
Principles and strategies for developing, implementing, and evaluating agricultural technology and educational programs for U.S. and international organizations. (Sp)		
<b>ASTE 6170</b>	<b>Supervision and Administration of International Extension Programs</b>	<b>3</b>
Investigation and analysis of theories and practices of supervision and administration as applied to international extension-education programs and rural development/agricultural extension operations. (F)		
<b>ASTE 6240</b>	<b>Strategies for Teaching Adults</b>	<b>3</b>
Features contemporary strategies and guided practice for teaching adults in group and individualized learning settings. (F,Sp,Su)		

<b>ASTE 6250</b>	<b>Special Problems in Agricultural Systems Technology</b>	<b>1-5<sup>®</sup></b>
A consideration of needs and special types of service in FFA, young farmers, and adult programs for applied technology teachers. (F,Sp,Su) <sup>DE</sup>		
<b>ASTE 6260</b> <b>(dual listing 5260)</b>	<b>Environmental Impacts of Agricultural Systems</b>	<b>3</b>
Investigation of relationship between agricultural practices and environmental quality, including control of agricultural nonpoint-source pollution. (F)		
<b>ASTE 6300</b>	<b>Foundations of Adult Education and Program Evaluation</b>	<b>3</b>
Addresses the context and providers of adult education. In addition, adult learning theories and participation models are examined. (F)		
<b>ASTE 6400</b> <b>(dual listed 5400)</b>	<b>Food, Land, and People</b>	<b>1-3<sup>®</sup></b>
Designed for pre-service (undergraduate, elementary education) or practicing, in-service (graduate) teachers. Offers development for infusing agriculture and the concepts of food, land, and people into existing curriculum standards and objectives. Presentation of agricultural-related instructional units, as well as research-based teaching strategies will be demonstrated. (F,Sp,Su) <sup>DE</sup>		
<b>ASTE 6510</b>	<b>Principles and Practices of Extension Education</b>	<b>3</b>
History, philosophy, and organizational structure of U.S. and international extension organizations, including programming models, teaching strategies, and accountability. (F) <sup>DE</sup>		
<b>ASTE 6700</b>	<b>Research Methods</b>	<b>3</b>
Introduction to techniques used in applied agricultural research and career and technical education research. Includes research design, data gathering, and statistical analysis and interpretation. (Sp) <sup>DE</sup>		
<b>ASTE 6750</b>	<b>Agricultural Safety and Health: Issues and Decisions</b>	<b>3</b>
Review of agricultural safety and health issues. Public and private concerns addressed through problem identification, data gathering, resolution, and evaluation. (Sp)		
<b>ASTE 6970</b>	<b>Research and Thesis</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su) <sup>DE</sup>		
<b>ASTE 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-3<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su) <sup>DE</sup>		
<b>ASTE 7000</b>	<b>Principles and Practices of Community College Education</b>	<b>3</b>
Examines the American two-year college, including historical and philosophical development, curricula, students and the learning process, faculty and instruction, administration and governance, support, and control. Focuses upon principles, practices, and problems of community colleges in America. (Su)		
<b>ASTE 7400</b>	<b>Community and Interagency Partnerships</b>	<b>3</b>
Explores relationship between education and the community, with special emphasis on community needs and interagency relationships needed for the development of a total community education program. Furthers understanding of leadership and agency, through exploring and examining contemporary and perennial issues from multiple perspectives in a diverse higher-educational context. (Su)		
<b>ASTE 7500</b>	<b>Diffusion of Innovations</b>	<b>3</b>
Explores processes by which professional change agents influence the introduction, adoption, and diffusion of technological change. Course content is applicable to persons who work closely with people in formal and informal educational settings. (Su)		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*\*Taught 2009-2010.

## Aviation Technology (AV)

See Department of Engineering and Technology Education, pages 253-258

<b>AV 1100</b>	<b>The Aviation Profession</b>	<b>1</b>
Covers attributes of aviation professional, career planning, and certification process. (F,Sp)		
<b>AV 1130</b>	<b>Flight Principles</b>	<b>2</b>
Basic flight theory and physics of flight. Aircraft control systems related to flight. Ground handling and servicing of aircraft. Special lab fee. (F) <sup>DE</sup>		
<b>AV 1140</b>	<b>Aircraft Components and Principles</b>	<b>2</b>
Materials and hardware, as well as nondestructive inspection applicable to aircraft. Plumbing methods, maintenance publications, and aircraft weight and balance control. (F)		
<b>AV 1170</b>	<b>Aircraft Structures</b>	<b>3</b>
Accepted methods and repair for metal structures. Organic finishes and application techniques with laboratory applications and practical experience. (F)		
<b>AV 1240</b>	<b>Aircraft Maintenance</b>	<b>3</b>
Maintenance, repair, alteration, and inspection of aircraft. Assembly and rigging of control systems with laboratory application of maintenance assembly and rigging procedures. Prerequisites: AV 1130, 1140. (Sp)		
<b>AV 2100</b>	<b>Aircraft Reciprocating Powerplants and Accessories</b>	<b>3</b>
Theory of operation, maintenance, and repair of reciprocating engines, propellers, exhaust systems, ignition systems, and fuel systems with laboratory applications of principles and components studied. Prerequisite: AV 2110 (must be taken concurrently). (F)		
<b>AV 2110</b>	<b>Aircraft Reciprocating Powerplants and Accessories Lab</b>	<b>3</b>
Laboratory application of principles studied in AV 2100. Prerequisite: AV 2100 (must be taken concurrently). (F)		
<b>AV 2140</b>	<b>Aircraft Turbine Powerplants and Maintenance Operations</b>	<b>3</b>
Theory of turbine powerplants, including turbine engine and components operation, hot section inspection, and servicing. Aircraft engine 100-hour inspections and maintenance, with laboratory applications of principles and components studied. Prerequisite: AV 2150 (must be taken concurrently). (Sp)		
<b>AV 2150</b>	<b>Aircraft Turbine Powerplant Maintenance Operations Lab</b>	<b>3</b>
Theory of turbine powerplants, including turbine engine and components operation, hot section inspection, and servicing. Aircraft engine 100-hour inspections and maintenance, with laboratory applications of principles and components studied. Prerequisite: AV 2140 (must be taken concurrently). (Sp)		
<b>AV 2170</b>	<b>Aircraft Systems</b>	<b>2</b>
Theory and operation of aerospace environmental systems, communication, navigation and guidance systems, fuel and propellant systems, fire detection, and warning. (Sp)		
<b>AV 2180</b>	<b>Aircraft Hydraulic and Pneumatic Systems</b>	<b>2</b>
Theory and operation of aircraft hydraulic, landing gear, and brake systems. (F)		
<b>AV 2190</b>	<b>Aircraft Systems Lab</b>	<b>1</b>
Laboratory application of principles and components studied in AV 2170. Prerequisite: AV 2170 (must be taken concurrently). (Sp)		
<b>AV 2200</b>	<b>Aircraft Hydraulics and Pneumatics Systems Lab</b>	<b>1</b>
Laboratory application of principles and components studied in AV 2180. Prerequisite: AV 2180 (must be taken concurrently). (F)		
<b>AV 2250</b>	<b>Internship</b>	<b>1-4<sup>®</sup></b>
Planned supervised work experience in industry. Must have departmental approval. (F,Sp,Su)		

<b>AV 2330</b>	<b>Private Pilot Ground School</b>	<b>4</b>
Instructions in principles of flight, aircraft and engine operation, weather, navigation, radio aids to navigation, radio communications, and federal air regulations. Preparation for FAA Private Pilot written exam. (F,Sp,Su)		
<b>AV 2350</b>	<b>Private Pilot Certification</b>	<b>1</b>
FAA approved flight training program meeting all requirements for, and in the issuance of, the Private Pilot Airplane License. Prerequisite: AV 2330 (may be taken concurrently). (F,Sp,Su)		
<b>AV 2420</b>	<b>FAA Regulations, Records, and Certification</b>	<b>2</b>
Maintenance forms, records, and regulations releasing aircraft to airworthy status. Certification of maintenance technicians is also included. (Sp)		
<b>AV 2430</b>	<b>Aircraft Electrical Systems and Components</b>	<b>2</b>
Aircraft electrical power generating systems. Theory of generation, alternators, regulation, and control systems with laboratory application of principles and systems studied. Prerequisite: ETE 2300. (Sp)		
<b>AV 2440</b>	<b>Aircraft Electrical Systems Laboratory</b>	<b>2</b>
Laboratory application of principles and systems studied in AV 2430. Prerequisites: ETE 2300; AV 2430 (must be taken concurrently). (Sp)		
<b>AV 2510</b>	<b>Intermediate Flight</b>	<b>1</b>
FAA approved flight training program that fulfills the cross country requirements for commercial and instrument ratings. Prerequisite: AV 2350. (F,Sp,Su)		
<b>AV 2520</b>	<b>Instrument Pilot Ground School</b>	<b>4</b>
Ground school approved by FAA under Part 141 of the Federal Aviation Regulations. Designed to prepare students to pass the FAA oral and written examinations required for becoming instrument rated pilots. Prerequisite: AV 2330. (F,Sp)		
<b>AV 2540</b>	<b>Instrument Pilot Certification I</b>	<b>1</b>
FAA approved flight training program introducing requirements for issuance of the Instrument Pilot Airplane Rating. Prerequisites: AV 2350, 2510; and AV 2520 (may be taken concurrently). (F,Sp,Su)		
<b>AV 2550</b>	<b>Instrument Pilot Certification II</b>	<b>1</b>
Continuation of AV 2540. Completes all requirements for issuance of the instrument pilot airplane rating. Prerequisite: AV 2540. (F,Sp,Su)		
<b>AV 2620</b>	<b>Commercial Pilot Ground School</b>	<b>2</b>
Commercial flight operations including performance, cross country planning, advanced systems operations, complex airplanes, and flight maneuvers. Prerequisites: AV 2350, 2520, 2540, and 2550. (F,Sp)		
<b>AV 2660</b>	<b>Commercial Pilot Certification</b>	<b>1</b>
Flight instruction to meet FAA requirements and completion of tests for certification. Prerequisites: AV 2540, 2550; and AV 2620 (may be taken concurrently). (F,Sp,Su)		
<b>AV 2720</b>	<b>CFI and CFII Ground School</b>	<b>3</b>
Designed to prepare students to pass the FAA oral and written examinations required for becoming certified flight and instrument instructors. Combines Certified Flight Instructor and Certified Flight Instructor-Instrument into one course. Prerequisites: AV 2620, 2660. (F,Sp)		
<b>AV 2740</b>	<b>CFI Certification</b>	<b>1</b>
FAA-approved flight training program meeting all requirements for the issuance of the Certified Flight Instructor Airplane Rating. Prerequisites: AV 2620, 2660; and AV 2720 (may be taken concurrently). (F,Sp,Su)		
<b>AV 2860</b>	<b>CFII Certification</b>	<b>1</b>
FAA approved flight training program meeting all the requirements for, and issuance of, the Certified Flight Instructor, Airplane Instrument Rating. Prerequisites: AV 2620, 2660, 2720, and 2740. (F,Sp,Su)		
<b>AV 2880</b>	<b>Multi-Engine Certification</b>	<b>1</b>
Flight training program designed to satisfy all requirements necessary to qualify a student for the FAA Multi-Engine Airplane Rating practical test. Prerequisite: AV 2660. (F,Sp,Su)		

# Course Descriptions

**AV 3010 National Airspace, Air Traffic Control, and Airport Administration 3**  
 Study of air traffic control system, airspace usage, and facilities. Airport planning, development, and management and their importance to the achievement of a successful airport operation. Management of publicly owned and operated airports, ranging in size from general aviation to the large air carrier hubs. Prerequisites: AV 1100 and passing scores on the Computer and Information Literacy (CIL) exams. (F)

**AV 3120 Aviation Law 3**  
 Law as it affects aviation industry. Rights and responsibilities of individual organizations and the aviation community. Regulation and liability pertaining to design, manufacturing, operation, and maintenance of aircraft. Prerequisites: AV 1100 and passing scores on the Computer and Information Literacy (CIL) exams. (F)

**AV 3140 Advanced Avionics Systems and Flight Simulation 3**  
 Advanced instrument simulation training. Prerequisites: AV 1100, 2540, and passing scores on the Computer and Information Literacy (CIL) exams. (F,Sp,Su)

**AV 3280 Advanced Turbine Engines 2**  
 Advanced study of turbo-jet propulsion. Comparative examination of jet, fan, turbo-prop, and turbo-shaft engines. Prerequisites: AV 1100, 2150, and passing scores on the Computer and Information Literacy (CIL) exams. (F)

**AV 3410 FCC License 1**  
 Prepares students to obtain the FCC General Radio Telephone Operator's License. Covers electronic fundamentals through microwave radar and FCC rules and regulations. Prerequisite: ETE 3400. (Sp)

**AV 3610 AeroTechnology Design I 1**  
 Students select and plan a senior project. Requires written proposal, including technical description of the project and management plans. Prerequisites: AV 1100 and passing scores on the Computer and Information Literacy (CIL) exams. (Sp)

**AV 4200 Composite Manufacturing Processes and Repair 3**  
 (dual listing 6200) Composite manufacturing processes, composite materials survey, tooling design and fabrication, autoclave processes, vacuum bag techniques, filament winding processes, equipment requirements, materials cutting and storage, and composite materials testing. Prerequisites: AV 1100 and passing scores on the Computer and Information Literacy (CIL) exams. (Sp)

**AV 4250 Internship 1-6®**  
 Planned supervised work experience in industry. Prerequisite: Departmental approval. (F,Sp,Su)

**AV 4280 Airline Management 3**  
 Study of airline operations and their organizational structure. Examines functions of airline dispatcher, operations specialists, managers, and cockpit flight crew. Discussion of advanced flight planning, aircraft performance and loading considerations, and impact of weather on flight operations and routing priorities. Prerequisites: AV 1100 and passing scores on the Computer and Information Literacy (CIL) exams. (F)

**AV 4300 Airline Marketing 3**  
 Introduces marketing thought, basic marketing principles and their application to airline business and operations, strategic planning, and decision-making. Prerequisites: AV 1100 and passing scores on the Computer and Information Literacy (CIL) exams. AV 4280 is *highly recommended*. (Sp)

**AV 4480 Certified Flight Instructor Practicum 2**  
 Under supervision of ground school instructor, students gain practical experience teaching ground school subjects. Prerequisite: AV 2740.

**AV 4490 Human Factors in Aviation Safety 3**  
 Examines major causative agent in aircraft accidents: the human being. Emphasizes psychological and physiological factors enhancing accident probability. Includes detailed analysis of ergonomics (human engineering) and its influence on safety. Prerequisites: AV 1100 and passing scores on the Computer and Information Literacy (CIL) exams. (Sp)

**AV 4610 CI AeroTechnology Design II 3**  
 Execution and completion of a team or individual project. Requires design reviews and written reports. Prerequisites: AV 1100, 3610, and passing scores on the Computer and Information Literacy (CIL) exams. (F)

**AV 4620 CI AeroTechnology Design III 3**  
 Preparation and presentation of a team or individual project. Writing and speaking skills emphasized through technical reports and presentations. Prerequisites: AV 1100, 4610, and passing scores on the Computer and Information Literacy (CIL) exams. (Sp)

**AV 4660 CI Flight Senior Project 3**  
 Students select, plan, and execute an approved senior project. Writing and speaking skills emphasized through technical reports and presentations. Prerequisites: AV 1100, 5400, and passing scores on the Computer and Information Literacy (CIL) exams. (F,Sp)

**AV 5400 Regional Jet Ground School I 4**  
 Introduction to a typical commercial jet aircraft in use by Regional Airlines. Course includes the following: Aircraft Systems, Standard Operating Procedures, and Flight Planning and Performance. Introduction to Airline Flight Operations in preparation for entry-level pilot positions with a regional airline. Prerequisites: AV 1100, 2550, and passing scores on the Computer and Information Literacy (CIL) exams. (Sp)

**AV 5410 Regional Jet Ground School II 4**  
 Continuation of AV 5400. Prerequisites: AV 1100, 5400, and passing scores on the Computer and Information Literacy (CIL) exams. (F)

**AV 5420 Advanced Regional Jet Simulation 3**  
 Flight training introduction to a typical commercial jet aircraft simulator in use by regional airlines. Intended for Professional Pilot aviation students actively pursuing a career in the airline industry. Prerequisites: AV 1100, 5410, and passing scores on the Computer and Information Literacy (CIL) exams. (F,Sp)

**AV 6200 Composite Manufacturing Processes and Repair 3**  
 (dual listing 4200) Composite manufacturing processes, composite materials survey, tooling design and fabrication, autoclave processes, vacuum bag techniques, filament winding processes, equipment requirements, materials cutting and storage, and composite materials testing. (Sp)

® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

DE This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Business Administration (BA)

See *Department of Economics and Finance, pages 230-233*  
 Also see *Department of Management, pages 349-355*

**Note:** Effective Fall Semester 2009, the courses previously listed under the Business Administration (BA) prefix will be listed under *either* the Finance (FIN) prefix or the Management (MGT) prefix. (FIN courses are shown on pages 565-566, and MGT courses are shown on pages 603-607.) Students registering for Summer Semester 2009 Business Administration courses can find them under the BA prefix by logging into Access at: <http://www.usu.edu/myusu/>

## Biological and Irrigation Engineering (BIE)

See Department of Biological and Irrigation Engineering, pages 179-184

<b>BIE 1880</b>	<b>Engineering Quantification of Biological Processes</b>	<b>3</b>
Introduction to engineering practice of biological modeling and quantification of biological processes. Introduction to transport of heat and mass; bioenergetics, thermodynamics, and enzyme kinetics; metabolism; mechanical work processes; and modeling of biological systems. Recommended that students take BIE 1880 after taking calculus and biology. (Sp)		
<b>BIE 1890</b>	<b>Introduction to Undergraduate Research Methods</b>	<b>1</b>
Introduction to research in biological engineering. Provides preview of research facilities and faculty programs within the Biological and Irrigation Engineering Department at USU. Teaches specific skills for searching scientific literature, database compilation, design of controlled experiments, lab tours, data analysis, and data presentation. (Sp)		
<b>BIE 2330</b>	<b>Engineering Properties of Biological Materials</b>	<b>3</b>
Relationships between composition, structure, and properties of biological materials. Definition, measurement, and use of mechanical, thermal, electromagnetic, chemical, and biological properties in computation and design. Prerequisites: BIOL 1610, BIE 1880, CHEM 1210, 1215. (F)		
<b>BIE 2400</b>	<b>Biological and Environmental Thermodynamics</b>	<b>3</b>
Introductory thermodynamics for biological and environmental engineering. First and second laws of thermodynamics. Entropy, thermodynamics of processes, and equations of state. Phase equilibria, Gibbs free energy, and Raoult's law. Prerequisite: MATH 1220. (Sp)		
<b>BIE 3000</b>	<b>Instrumentation for Biological Systems</b>	<b>3</b>
Fundamentals of measurement systems used in bioprocess, biomedical, agricultural, biological, and environmental applications. Selection and use of sensors, data acquisition systems, and elementary controls. Prerequisite: ETE 2210 or 2300. (Sp)		
<b>BIE 3200</b>	<b>Introduction to Unit Operations in Biological Engineering</b>	<b>3</b>
Introduction to the fundamental unit operations required to process biological materials in bioprocessing, biomedical, and food engineering applications. Integration of biology and chemistry into biological engineering using basic concepts in heat, mass, and energy conservation and transport. Prerequisites: BIE 2330, CHEM 2300. (F)		
<b>BIE 3670</b>	<b>Transport Phenomena in Bio-Environmental Systems</b>	<b>3</b>
Core course in both biological and environmental engineering. Students develop a detailed understanding of the principles, concepts, modes, and methods of calculating heat and mass transfer. Emphasis given to contaminant and nutrient flux, along with their state transformations, in order for the biological or environmental engineer to evaluate options for production, clean-up, and control of bio-environmental systems. Prerequisite: Minimum grade of C- in BIE 2400 or MAE 2300. Also taught as CEE 3670. (Sp)		
<b>BIE 3870</b>	<b>Biological Engineering Design I</b>	<b>1</b>
Students select and plan a senior design project. A project proposal, including a technical description of the project and management plans, is required. (F,Sp,Su)		
<b>BIE 4250</b>	<b>Cooperative Practice</b>	<b>3</b>
Planned work experience in industry or government. Detailed program must be approved prior to registration. Written report required. (F,Sp,Su)		
<b>BIE 4880</b>	<b>CI Biological Engineering Design II</b>	<b>3</b>
Execution and completion of a comprehensive senior design project. Design reviews and written reports are required. Prerequisite: BIE 3870. (F,Sp,Su)		
<b>BIE 4890</b>	<b>CI Biological Engineering Design III</b>	<b>3</b>
Preparation and presentation of the senior design project. The presentation will involve a professional standard report and an evaluation and critique by Biological Engineering students and faculty. Prerequisite: BIE 4880. (F,Sp,Su)		
<b>BIE 4930</b>	<b>Special Studies</b>	<b>1-4®</b>
Independent or group study of biological and irrigation engineering subjects not covered in regular course offerings. (F,Sp,Su)		
<b>BIE 5010</b>	<b>Principles of Irrigation Engineering (dual listing 6010)</b>	<b>3</b>
Soil-water-plant relationships; evapotranspiration and water requirements; effective water use; irrigation scheduling; infiltration; irrigation systems planning. Prerequisites: CEE 3430, 3500. (F, Sp online, Su)		
<b>BIE 5020</b>	<b>Biological Systems Modeling and Controls</b>	<b>3</b>
Development of mathematical models to describe biological systems. Emphasizes use of analogic techniques for development and numerical methods for solution. Systems to be considered include biotransport, population biology, and cellular engineering. Prerequisite: MATH 2250. (F)		
<b>BIE 5110</b>	<b>Sprinkle and Trickle Irrigation (dual listing 6110)</b>	<b>4</b>
Sprinkle and trickle irrigation system demand, system selection and configuration, emitter and sprinkler characteristics and sizing, uniformity and efficiency, pipe network layout and sizing, and system operation, management, and maintenance. Prerequisite: BIE 5010/6010. (F)		
<b>BIE 5150</b>	<b>Surface Irrigation Design (dual listing 6150)</b>	<b>3</b>
Design and evaluation of surface irrigation systems. Field measurements for evaluating and improving uniformity and efficiency. Simulation of surface systems. Land leveling computation and equipment. Prerequisite: BIE 5010/6010. (F, Sp online, Su)		
<b>BIE 5250</b>	<b>Remote Sensing of Land Surfaces (dual listing 6250)</b>	<b>4</b>
Basic principles of radiation and remote sensing. Techniques for ground-based measurements of reflected and emitted radiation, as well as ancillary data collection to support airborne and satellite remote sensing studies in agriculture, geography, and hydrology. Prerequisites: MATH 1100 or 1210; and PHYS 2110 or 2210. Also taught as CLIM 5250/6250 and WATS 5250/6250. (Sp)		
<b>BIE 5300</b>	<b>Irrigation Conveyance and Control Systems (dual listing 6300)</b>	<b>3</b>
Design, evaluation, and operation of irrigation distribution systems. Measurement and monitoring of flows and water levels, and canal and pipeline automation. Simulation of system hydraulics. (F)		
<b>BIE 5350</b>	<b>Drainage and Water Quality Engineering (dual listing 6350)</b>	<b>3</b>
Introduction to principles and practices of drainage. Engineering investigation and design of drains. Formation and function of wetlands caused by irrigation and drainage systems. Prerequisite: BIE 5010/6010. (Sp)		
<b>BIE 5450</b>	<b>Field Evaluation of Agricultural Irrigation Systems (dual listing 6450)</b>	<b>2</b>
Field measurements in pressurized and surface irrigation systems for performance evaluation and determination of water application uniformity and efficiency. (Su)		
<b>BIE 5520</b>	<b>Irrigation Project Operation and Maintenance (dual listing 6520)</b>	<b>3</b>
Organizing, administering, and financing irrigation and drainage projects. Operation and maintenance of irrigation distribution systems. Simulation of command area water demands. Prerequisite: BIE 5010/6010. (Sp)		
<b>BIE 5550</b>	<b>Groundwater Systems Engineering I (dual listing 6550)</b>	<b>3</b>
Groundwater exploration; well drilling and testing; pumping plant design, operation, and testing; aquifer evaluations; siting of multiple well systems. Development of pumping strategies for water supply and environmental control systems. Introduction to conjunctive use. Prerequisite: BIE 5010/6010. (F)		



# Course Descriptions

<p><b>BIE 5600</b>                      <b>Downstream Processes in</b> <b>(dual listing 6600)</b>            <b>Biological Engineering</b>                      <b>3</b></p> <p>Purification of proteins and other soluble/insoluble products from biochemical and/or chemical process streams. Emphasizes physical-chemical separation processes based on density, size, solubility, molecular interactions, etc. (Sp)</p>	<p><b>BIE 5890</b>                      <b>Tissue Engineering</b>                      <b>3</b> <b>(dual listing 6890)</b></p> <p>Introduction to fundamentals of tissue engineering. Investigation of engineering design strategies for artificial organs, as well as treatments for disease disorders of nerves, blood vessels, bones, cartilage, skin, and liver. Exploration of the use of stem cell gene therapy in tissue engineering. Prerequisite: BIE 2330 or permission of instructor. (Sp)</p>
<p><b>BIE 5610</b>                      <b>Food and Bioprocess Engineering</b>                      <b>3</b> <b>(dual listing 6610)</b></p> <p>Standardization and compounding of biomaterials and food products; preservation processing using heat, refrigeration, concentration, and dehydration. Basic unit operations in the bioprocessing industry. Prerequisite: BIE 3200. Also taught as NFS 5610/6610. (F)</p>	<p><b>BIE 5910</b>                      <b>Introduction to Biosensors</b>                      <b>3</b> <b>(dual listing 6910)</b></p> <p>Principles of biologically based sensing elements and interfacing techniques. Design and analysis methods of biosensing and transducing components in bio-interface. Applications of biosensors and bioelectronics in biomedical, bioprocessing, and biomechanical engineering. Prerequisite: BIE 2330 or permission of instructor. (F)</p>
<p><b>BIE 5620</b>                      <b>Metabolic Engineering I</b>                      <b>4</b> <b>(dual listing 6620)</b></p> <p>Presents fundamental knowledge of cellular metabolic pathways, basic principles of metabolic engineering, metabolic flux analysis, regulation of metabolic pathways, metabolic engineering applications, and biosynthesis of primary/secondary metabolites. Students given opportunities to conduct experiments, as well as opportunities for hands-on gene cloning and work with genetic engineering techniques. (Sp)</p>	<p><b>BIE 5930</b>                      <b>Special Studies</b>                      <b>1-4*</b></p> <p>Independent or group study of biological and irrigation engineering subjects not covered in regular course offerings. (F,Sp,Su)</p>
<p><b>BIE 5630</b>                      <b>Synthetic Biological Engineering</b>                      <b>3</b> <b>(dual listing 6630)</b></p> <p>Covers aspects of synthetic biological engineering, including overview of molecular biology and molecular cloning techniques, including PCR and analysis of nucleic acids and proteins. Introduces bioinformatics and practical use of these programs for biological design. Emphasizes principles of genetic engineering and use of standard biological parts and cellular engineering applications. (Sp)</p>	<p><b>BIE 6010</b>                      <b>Principles of Irrigation Engineering</b>                      <b>3</b> <b>(dual listing 5010)</b></p> <p>Soil-water-plant relationships; evapotranspiration and water requirements; effective water use; irrigation scheduling; infiltration; irrigation systems planning. Prerequisites: CEE 3430, 3500. (F, Sp online, Su)</p>
<p><b>BIE 5680</b>                      <b>Soil-based Waste Management</b>                      <b>2</b> <b>(dual listing 6680)</b></p> <p>Engineering management of wastes present in the vadose zone, including extraction, containment, and biological, chemical, and physical destruction technologies for sustainable agriculture and environmental quality. Aspects include engineering characterization, problem definition, treatment, and monitoring. Analysis and design emphasized through problems, examinations, and report writing. Prerequisites: CEE/PUBH 3610, CEE 3640, 3870, CEE/BIE 3670. Also taught as CEE 5680/6680. (Sp)</p>	<p><b>BIE 6110</b>                      <b>Sprinkle and Trickle Irrigation</b>                      <b>4</b> <b>(dual listing 5110)</b></p> <p>Sprinkle and trickle irrigation system demand, system selection and configuration, emitter and sprinkler characteristics and sizing, uniformity and efficiency, pipe network layout and sizing, and system operation, management, and maintenance. Prerequisite: BIE 6010/5010. (F)</p>
<p><b>BIE 5810</b>                      <b>Biochemical Engineering</b>                      <b>3</b> <b>(dual listing 6810)</b></p> <p>Fundamentals of bioreactor design and bioengineering to produce biological commodities. Emphasizes mathematical models of microbial and enzymatic processes in environmental and industrial biotechnology. Prerequisites: BIE 3200 and BIE/CEE 3670; or BIE/CEE 3670, CEE/PUBH 3610, and CEE 3640. Also taught as CEE 5810/6810. (F)</p>	<p><b>BIE 6150</b>                      <b>Surface Irrigation Design</b>                      <b>3</b> <b>(dual listing 5150)</b></p> <p>Design and evaluation of surface irrigation systems. Field measurements for evaluating and improving uniformity and efficiency. Simulation of surface systems. Land leveling computation and equipment. Prerequisite: BIE 6010/5010. (F, Sp online, Su)</p>
<p><b>BIE 5830</b>                      <b>Management and Utilization of</b> <b>(dual listing 6830)</b>            <b>Biological Solids and Wastewater</b>                      <b>3</b></p> <p>Focuses on production, management, and disposal of biosolids and wastewater generated in food processing and wastewater treatment. Emphasizes beneficial use of biosolids and wastewater for agricultural production, forest enhancement, and land reclamation. Prerequisites: BIE 3200, BIE/CEE 3670, CEE/PUBH 3610, CEE 3640. Also taught as CEE 5830/6830. (F)</p>	<p><b>BIE 6250</b>                      <b>Remote Sensing of Land Surfaces</b>                      <b>4</b> <b>(dual listing 5250)</b></p> <p>Basic principles of radiation and remote sensing. Techniques for ground-based measurements of reflected and emitted radiation, as well as ancillary data collection to support airborne and satellite remote sensing studies in agriculture, geography, and hydrology. Prerequisites: MATH 1100 or 1210; and PHYS 2110 or 2210. Also taught as CLIM 6250/5250 and WATS 6250/5250. (Sp)</p>
<p><b>BIE 5840</b>                      <b>Introduction to Biophotonics</b>                      <b>3</b> <b>(dual listing 6840)</b></p> <p>Engineering aspects of interactions of light with living systems. Design, testing, construction, and simulation for medical, bioprocess communication, data storage, and instrumentation applications. To receive graduate-level credit, students must complete a 10-page extra paper project addressing state-of-the-art research being conducted on a new biophotonics instrument, component, or device. Engineering aspects of the research development must be addressed (i.e., design; cost, including capital and O&amp;M; reliability; and performance). Use and referencing of the current research literature is required. (F)</p>	<p><b>BIE 6260</b>                      <b>Hydrology of Irrigation Agriculture</b>                      <b>3</b></p> <p>Impacts of irrigation activities on local and regional hydrology, wetlands, and natural systems. Determination of components of field and project water balances, including evapotranspiration. Effects of water conservation practices and changes in efficiency on timing and disposition of water resources and return flows. Irrigation scheduling and use of computer models. Prerequisite: BIE 6010/5010.</p>
<p><b>BIE 5850</b>                      <b>Biomaterials Engineering</b>                      <b>3</b> <b>(dual listing 6850)</b></p> <p>Explores identification and modification of properties of natural and artificial biomaterials. Design of applications for by-product recovery and recycling, environmental, food processing, and biomedical industries. Commercialization of biomaterial feed stocks, biotechnology output, and bioprocessing by-products into traditional and alternative products. Prerequisite: BIE 2330. (F)</p>	<p><b>BIE 6300</b>                      <b>Irrigation Conveyance</b> <b>(dual listing 5300)</b>            <b>and Control Systems</b>                      <b>3</b></p> <p>Design, evaluation, and operation of irrigation distribution systems. Measurement and monitoring of flows and water levels, and canal and pipeline automation. Simulation of system hydraulics. (F)</p>
	<p><b>BIE 6350</b>                      <b>Drainage and Water Quality Engineering</b>                      <b>3</b> <b>(dual listing 5350)</b></p> <p>Introduction to principles and practices of drainage. Engineering investigation and design of drains. Formation and function of wetlands caused by irrigation and drainage systems. Prerequisite: BIE 6010/5010. (Sp)</p>
	<p><b>BIE 6450</b>                      <b>Field Evaluation of Agricultural</b> <b>(dual listing 5450)</b>            <b>Irrigation Systems</b>                      <b>2</b></p> <p>Field measurements in pressurized and surface irrigation systems for performance evaluation and determination of water application uniformity and efficiency. (Su)</p>

# Course Descriptions

<p><b>BIE 6520</b>                    <b>Irrigation Project Operation</b> <b>(dual listing 5520)      and Maintenance</b>                    <b>3</b></p> <p>Organizing, administering, and financing irrigation and drainage projects. Operation and maintenance of irrigation distribution systems. Simulation of command area water demands. Prerequisite: BIE 6010/5010. (Sp)</p>	<p><b>BIE 6840</b>                    <b>Introduction to Biophotonics</b>                    <b>3</b> <b>(dual listing 5840)</b></p> <p>Engineering aspects of interactions of light with living systems. Design, testing, construction, and simulation for medical, bioprocess communication, data storage, and instrumentation applications. To receive graduate-level credit, students must complete a 10-page extra paper project addressing state-of-the-art research being conducted on a new biophotonics instrument, component, or device. Engineering aspects of the research development must be addressed (i.e., design; cost, including capital and O&amp;M; reliability; and performance). Use and referencing of the current research literature is required. (F)</p>
<p><b>BIE 6550</b>                    <b>Groundwater Systems Engineering I</b>                    <b>3</b> <b>(dual listing 5550)</b></p> <p>Groundwater exploration; well drilling and testing; pumping plant design, operation, and testing; aquifer evaluations; siting of multiple well systems. Development of pumping strategies for water supply and environmental control systems. Introduction to conjunctive use. Prerequisite: BIE 6010/5010. (F)</p>	<p><b>BIE 6850</b>                    <b>Biomaterials Engineering</b>                    <b>3</b> <b>(dual listing 5850)</b></p> <p>Explores identification and modification of properties of natural and artificial biomaterials. Design of applications for by-product recovery and recycling, environmental, food processing, and biomedical industries. Commercialization of biomaterial feed stocks, biotechnology output, and bioprocessing by-products into traditional and alternative products. Prerequisite: BIE 2330. (F)</p>
<p><b>BIE 6600</b>                    <b>Downstream Processes in</b> <b>(dual listing 5600)      Biological Engineering</b>                    <b>3</b></p> <p>Purification of proteins and other soluble/insoluble products from biochemical and/or chemical process streams. Emphasizes physical-chemical separation processes based on density, size, solubility, molecular interactions, etc. (Sp)</p>	<p><b>BIE 6860</b>                    <b>Research Orientation</b>                    <b>1</b> <b>(dual listing 7860)</b></p> <p>Promotes familiarization with departmental and graduate school rules, procedures, and research. (F)</p>
<p><b>BIE 6610</b>                    <b>Food and Bioprocess Engineering</b>                    <b>3</b> <b>(dual listing 5610)</b></p> <p>Standardization and compounding of biomaterials and food products; preservation processing using heat, refrigeration, concentration, and dehydration. Basic unit operations in the bioprocessing industry. Prerequisite: BIE 3200. Also taught as NFS 6610/5610. (F)</p>	<p><b>BIE 6870</b>                    <b>Research Planning</b>                    <b>1</b> <b>(dual listing 7870)</b></p> <p>Tools and techniques for writing research proposals and giving presentations. (Sp)</p>
<p><b>BIE 6620</b>                    <b>Metabolic Engineering I</b>                    <b>4</b> <b>(dual listing 5620)</b></p> <p>Presents fundamental knowledge of cellular metabolic pathways, basic principles of metabolic engineering, metabolic flux analysis, regulation of metabolic pathways, metabolic engineering applications, and biosynthesis of primary/secondary metabolites. Students given opportunities to conduct experiments, as well as opportunities for hands-on gene cloning and work with genetic engineering techniques. (Sp)</p>	<p><b>BIE 6890</b>                    <b>Tissue Engineering</b>                    <b>3</b> <b>(dual listing 5890)</b></p> <p>Introduction to fundamentals of tissue engineering. Investigation of engineering design strategies for artificial organs, as well as treatments for disease disorders of nerves, blood vessels, bones, cartilage, skin, and liver. Exploration of the use of stem cell gene therapy in tissue engineering. Prerequisite: BIE 2330 or permission of instructor. (Sp)</p>
<p><b>BIE 6630</b>                    <b>Synthetic Biological Engineering</b>                    <b>3</b> <b>(dual listing 5630)</b></p> <p>Covers aspects of synthetic biological engineering, including overview of molecular biology and molecular cloning techniques, including PCR and analysis of nucleic acids and proteins. Introduces bioinformatics and practical use of these programs for biological design. Emphasizes principles of genetic engineering and use of standard biological parts and cellular engineering applications. (Sp)</p>	<p><b>BIE 6910</b>                    <b>Introduction to Biosensors</b>                    <b>3</b> <b>(dual listing 5910)</b></p> <p>Principles of biologically based sensing elements and interfacing techniques. Design and analysis methods of biosensing and transducing components in bio-interface. Applications of biosensors and bioelectronics in biomedical, bioprocessing, and biomechanical engineering. Prerequisite: BIE 2330 or permission of instructor. (F)</p>
<p><b>BIE 6680</b>                    <b>Soil-based Waste Management</b>                    <b>2</b> <b>(dual listing 5680)</b></p> <p>Engineering management of wastes present in the vadose zone, including extraction, containment, and biological, chemical, and physical destruction technologies for sustainable agriculture and environmental quality. Aspects include engineering characterization, problem definition, treatment, and monitoring. Analysis and design emphasized through problems, examinations, and report writing. Prerequisites: CEE/PUBH 3610, CEE 3640, 3870, CEE/BIE 3670. Also taught as CEE 6680/5680. (Sp)</p>	<p><b>BIE 6930</b>                    <b>Special Problems</b>                    <b>1-4*</b></p> <p>Independent study of problems in biological and agricultural engineering. (F,Sp,Su)</p>
<p><b>BIE 6810</b>                    <b>Biochemical Engineering</b>                    <b>3</b> <b>(dual listing 5810)</b></p> <p>Fundamentals of bioreactor design and bioengineering to produce biological commodities. Emphasizes mathematical models of microbial and enzymatic processes in environmental and industrial biotechnology. Prerequisites: BIE 3200 and BIE/CEE 3670; or BIE/CEE 3670, CEE/PUBH 3610, and CEE 3640. Also taught as CEE 6810/5810. (F)</p>	<p><b>BIE 6970</b>                    <b>Thesis Research</b>                    <b>1-10*</b></p> <p>Credit for MS research and report requirements. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>
<p><b>BIE 6830</b>                    <b>Management and Utilization of</b> <b>(dual listing 5830)      Biological Solids and Wastewater</b>                    <b>3</b></p> <p>Focuses on production, management, and disposal of biosolids and wastewater generated in food processing and wastewater treatment. Emphasizes beneficial use of biosolids and wastewater for agricultural production, forest enhancement, and land reclamation. Prerequisites: BIE 3200, BIE/CEE 3670, CEE/PUBH 3610, CEE 3640. Also taught as CEE 6830/5830. (F)</p>	<p><b>BIE 6990</b>                    <b>Continuing Graduate</b> <b>Advisement for MS Students</b>                    <b>1-9*</b></p> <p>Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>
<p><b>BIE 7350</b>                    <b>Groundwater Systems Engineering II</b>                    <b>4</b></p> <p>System analysis techniques applied to aquifer and stream/aquifer management. Development of economically, quantitatively, and environmentally optimal strategies for alternative water policies. Modeling techniques for managing aquifer systems under volumetric, economic, and environmental management goals. Prerequisites: CEE 5470/6470 or 6500. (Sp)</p>	<p><b>BIE 7600</b>                    <b>Advanced Research Topics</b>                    <b>3</b></p> <p>Study of advanced biological and engineering topics. Analysis of project scale water management issues, software development, crop modeling, advanced drainage systems, remote sensing, groundwater systems, and other topics taken from the research interests of the faculty. Prerequisite: PhD enrollment. (Sp)</p>
<p><b>BIE 7860</b>                    <b>Research Orientation</b>                    <b>1</b> <b>(dual listing 6860)</b></p> <p>Promotes familiarization with departmental and graduate school rules, procedures, and research. (F)</p>	

# Course Descriptions

**BIE 7870 Research Planning** 1  
(dual listing 6870)  
Tools and techniques for writing research proposals and giving presentations. (Sp)

**BIE 7960 Supervised Teaching** 1-3  
Faculty members mentor PhD students in teaching and in understanding principles of pedagogy, including: (1) planning/organizing lectures and other teaching activities, (2) conducting teaching/instruction activities, (3) involvement in grading student work, and (4) assessment of activities by faculty mentor. (F,Sp)

**BIE 7970 Dissertation Research** 1-10®  
Graded Pass/Fail only. (F,Sp,Su)

**BIE 7990 Continuing Graduate Advisement for PhD Students** 1-9®  
Graded Pass/Fail only. (F,Sp,Su)

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

## Biology (BIOL)

See Department of Biology, pages 185-193

**BIOL 1010 BLS Biology and the Citizen** 3  
Principles and methods of biology and how they impact the daily life and environment of the individual. (F,Sp,Su)<sup>DE</sup>

**BIOL 1020 Biological Discovery: A Lab Course** 1  
Field and laboratory investigative exercises. Emphasizes observation, hypothesis formulation and testing, data analysis, and writing. (F,Sp)

**BIOL 1030 Medical College Admissions Test (MCAT) Preparation** 1  
Classroom instruction, tutorials, and readings to review material expected to be covered on the MCAT. Several Saturday practice exams are scheduled. Graded Pass/Fail only. (Sp)

**BIOL 1040 Dental Admissions Test (DAT) Preparation** 1  
Classroom instruction, tutorials, and readings to review material expected to be covered on the DAT. Several Saturday practice exams are scheduled. Graded Pass/Fail only. (Sp)

**BIOL 1100 Introduction to Microbiology** 3  
Biology and the role of microorganisms in the world around us, with emphasis on their contributions to human disease. Offered only through Independent Study. No laboratory component. Students who require a laboratory must take BIOL 2060. Not open to students with credit in BIOL 2060. (F,Sp,Su)<sup>DE</sup>

**BIOL 1300 BLS Of Maggots, Mites, and Men** 3  
Examines the natural history, evolution, and behavior of insects and spiders, as well as their impact on human individuals and societies. (F)

**BIOL 1610 Biology I** 4  
Principles of cell biology, energetics, and genetics; plant structure, function, and development. Three lectures and one lab. To receive University Studies Breadth Life Sciences (BLS) credit, students must complete *both* BIOL 1610 and either BIOL 1620 or 3300. The BIOL 1610 and 3300 option for BLS credit is available *only* to students majoring in Biological Engineering or Environmental Engineering. The BIOL 1610 and 3060 option for BLS credit is available *only* to students in the Bioinformatics Emphasis of the Computer Science Major. (F)<sup>DE</sup>

**BIOL 1620 BLS Biology II** 4  
Animal structure, function, and development; principles of evolution, ecology, and behavior. Three lectures and one lab. Prerequisite: BIOL 1610. (Sp)

**BIOL 1750 Topics in Biology (Topic)** 1-3®  
(F,Sp)

**BIOL 1800 Herbarium Studies** 1-2  
Provides classroom and practical experience in developing and maintaining an herbarium and extending its reach to the community. Students taking this course for one credit will complete classroom and laboratory work, while those earning two credits will in addition complete an herbarium research or service project. (F)

**BIOL 2040 Introduction to Biotechnology** 1  
Introduces freshmen to the emerging field of biotechnology and the impact this technology has on society. Also taught as ADVS 2040, NFS 2040, and PSC 2040. (Sp)

**BIOL 2060 Elementary Microbiology** 4  
Biology and role of microorganisms in the world around us, with emphasis on their contributions to human disease. Not intended for biology majors. (F)<sup>DE</sup>

**BIOL 2220 General Ecology** 3  
Study of the interrelationships among organisms and their environments, addressing where and how organisms live. Adaptation, population growth, species interactions, biodiversity, and ecosystem function are explored for a wide variety of organisms and ecosystems. Prerequisites: BIOL 1610 and 1620. Also taught as NR 2220. (F,Sp)

**BIOL 2300 Mushroom Identification** 1  
Lecture course covering taxonomy, ecology, and importance of macro and micro fungi. Also taught as WILD 2300. (F)

**BIOL 2310 Mushroom Identification Lab** 1-2®  
Lab course acquainting students with basic fungal taxonomic groups. Students collect, preserve, and identify fungi they collect. Edible fungi prepared and eaten. Also taught as WILD 2310. (F)

**BIOL 2320 Human Anatomy** 4  
Study of the human body, with emphasis on the structure of each of the body's essential organ systems. Three lectures, one lab. (Sp,Su)<sup>DE</sup>

**BIOL 2410 Plants and Fungi in the Field** 2  
Introduction to identification of green plants and macrofungi. Quantitative methods for field studies. Prerequisite: BIOL 1610. (Su)

**BIOL 2420 Human Physiology** 4  
Functioning of the human body, with emphasis upon major organ systems. Medical and athletic examples used to illustrate important concepts. (F,Sp,Su)<sup>DE</sup>

**BIOL 2520 Pathophysiology** 3  
Promotes an understanding of disease and dysfunctional variations of normal health across the body. Prerequisites: BIOL 2320 and 2420, each with a minimum grade of C. Course offered *only* at select branch campuses, not at the Logan campus. (F,Sp)<sup>DE</sup>

**BIOL 2700 Predental Orientation and Observation** 3  
Introduces predental students to the dental curriculum and characteristics of the dental profession. Each student assigned to a practicing dentist for part of the course. Prerequisite: Permission of advisor. (Sp)

**BIOL 3000 DSC Discovering Utah's Biodiversity** 3  
Lecture and field course designed to identify and study local organisms and their role in ecosystems. Topics include ecology, local geology, adaptations to the local environment, and human impacts. Major components include writing, as well as the collection and presentation of data. Prerequisite: Completion of a University Studies Breadth Life Sciences (BLS) course. (F,Sp)<sup>DE</sup>

**BIOL 3010 DSC/CI Evolution** 3  
Origins and evidence for the theory of biological evolution, and its significance for society and science. Prerequisite: University Studies Breadth Life Sciences (BLS) course. (Sp)<sup>DE</sup>

**BIOL 3030 DSC Genetics and Society** 3  
Course for nonscience majors. Addresses ethical, political, and social implications of advances in genetics and basic genetic principles, as well as contemporary issues in human genetics. Prerequisite: University Studies Breadth Life Sciences (BLS) course. Not open to biology majors or to those with credit in BIOL 3060. (Sp)

# Course Descriptions

<p><b>BIOL 3040 DSC Plants and Civilization</b> 3 Examines the importance of plants as food, shelter, clothing, medicine, and drugs. Social and historical role of plants in aesthetics, religion, energy, biotechnology, human exploration, and migration. Prerequisite: University Studies Breadth Life Sciences (BLS) course. (F)<sup>DE</sup></p> <p><b>BIOL 3060 QI Principles of Genetics</b> 4 Introduction to transmission, population, and molecular aspects of modern genetics. Prerequisites: BIOL 1610; CHEM 1110 or 1210. The BIOL 1610 and 3060 option for BLS credit is available <i>only</i> to students in the Bioinformatics Emphasis of the Computer Science Major. (F,Sp,Su)</p> <p><b>BIOL 3065 Genetics Laboratory**</b> 2 Experimental approach to genetics using bacteria, fungi, plants, insects, and humans. Students will be introduced to several computer and laboratory techniques, and will design many of the experiments. Prerequisite: BIOL 3060 (may be taken concurrently). (F)</p> <p><b>BIOL 3100 CI Bioethics</b> 3 Discussion of current controversial ethical issues in medicine, animal rights, and environmental conservation. (Sp)</p> <p><b>BIOL 3220 QI Field Ecology</b> 2 Field trips and exercises to study ecological patterns and processes in terrestrial and aquatic habitats. Emphasis on hypothesis testing and collection and analysis of data from the field. Prerequisite: BIOL 2220 (may be taken concurrently); MATH 1100 or 1210. Recommended: Course in statistics. (F)</p> <p><b>BIOL 3300 General Microbiology</b> 4 Biology, ecology, and diversity of microorganisms. Emphasis placed on bacteria, viruses, fungi, and protists, and their role in the environment. Two lectures, two labs. Prerequisites: BIOL 1610 (with a grade of C- or better); CHEM 1120 or 2300 or 2310 (may be taken concurrently). To receive University Studies Breadth Life Sciences (BLS) credit, students must complete <i>both</i> BIOL 1610 and 3300. The BIOL 1610 and 3300 option for BLS credit is available <i>only</i> to students majoring in Biological Engineering or Environmental Engineering. (F,Sp)</p> <p><b>BIOL 3500 DSC Plagues, Pests, and People</b> 3 Examines the biology and diversity of medically important insects and their associated diseases. Emphasizes the basic principles and concepts in medical, veterinary, and forensic entomology, as well as the historical impact of insect-borne diseases. Prerequisite: University Studies Breadth Life Sciences (BLS) course. (Sp)</p> <p><b>BIOL 3760 Independent Study</b> 1-3<sup>®</sup> Directed individual or group study. Prerequisite: BIOL 1620. Not counted as Biology degree elective or toward the Biology, Biomath, or Public Health minors. (F,Sp,Su)<sup>DE</sup></p> <p><b>BIOL 4000 Human Dissection</b> 1 Exposure and dissection of the human body, with an emphasis on bones, joints, muscles, and internal organs. One evening lab per week. Prerequisite: BIOL 2320. (F)</p> <p><b>BIOL 4060 CI Exploring Animal Behavior</b> 3 In-depth investigation into current topics. Students will generate hypotheses; design and complete experiments in field and lab; and prepare a written lab report, book review, and poster for public presentation. Two lectures, one lab. Prerequisite: BIOL 1620, 2220. (Sp)</p> <p><b>BIOL 4230 QI Applied Mathematics in Biology**</b> 3 Formulation, analysis, and experimental tests of mathematical models in biology. Combines mathematics, computing, experimental design, and statistical analysis while applying the scientific method to biological systems. Lectures, recitations, and a laboratory. Prerequisites: C- or better in BIOL 1620 and MATH 2250; or permission of instructor. Programming recommended. Also taught as MATH 4230. (Sp)</p> <p><b>BIOL 4250 Internship/Co-op</b> 1-2 Internship/cooperative work experience in biology or prehealth biology to allow student to gain a professional level of experience. Advisor's signature required. (F,Sp,Su)</p>	<p><b>BIOL 4400 QI Plant Physiology</b> 4 Introduction to plant metabolism, water relations, and growth. Prerequisites: BIOL 1620; MATH 1050 or higher. (F)</p> <p><b>BIOL 4410 Plant Structure</b> 3 Morphology, anatomy, and development of seed plants, with an emphasis on angiosperms. Two lectures and one lab. Prerequisite: BIOL 1610. (Sp)</p> <p><b>BIOL 4420 Plant Taxonomy</b> 3 Identification of vascular plant species and recognition of families common in northern Utah. Introduction to principles and practices of plant taxonomy. Prerequisite: BIOL 1610. (Sp,Su)</p> <p><b>BIOL 4430 Introduction to Plant Pathology</b> 4 Combined lecture-lab course emphasizing concepts in plant pathology. Symptoms and disease-causing organisms are described. Methods of control, the nature of epidemics, and disease prediction. Prerequisite: BIOL 1610. (Sp)</p> <p><b>BIOL 4500 Applied Entomology</b> 3 Fundamentals of insect biology, emphasizing species of economic importance. Principles and tactics of pest management. Laboratory includes survey of beneficial and harmful insects affecting humans and agriculture. Prerequisites: BIOL 1610 and 1620. (Sp)</p> <p><b>BIOL 4710 Teaching Internship</b> 1<sup>®</sup> Advanced undergraduates function as teaching interns under supervision of a faculty member. Only 1 credit may be counted toward Biology degree electives. Prerequisite: Consent of instructor. (F,Sp,Su)<sup>DE</sup></p> <p><b>BIOL 4750 Topics in Biology (Topic)</b> 1-3<sup>®</sup> (F,Sp,Su)<sup>DE</sup></p> <p><b>BIOL 5010 Biogeography</b> 3 <b>(dual listing 6010)</b> Distributions of plants and animals, including invertebrates, from terrestrial, freshwater, and marine systems, discussed from historical and ecological perspectives. Explores ecological patterns of body size, color, species density, home range, etc., as well as their causes. Prerequisite: BIOL 1620. (Sp)</p> <p><b>BIOL 5020 QI Modeling Biological Systems*</b> 3 <b>(dual listing 6020)</b> Basic techniques of mathematical and computer simulation applied to a wide variety of biological systems: ecology, physiology, agroecosystems, and cell biology. Model formulation, validation, sensitivity and stability analysis, stochastic systems. Prerequisites: MATH 1220, STAT 3000, programming experience. (F)</p> <p><b>BIOL 5030 Individual-Based Models in Ecology and Evolution*</b> 3 <b>(dual listing 6030)</b> Examines the nature, application, and student development of computer simulation models that follow the demographic fates and spatial movement of individual organisms in the context of ecological and evolutionary questions. Recommended prior to enrollment: Programming experience (preferably in C), upper-division courses in statistics and ecology or evolution, and BIOL 5020/6020. (Sp)</p> <p><b>BIOL 5100 Neurobiology**</b> 3 <b>(dual listing 6100)</b> Physiology, organization, and development of nervous systems. Examples taken from vertebrate and invertebrate systems. Special emphasis placed on cellular and molecular substrates of electrical excitability. Prerequisites: BIOL 1620; BIOL 2420, 5600, or 5620; CHEM 1220; and PHYS 2120 or 2220. (F)</p> <p><b>BIOL 5150 Immunology</b> 3 Immune response in health and disease. Experimental approach to investigating immune function and abnormalities. Prerequisites: CHEM 1220; BIOL 3060; and BIOL 3300 or 5210. (Sp)</p> <p><b>BIOL 5160 Methods in Biotechnology: Cell Culture</b> 3 Techniques and fundamental knowledge for culturing mammalian and insect cells. Students will learn maintenance, growing, genetic engineering of cells, cytotoxicity, hybridoma creation, cloning, etc. Extensive laboratory experience is provided. Also taught as ADVS 5160, NFS 5160, and PSC 5160. (Sp)</p>
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# Course Descriptions

<p><b>BIOL 5190</b>                    <b>Molecular Genetics</b>                    <b>3</b>  <b>(dual listing 6190)</b>  Molecular aspects of genetics, including DNA replication, structure, rearrangement, transposition, recombination, repair, genetic engineering, and gene expression. For 6000-level (graduate) credit, additional reading, recitation, and/or writing is required. Prerequisites: BIOL 3060; and CHEM 3700 or 5700. (Sp)</p>	<p><b>BIOL 5400</b>                    <b>Environmental Toxicology</b>                    <b>3</b>  <b>(dual listing 6400)</b>  Presents in-depth survey of toxic chemicals present in the environment, environmental factors impacting fate of chemicals, potential biological effects associated with chemical exposures, and methods of reducing associated risks. Also taught as ADVS 5400/6400 and PUBH 5400/6400. (Sp)</p>
<p><b>BIOL 5210</b>                    <b>Cell Biology</b>                    <b>3</b>  Examines the mechanisms of cell structure and function at the molecular level. Prerequisites: BIOL 1620, 3060; CHEM 2300 or 2320; CHEM 3700 or 5700 highly recommended. (F)</p>	<p><b>BIOL 5420</b>    <b>CI</b>                    <b>Forest and Shade Tree Pathology</b>                    <b>3</b>  Nature, cause, and management of forest diseases. Also taught as PLSC 5420 and WILD 5420. (Sp)</p>
<p><b>BIOL 5220</b>                    <b>Endocrine Aspects of Nutrition</b>                    <b>2</b>  <b>(dual listing 6220)</b>  Provides physiological background into hormones involved in nutrient regulation, as well as mechanisms of hormone action at the cellular and molecular levels. Includes action of steroids in the nucleus and membrane-based signal transduction pathways. Course includes lectures and literature reviews/presentations. Prerequisite: CHEM 3700 or permission of instructor. Also taught as ADVS 5220/6220 and NFS 5220/6220. (Sp)</p>	<p><b>BIOL 5440</b>                    <b>Plant Molecular, Cellular, and Developmental Biology I***</b>                    <b>3</b>  Examines background and recent advances. Students analyze and discuss structure, genome, molecular, development, and photosynthesis topics from a research perspective. Prerequisites: BIOL 3060, 5210; CHEM 3700 or 5710. Also taught as PLSC 5440/6440. (Sp)</p>
<p><b>BIOL 5230</b>                    <b>Developmental Biology</b>                    <b>3</b>  Examines the mechanisms of biological development using classical embryological and modern molecular and cellular approaches. Prerequisites: BIOL 3060 and 5210; CHEM 3700 and 5700 strongly recommended. (Sp)</p>	<p><b>BIOL 5450</b>                    <b>Plant Molecular, Cellular, and Developmental Biology II***</b>                    <b>3</b>  Examines background and recent advances. Students analyze and discuss cell wall, growth regulator, and environmental response topics from a research perspective. Prerequisites: BIOL 3060, 5210; CHEM 3700 or 5710. Also taught as PLSC 5450/6450. (Sp)</p>
<p><b>BIOL 5240</b>                    <b>Methods in Biotechnology: Protein Purification Techniques</b>                    <b>3</b>  Reviews basic methods of protein purification, including scaled-up use of 100L fermenter, large-scale centrifugation, diafiltration, chromatography, and use of BioCAD. Prerequisite: CHEM 3700. Also taught as ADVS 5240, NFS 5240, and PSC 5240. (Sp)</p>	<p><b>BIOL 5530</b>                    <b>Insect Systematics and Evolution</b>                    <b>3</b>  Evolution, biology, and classification of insects, including basic external morphology. Emphasizes role of phylogeny in systematics and importance of systematics in comparative biology. Prerequisite: BIOL 1620. (F)</p>
<p><b>BIOL 5250</b>    <b>CI</b>                    <b>Evolutionary Biology</b>                    <b>3</b>  Current topics in organic evolution from molecular to macroevolutionary scales. Prerequisite: BIOL 3060 or WILD 4880 or permission of instructor; BIOL/NR 2220 recommended. (F,Sp)<sup>DE</sup></p>	<p><b>BIOL 5550</b>                    <b>Freshwater Invertebrates</b>                    <b>3</b>  Ecology, collection, and systematics of freshwater aquatic invertebrates. Focuses on insects, but also covers crustaceans, molluscs, and annelids. Several weekend field trips and a collection are required. Prerequisite: One year of general biology or zoology, or permission of instructor. Also taught as WATS 5550. (Sp)</p>
<p><b>BIOL 5260</b>                    <b>Methods in Biotechnology: Molecular Cloning</b>                    <b>3</b>  Laboratory-oriented course designed to teach molecular biology techniques such as DNA cloning, genetic probes, polymerase chain reaction, and DNA sequencing. Prerequisite: CHEM 3700 or 5710; or BIOL 3060; or permission of instructor. Also taught as ADVS 5260, NFS 5260, and PSC 5260. (F)</p>	<p><b>BIOL 5560</b>                    <b>Ornithology</b>                    <b>3</b>  Surveys evolution, systematics, physiology, anatomy, ecology, behavior, and identification of birds. Includes lectures, laboratory and field exercises, field trips, and an independent project. Attendance required at one Saturday and one Friday-Sunday field trip. Prerequisites: BIOL 1620; MATH 1050 or higher. (Sp)</p>
<p><b>BIOL 5300</b>    <b>QI</b>                    <b>Microbial Physiology</b>                    <b>4</b>  Lectures, discussions, and laboratory investigations concerning the physiology, structure, and metabolism of prokaryotic and eukaryotic microbes. Prerequisites: BIOL 3300, MATH 1210. (Sp)</p>	<p><b>BIOL 5570</b>                    <b>Herpetology</b>                    <b>3</b>  Evolution, adaptations, distribution, natural history, behavior, and identification of amphibians and reptiles of the world, with special emphasis on North American species. Two lectures and one lab. Prerequisite: BIOL 1620. (Sp)</p>
<p><b>BIOL 5310</b>                    <b>Soil Microbiology*</b>                    <b>3</b>  Ecology and diversity of microorganisms in soils. Emphasis on factors controlling microbial activity and the role of microorganisms in organic matter decomposition and nutrient cycling. Prerequisites: BIOL 1610, 1620; CHEM 2300 or 2310; SOIL 3000. Also taught as SOIL 5310. (F)</p>	<p><b>BIOL 5580</b>                    <b>Mammalogy</b>                    <b>3</b>  Evolution, adaptations, distribution, natural history, behavior, and identification of mammals of the world, with special emphasis on North American species. Two lectures and one lab. Prerequisite: BIOL 1620. (F)<sup>DE</sup></p>
<p><b>BIOL 5320</b>                    <b>Soil Microbiology Laboratory*</b>                    <b>2</b>  Techniques for measuring microbial activity and diversity in soils. Includes use of molecular and isotope methods. Prerequisite: Concurrent or prior enrollment in BIOL/SOIL 5310. Also taught as SOIL 5320. (F)</p>	<p><b>BIOL 5590</b>                    <b>Animal Community Ecology**</b>                    <b>4</b>  <b>(dual listing 6590)</b>  Concepts and controversies in modern community ecology emphasizing aquatic and terrestrial animals. Covers the community concept, diversity and stability, null models, relative importance of competition and predation, food webs, disturbance, metapopulations, biogeography, and new directions. Prerequisites: BIOL 2220, STAT 3000. (Sp)</p>
<p><b>BIOL 5330</b>                    <b>Virology</b>                    <b>3</b>  Structure, replication, genetics, and molecular biology of viruses. Virus-host interactions. Viral diseases and antiviral agents. Prerequisites: BIOL 3060 and 3300. (Sp)</p>	<p><b>BIOL 5600</b>                    <b>Comparative Animal Physiology</b>                    <b>3</b>  <b>(dual listing 6600)</b>  Principles and mechanisms of physiology in vertebrate and invertebrate animals. For graduate (6000-level) credit, additional reading, recitation, and/or writing will be required. Prerequisites: BIOL 1620 and one of CHEM 1110, 1120, and 1220; or permission of instructor. (Sp)<sup>DE</sup></p>
<p><b>BIOL 5380</b>                    <b>Evolutionary Genetics</b>                    <b>4</b>  <b>(dual listing 6380)</b>  Examines theoretical and applied aspects of genes in natural and artificial populations. Topics include molecular evolution, population, and quantitative genetics, with emphasis on the intersection of genetics with evolution, ecology, and conservation biology. Prerequisite: BIOL 3060 or permission of instructor. (F)</p>	<p><b>BIOL 5610</b>    <b>QI</b>                    <b>Animal Physiology Laboratory</b>                    <b>2</b>  Laboratory exercises designed to explore principles of animal physiology, using computer simulations, tissue models, and animal preparations. Emphasis placed on hypothesis design and data interpretation. Prerequisite: BIOL 2420, 5600, or 5620 (any prerequisite may be taken concurrently). (F,Sp)<sup>DE</sup></p>

# Course Descriptions

<p><b>BIOL 5620</b>                    <b>Medical Physiology*</b>                    <b>3</b>            Cardiovascular, respiratory, endocrine, gastrointestinal, excretory, and nervous system function in the mammalian body. Emphasis on molecular mechanisms. Examples from mammalian diseases used to illustrate key concepts. Prerequisites: BIOL 1620; BIOL 2420 or 5600; CHEM 1120 or 3700 (may be taken concurrently) or 5710. (F)</p>	<p><b>BIOL 6210</b>                    <b>Advanced Cell Biology**</b>                    <b>3</b>            Presents most recent advances in cell biology research. Prerequisites: BIOL 3060 and 5210. (Sp)</p>
<p><b>BIOL 5730</b>                    <b>Genomic Technologies</b>                    <b>4</b>            Provides theoretical background in genomics/proteomics technologies and laboratory training in advanced techniques. Topics include: whole genome sequencing, transcriptome and proteome characterization, DNA and expressed gene libraries, and operation of modern genomics laboratory equipment. Prerequisites: BIOL 1620, 3060; CHEM 3700 or 5710; CS 2200; STAT 3000. Also taught as CHEM 5730. (Sp)</p>	<p><b>BIOL 6220</b>                    <b>Endocrine Aspects of Nutrition</b>                    <b>2</b>  <b>(dual listing 5220)</b>            Provides physiological background into hormones involved in nutrient regulation, as well as mechanisms of hormone action at the cellular and molecular levels. Includes action of steroids in the nucleus and membrane-based signal transduction pathways. Course includes lectures and literature reviews/presentations. Prerequisite: CHEM 3700 or permission of instructor. Also taught as ADVS 6220/5220 and NFS 6220/5220. (Sp)</p>
<p><b>BIOL 5800</b>                    <b>Undergraduate Research</b>                    <b>1-3®</b>            Faculty-directed research in biology. Prerequisites: BIOL 1620 and consent of instructor. Maximum of 3 credits of BIOL 5800 are acceptable toward Biology degree elective requirements. (F,Sp,Su)<sup>DE</sup></p>	<p><b>BIOL 6250</b>                    <b>Graduate Internship</b>                    <b>1-6</b>            Work experience, for which the student is paid, tied to academics in a graduate student's field of study. Graded Pass/Fail <i>only</i>. Prerequisite: Permission of department head prior to enrollment. (F,Sp,Su)</p>
<p><b>BIOL 5810</b>                    <b>Bachelor's Thesis</b>                    <b>3</b>            Preparation of a written thesis, based upon individual investigation, under the supervision of faculty. Prerequisites: 3 credits of BIOL 5800 (or concurrent enrollment) and consent of instructor. (F,Sp,Su)</p>	<p><b>BIOL 6260</b>                    <b>Behavioral Ecology***</b>                    <b>3</b>            Focuses on current topics, emphasizing critical reading and thinking skills. Includes lectures, student presentations, and discussions of primary literature. (Sp)</p>
<p><b>BIOL 5850</b>                    <b>Microbiology Seminar</b>                    <b>1®</b>  <b>(dual listing 6850)</b>            Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>	<p><b>BIOL 6380</b>                    <b>Evolutionary Genetics</b>                    <b>4</b>  <b>(dual listing 5380)</b>            Examines theoretical and applied aspects of genes in natural and artificial populations. Topics include molecular evolution, population, and quantitative genetics, with emphasis on the intersection of genetics with evolution, ecology, and conservation biology. Prerequisite: BIOL 3060 or permission of instructor. (F)</p>
<p><b>BIOL 6010</b>                    <b>Biogeography</b>                    <b>3</b>  <b>(dual listing 5010)</b>            Distributions of plants and animals, including invertebrates, from terrestrial, freshwater, and marine systems, discussed from historical and ecological perspectives. Explores ecological patterns of body size, color, species density, home range, etc., as well as their causes. Prerequisite: BIOL 1620. (Sp)</p>	<p><b>BIOL 6400</b>                    <b>Environmental Toxicology</b>                    <b>3</b>  <b>(dual listing 5400)</b>            Presents in-depth survey of toxic chemicals present in the environment, environmental factors impacting fate of chemicals, potential biological effects associated with chemical exposures, and methods of reducing associated risks. Also taught as ADVS 6400/5400 and PUBH 6400/5400. (Sp)</p>
<p><b>BIOL 6020</b>                    <b>Modeling Biological Systems*</b>                    <b>3</b>  <b>(dual listing 5020)</b>            Basic techniques of mathematical and computer simulation applied to a wide variety of biological systems: ecology, physiology, agroecosystems, and cell biology. Model formulation, validation, sensitivity and stability analysis, stochastic systems. Prerequisites: MATH 1220, STAT 3000, programming experience. (F)</p>	<p><b>BIOL 6440</b>                    <b>Plant Molecular, Cellular, and Developmental Biology I***</b>                    <b>3</b>  <b>(dual listing 5440)</b>            Examines background and recent advances. Students analyze and discuss structure, genome, molecular, development, and photosynthesis topics from a research perspective. For graduate (6000-level) credit, additional reading, recitation, and/or writing will be required. Prerequisites: BIOL 3060, 5210; CHEM 3700 or 5710. Also taught as PLSC 6440/5440. (Sp)</p>
<p><b>BIOL 6030</b>                    <b>Individual-Based Models in Ecology and Evolution*</b>                    <b>3</b>  <b>(dual listing 5030)</b>            Examines the nature, application, and student development of computer simulation models that follow the demographic fates and spatial movement of individual organisms in the context of ecological and evolutionary questions. Recommended prior to enrollment: Programming experience (preferably in C), upper-division courses in statistics and ecology or evolution, and BIOL 6020/5020. (Sp)</p>	<p><b>BIOL 6450</b>                    <b>Plant Molecular, Cellular, and Developmental Biology II***</b>                    <b>3</b>  <b>(dual listing 5450)</b>            Examines background and recent advances. Students analyze and discuss cell wall, growth regulator, and environmental response topics from research perspective. For graduate (6000-level) credit, additional reading, recitation, and/or writing will be required. Prerequisites: BIOL 3060, 5210, CHEM 3700 or 5710. Also taught as PLSC 6450/5450. (Sp)</p>
<p><b>BIOL 6100</b>                    <b>Neurobiology**</b>                    <b>3</b>  <b>(dual listing 5100)</b>            Physiology, organization, and development of nervous systems. Examples taken from vertebrate and invertebrate systems. Special emphasis placed on cellular and molecular substrates of electrical excitability. For graduate (6000-level) credit, additional reading, recitation, and/or writing will be required. Prerequisites: BIOL 1620; BIOL 2420, 5600, or 5620; CHEM 1220; and PHYS 2120 or 2220. (F)</p>	<p><b>BIOL 6510</b>                    <b>Insect-Plant Interactions**</b>                    <b>2</b>            Ecology, evolution, and physiology of the interactions between insects and plants, including herbivory, defenses/compensations of plants to insect attack, pollination, and other mutualisms. (F)</p>
<p><b>BIOL 6190</b>                    <b>Molecular Genetics</b>                    <b>3</b>  <b>(dual listing 5190)</b>            Molecular aspects of genetics, including DNA replication, structure, rearrangement, transposition, recombination, repair, genetic engineering, and gene expression. For 6000-level (graduate) credit, additional reading, recitation, and/or writing is required. Prerequisites: BIOL 3060; and CHEM 3700 or 5700. (Sp)</p>	<p><b>BIOL 6520</b>                    <b>Ecological Vertebrate Physiology***</b>                    <b>3</b>            Physiological responses and adaptations of vertebrates to physical, chemical, and biological environments. Bioenergetics at the species level. Three lectures. Prerequisites: One course in physiology and one course in ecology. (F)</p>
<p><b>BIOL 6200</b>                    <b>Biogeochemistry of Terrestrial Ecosystems**</b>                    <b>3</b>            Inputs, outputs, and cycling patterns of major nutrients. Emphasizes mechanisms for transformations, factors influencing process rates, and the impacts of management and global change on nutrient cycles and air and water quality. Prerequisites: BIOL 1620, SOIL 3000, CHEM 2300 or 2310, or permission of instructor. Also taught as SOIL 6200 and WILD 6200. (F)</p>	<p><b>BIOL 6590</b>                    <b>Animal Community Ecology**</b>                    <b>4</b>  <b>(dual listing 5590)</b>            Concepts and controversies in modern community ecology emphasizing aquatic and terrestrial animals. Covers the community concept, diversity and stability, null models, relative importance of competition and predation, food webs, disturbance, metapopulations, biogeography, and new directions. For graduate (6000-level) credit, additional reading, recitation, and/or writing will be required. Prerequisites: BIOL 2220, STAT 3000. (Sp)</p>

# Course Descriptions

<b>BIOL 6600</b> (dual listing 5600)	<b>Comparative Animal Physiology</b>	<b>3</b>
Principles and mechanisms of physiology in vertebrate and invertebrate animals. For graduate (6000-level) credit, additional reading, recitation, and/or writing will be required. Prerequisites: BIOL 1620 and one of CHEM 1110, 1120, and 1220; or permission of instructor. (Sp)		
<b>BIOL 6740</b>	<b>Cellular Communication by Small Molecules and Proteins**</b>	<b>3</b>
Using post-translational modifications, small molecules, and protein motifs in cellular communication. Variations in the communication systems related to disease state and/or cell stress and therapeutic strategies to manipulate the communication systems. Prerequisite: CHEM 5700 or 6700 or permission of instructor. Also taught as CHEM 6740. (Sp)		
<b>BIOL 6750</b> (F,Sp,Su)	<b>Topics in Biology (Topic)</b>	<b>1-3®</b>
<b>BIOL 6800</b>	<b>Biology Seminar</b>	<b>1®</b>
Format for general graduate-level seminar topics. Graded Pass/Fail <i>only</i> . (F,Sp)		
<b>BIOL 6820</b>	<b>Plant Biology/Pathology Seminar</b>	<b>1®</b>
Graded Pass/Fail <i>only</i> . (F,Sp)		
<b>BIOL 6830</b>	<b>Entomology Seminar</b>	<b>1®</b>
Graded Pass/Fail <i>only</i> . (F,Sp)		
<b>BIOL 6840</b>	<b>Zoology Seminar</b>	<b>1®</b>
Graded Pass/Fail <i>only</i> . (F,Sp)		
<b>BIOL 6850</b> (dual listing 5850)	<b>Microbiology Seminar</b>	<b>1®</b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>BIOL 6870</b>	<b>Ecology Seminar</b>	<b>1®</b>
The Ecology Center schedules regular seminars throughout the school year with ecological scientists from other institutions participating. Ecology majors are required to attend a minimum of 10 such lectures. Graded Pass/Fail <i>only</i> . Students should register for fall semester, but attend through spring semester. Also taught as ENVS 6870, PSC 6870, WATS 6870, and WILD 6870. (F)		
<b>BIOL 6910</b>	<b>Special Problems</b>	<b>1-3®</b>
Individual or group study under faculty guidance. Graded Pass/Fail <i>only</i> . Prerequisite: Permission of instructor. (F,Sp,Su)		
<b>BIOL 6960</b>	<b>Graduate General Ecology</b>	<b>4</b>
General concepts, history, and issues in all major areas of the science of ecology including: environmental biophysics; and physiological, behavioral, evolutionary, community, ecosystem, and applied ecology in both terrestrial and aquatic environments. Also taught as ENVS 6960, PSC 6960, WATS 6960, and WILD 6960. (F)		
<b>BIOL 6970</b>	<b>Thesis Research</b>	<b>1-12®</b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>BIOL 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9®</b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>BIOL 7750</b> (F,Sp,Su)	<b>Topics in Biology</b>	<b>1-3</b>
<b>BIOL 7970</b>	<b>Dissertation Research</b>	<b>1-12®</b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>BIOL 7990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9®</b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

DEThis course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

\*\*\*This course is taught alternating years. Check with department for information about when course will be taught.

## Business (BUS)

See Jon M. Huntsman School of Business, pages 123-127

<b>BUS 1000</b>	<b>Business Orientation</b>	<b>0.5</b>
Orients freshmen and transfer students to Huntsman School of Business programs, academic and student services, professional organizations, and career possibilities. This course is not currently being offered. For information about when it may be offered, contact the Huntsman School of Business.		
<b>BUS 2000</b>	<b>Orientation for International Summer Program</b>	<b>1®</b>
Introduction to culture, history, and business environments, as well as travel orientation, to prepare students for participation in one of the summer programs in either South America or Asia. (Sp)		
<b>BUS 2250</b>	<b>Introductory Internship</b>	<b>1-9®</b>
Introductory-level experience in a career-related position approved by the Cooperative Education Office. One credit for every 75 hours of internship experience, with a maximum of 9 credits. A maximum of 12 credits of 2250 and 4250 combined can be counted toward the minimum degree requirements for the Huntsman School of Business. Prerequisite: Permission of instructor. (F,Sp,Su) <sup>DE</sup>		
<b>BUS 3010</b>	<b>Intermediate Accounting I</b>	<b>3</b>
Study at the intermediate level in accounting theory and practice relating to financial reporting of assets. Prerequisites: Cumulative GPA of 2.5 or higher; grade of B- or better in ACCT 2010.		
<b>BUS 3020</b>	<b>Intermediate Accounting II</b>	<b>3</b>
Study at the intermediate level in accounting theory and practice relating to financial reporting of liabilities and equities. Prerequisites: Cumulative GPA of 2.5 or higher; BUS 3010.		
<b>BUS 3100</b>	<b>DSS Survey of Management Information Systems</b>	<b>3</b>
Survey of business uses of information technology, emphasizing vocabulary, concepts, career emphases, and systems components. Includes general systems theory and business functional information subsystems (e.g., accounting, management, finance, and marketing). Prerequisites: Cumulative GPA of 2.5 or higher; and Computer and Information Literacy (CIL) Exam, OSS 1400, or equivalent. (F,Sp,Su)		
<b>BUS 3110</b>	<b>DSS Management Fundamentals</b>	<b>3</b>
Study of the role of management, leadership theory, defining goals, organizing work, and managing performance. Prerequisite: Cumulative GPA of 2.5 or higher. <sup>DE</sup>		
<b>BUS 3250</b>	<b>Discussions With Business Leaders</b>	<b>1®</b>
Introduces current business trends, issues, and problems. This is accomplished through readings and discussions, as well as by required attendance at Dean's Convocation, Partner's in Business, and other appropriate business seminars. Graded Pass/Fail <i>only</i> . (F,Sp)		
<b>BUS 3310</b>	<b>Managerial Cost Accounting</b>	<b>3</b>
Intermediate level of accounting and interpretation of accounting information for internal decision-making and control. Prerequisites: Cumulative GPA of 2.5 or higher; ACCT 2020.		
<b>BUS 3330</b>	<b>Essentials of Database Systems</b>	<b>3</b>
Includes essential theory of database systems in areas such as E/R design, relational design, the SQL language, and distributed databases. Prerequisites: MIS 2100, completion of at least 40 credits, and cumulative GPA of 2.5 or higher. <sup>DE</sup>		
<b>BUS 3400</b>	<b>QI Finance Fundamentals</b>	<b>3</b>
Study of basic financial management principles, methods, and policies for business. Prerequisites: Cumulative GPA of 2.5 or higher; ACCT 2010; MATH 1050; choose one statistics course from STAT 1040, 2300, 3000, or PSY 2800. <sup>DE</sup>		
<b>BUS 3410</b>	<b>Federal Income Tax I</b>	<b>3</b>
Study of tax law and procedures for individuals, with an introduction to corporations and other entities. Prerequisite: Cumulative GPA of 2.5 or higher.		

# Course Descriptions

<p><b>BUS 3500 Marketing Principles 3</b> Study of basic marketing principles, functions, concepts, and terminology. Prerequisite: Cumulative GPA of 2.5 or higher. <sup>DE</sup></p> <p><b>BUS 3510 Business Programming 3</b> Includes basics of business systems development using programming languages supporting the Windows environment. Prerequisites: MIS 2100, completion of at least 40 credits, and cumulative GPA of 2.5 or higher. <sup>DE</sup></p> <p><b>BUS 3610 Introduction to Entrepreneurship 3</b> Introduction to entrepreneurship and the initial developmental processes of new ventures. Helps students become familiar with entrepreneurship, its role in the economy, and its viability as a career path. Focuses on identifying and analyzing potential business opportunities. Prerequisites: Cumulative GPA of 2.5 or higher and completion of at least 40 credits.</p> <p><b>BUS 3620 Developing Entrepreneurial Competencies 3</b> Focuses on the development of persuasion, delegation, organizational, leadership, and other practical competencies for individuals who launch businesses and/or play a significant role in their growth. Prerequisites: Cumulative GPA of 2.5 or higher and completion of at least 40 credits. <sup>DE</sup></p> <p><b>BUS 3700 Operations Management Fundamentals 3</b> Study of basic concepts and tools relating to managing the operations of a business. Prerequisites: Cumulative GPA of 2.5 or higher; MATH 1100 or 1210; STAT 2300 or 3000. <sup>DE</sup></p> <p><b>BUS 3710 Interpersonal and Team Skills 3</b> Focuses on the role of teams and interpersonal relationships in emerging organizations. Designed to help individuals and teams learn the skills needed for organizational effectiveness. Uses examples and exercises relevant to emerging organizations. <sup>DE</sup></p> <p><b>BUS 3820 International Ventures 3</b> Explores international culture and content of entrepreneurship, the impact of globalization on emerging businesses, and the pressures and complexities of operating in global markets, including the processes of managing multicultural resources. Prerequisites: Cumulative GPA of 2.5 or higher and completion of at least 40 credits. <sup>DE</sup></p> <p><b>BUS 4010 Selected Topics in Finance 3</b> Selected topics in finance pursued in depth. Topics may vary. Prerequisites: Cumulative GPA of 2.5 or higher; BUS 3400.</p> <p><b>BUS 4020 Selected Topics in Marketing 3</b> Selected topics in marketing pursued in depth. Topics may vary. Prerequisites: Cumulative GPA of 2.5 or higher; BUS 3500.</p> <p><b>BUS 4030 Selected Topics in Management 3<sup>®</sup></b> Selected topics in management pursued in depth. Topics may vary. Prerequisites: Cumulative GPA of 2.5 or higher and completion of at least 40 credits.</p> <p><b>BUS 4040 Selected Topics in Human Resources 3</b> Selected topics in human resources pursued in depth. Topics may vary. Prerequisites: Cumulative GPA of 2.5 or higher and completion of at least 40 credits.</p> <p><b>BUS 4050 Selected Topics in Information Systems 3</b> Selected topics in information systems pursued in depth. Topics may vary. Prerequisites: BUS 3330, completion of at least 40 credits, and cumulative GPA of 2.5 or higher.</p> <p><b>BUS 4200 Advanced Accounting 3</b> Explores accounting principles and theory relating to business combinations, nonprofit organizations, and governmental accounting. Prerequisites: Cumulative GPA of 3.0 or higher; grade of B or better in BUS 3010; admittance to a USU major; and completion of at least 40 credits. (Alt Su)</p>	<p><b>BUS 4250 Advanced Internship 1-9<sup>®</sup></b> Advanced or middle-level internship experience in a career-related position approved by the Cooperative Education Office. One credit for every 75 hours of internship experience, with a maximum of 9 credits. Prerequisite: Permission of instructor. (F,Sp,Su) <sup>DE</sup></p> <p><b>BUS 4410 Taxation of Business Entities 3</b> Examines federal taxation of partnerships, S-corporations, estates and trusts, and other special entities. Prerequisites: Cumulative GPA of 3.0 or higher; grade of B or better in BUS 3010; BUS 3410; admittance to a USU major; and completion of at least 40 credits. (Alt F) <sup>DE</sup></p> <p><b>BUS 4500 Accounting Systems 3</b> Studies concepts underlying the accounting systems' computerized support of business processes. Covers accounting systems development, internal controls, security, and systems auditing. Prerequisites: Cumulative GPA of 3.0 or higher; grade of B or better in BUS 3010; admittance to a USU major; and completion of at least 40 credits. (Alt F) <sup>DE</sup></p> <p><b>BUS 4510 Auditing Principles 3</b> Teaches fundamental principles and techniques of financial statement auditing. Also addresses internal controls, professional ethics, legal environment, auditing standards, and fraud detection. Prerequisites: Cumulative GPA of 3.0 or higher; grade of B or better in BUS 3010; admittance to a USU major; and completion of at least 40 credits. (Alt Sp) <sup>DE</sup></p> <p><b>BUS 4610 Advanced Entrepreneurship 3</b> Theoretical and practical aspects of starting or buying a business. Includes development of a business plan, conducting due diligence for buying a business, valuation, and related topics. Prerequisites: Cumulative GPA of 2.5 or higher and completion of at least 40 credits. <sup>DE</sup></p> <p><b>BUS 4710 Entrepreneurship Project 3</b> Students plan and complete advanced entrepreneurship projects that may include developing their own business, a significant consulting project with a start-up or growth business, or other approved project. Prerequisites: Cumulative GPA of 2.5 or higher and completion of at least 40 credits.</p> <p><b>BUS 4880 CI Business Strategy 3</b> Capstone course dealing with the processes of operating a business venture. Emphasizes market entry, finance, operations, managing growth, business ethics, and social responsibility. Addresses entrepreneurial issues and global strategies. Prerequisites: Cumulative GPA of 2.5 or higher; BUS 3110, 3400, 3500, 3700. <sup>DE</sup></p> <p><b>BUS 5100 Systems Analysis and Design and Project Management 3</b> Requires students to build an information system using state-of-the-art analysis and design principles, as well as project management essentials. The project must be completed for an external organization using state-of-the-art software. Prerequisites: BUS 3330, 3510, completion of at least 40 credits, and cumulative GPA of 2.5 or higher.</p> <p><b>BUS 6250 Graduate Internship 1-6<sup>®</sup></b> Graduate-level internship in a career-related position for graduate students wishing to develop or expand their occupational experience. Maximum of 6 credits. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>BUS 6310 MBA Career Development 0.5<sup>®</sup></b> Provides background in theory and practice of career development, including student assessment, organizational entry, and career planning and mentoring. (F,Sp,Su)</p> <p><b>BUS 6860 Applied Business Research 3</b> Provides students with the capability to design and conduct applied business research projects in all areas of business. Introduces students to the philosophy of science, research design, measurement and scaling, reliability and validity, communication of research results, and other topics. (Sp) <sup>DE</sup></p>
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<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

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# Course Descriptions

## Civil and Environmental Engineering (CEE)

See Department of Civil and Environmental Engineering, pages 203-210

<p><b>CEE 1880</b>                    <b>Civil and Environmental Engineering Orientation and Computer Applications</b>                    <b>1</b></p> <p>Orients students to programs of the Department of Civil and Environmental Engineering, professional and academic advising, student services, professional societies, and engineering careers. Laboratory activities emphasize problem solving using computer applications, such as spreadsheets and the HP48 Scientific Calculator. (F,Sp)</p>	<p><b>CEE 2240</b>                    <b>Engineering Surveying</b>                    <b>3</b></p> <p>Experience with a wide variety of common surveying equipment, including use and operation of levels, theodolites, total station equipment, and GPS. Prior to graduation, computer applications and field exercises prepare students for civil engineering employment early in their careers. Prerequisites: ACT Math score of 27 or higher or credit for MATH 1050 and 1060. Enrollment limited to students having majors within the College of Engineering. (F,Su)</p>	<p><b>CEE 2870</b>                    <b>Sophomore Seminar</b>                    <b>1</b></p> <p>Supervised discussion and review of problems encountered by professional engineers. (Sp)</p>	<p><b>CEE 2890</b>                    <b>Environmental Engineering Sophomore Seminar</b>                    <b>1</b></p> <p>Introduces students to the field of environmental engineering, emphasizing design, ethics, and leadership in the environmental engineering profession. Emphasizes creative thinking, organizational skills, team work, professional ethics, and social responsibility. Prerequisite: Sophomore standing in environmental engineering. (Sp)</p>	<p><b>CEE 3010</b>                    <b>Mechanics of Materials</b>                    <b>2</b></p> <p>Includes principal stresses; combined loading and stresses; deflection of beams by direction integration, moment-area, and superposition; and deflection of beams and frames by energy methods and columns. Includes visual animations to demonstrate the mechanical behavior of materials. Prerequisites: Minimum grades of C- in ENGR 2010 and 2140. (F)</p>	<p><b>CEE 3020</b>                    <b>Structural Analysis</b>                    <b>2</b></p> <p>Classification of structural types and development of loads. Analysis of both statically determinate and indeterminate structures. Analysis of trusses, beams, frames, cables, and arches. Utilization of approximate methods of analysis focusing on structural behavior. Prerequisite: CEE 3010. (Sp)</p>	<p><b>CEE 3030</b>                    <b>Uncertainty in Engineering Analysis</b>                    <b>2</b></p> <p>Principles of probability and statistics applied specifically to problems in civil and environmental engineering, including transportation, water quality, waste treatment, hydrology, and materials. (F,Sp)</p>	<p><b>CEE 3080</b>                    <b>Design of Reinforced Concrete Structures</b>                    <b>3</b></p> <p>Design of reinforced concrete structural elements, simple and continuous reinforced beams, columns, joints, and one-way slabs. Includes concrete materials laboratory. Prerequisite: CEE 3010. Prerequisite or corequisite: CEE 3020. (Sp)</p>	<p><b>CEE 3210</b>                    <b>Introduction to Transportation Engineering</b>                    <b>3</b></p> <p>Introduction to basic concepts of roadway geometric design, and intersection and highway capacity analysis. Other topics include: traffic flow characteristics, traffic studies, signal design, and transportation project evaluation. Prerequisite: CEE 3030. (Sp)</p>	<p><b>CEE 3430</b>                    <b>Engineering Hydrology</b>                    <b>3</b></p> <p>Provides a basic understanding of engineering hydrology through the hydrologic cycle, watershed characteristics, atmospheric water, rainfall-runoff processes, infiltration and evaporation, stream flow analysis, groundwater flow, and related designs. Prerequisite: CEE 3500. (Sp)</p>	<p><b>CEE 3500</b>                    <b>Civil and Environmental Engineering Fluid Mechanics</b>                    <b>3</b></p> <p>Explores fluid properties, hydrostatics, fluid dynamics similitude, energy and momentum principles, closed conduit flow, open channel flow, and flow measurement. Prerequisites: MATH 1220; MATH 2210 or 2250; ENGR 2010, 2030. (F,Sp)</p>	<p><b>CEE 3510</b>                    <b>Civil and Environmental Engineering Hydraulics</b>                    <b>3</b></p> <p>Steady flow in open channel and closed circuits, nonuniform flow in open channels, combined energy losses in pipelines, and distribution in pipe networks. Includes laboratory and computer exercises in data collection, pipe networks, and unsteady and nonuniform flow. Prerequisite: CEE 3500. (F,Sp)</p>	<p><b>CEE 3610</b>                    <b>Environmental Management</b>                    <b>3</b></p> <p>Introduction to environmental health, emphasizing relationships among environmental quality, public health, environmental and occupational health regulations, human health risk assessment, institutions, and engineered systems in environmental health management. Prerequisites: CHEM 1210; BIOL 1610 or Breadth Life Sciences course; MATH 1210. Corequisite: CEE/PUBH 3870. Also taught as PUBH 3610. (F)</p>	<p><b>CEE 3640</b>                    <b>Water and Wastewater Engineering</b>                    <b>4</b></p> <p>Engineering analysis and design of processes for treatment of water and wastewater. Major topics include water quality evaluation; physical, chemical, and biological treatment systems; design of facilities for production of drinking water and for treatment and reclamation of municipal and industrial wastewater; and management of residuals from water and wastewater treatment facilities. Prerequisites: CEE/PUBH 3610 and acceptance into professional program in engineering. (Sp)</p>	<p><b>CEE 3670</b>                    <b>Transport Phenomena in Bio-Environmental Systems</b>                    <b>3</b></p> <p>Core course in both biological and environmental engineering. Students develop a detailed understanding of the principles, concepts, modes, and methods of calculating heat and mass transfer. Emphasis given to contaminant and nutrient flux, along with their state transformations, in order for the biological or environmental engineer to evaluate options for production, clean-up, and control of bio-environmental systems. Prerequisite: Minimum grade of C- in BIE 2400 or MAE 2300. Also taught as BIE 3670. (Sp)</p>	<p><b>CEE 3780</b>                    <b>Solid and Hazardous Waste Management</b>                    <b>3</b></p> <p>Introduction to integrated management of municipal and industrial solid waste; household, commercial, and industrial hazardous waste; and resource recovery, recycling, and sustainability principles. Three lectures augmented by computer modeling and field trip experiences related to modern solid and hazardous waste management principles. Prerequisite: Acceptance into professional program in engineering. (F)</p>	<p><b>CEE 3870</b>                    <b>CI Professional/Technical Writing in Civil and Environmental Engineering</b>                    <b>2</b></p> <p>Gives CEE students intensive practice with oral and written communication in business and technical CEE writing. Requires concurrent enrollment in CEE/PUBH 3610. Also taught as PUBH 3870. (F)</p>	<p><b>CEE 3880</b>                    <b>Civil Engineering Design I</b>                    <b>1</b></p> <p>Introduction to senior engineering students' integrated design experience. Design project is identified and proposal for its completion during the senior year is produced. Emphasizes project scheduling, and completion of design proposal. Prerequisite: CEE 3870. (Sp)</p>	<p><b>CEE 3890</b>                    <b>Environmental Engineering Design I</b>                    <b>1</b></p> <p>Introduction to senior environmental engineering students' integrated design experience. Design project identified and proposal for its completion during the senior year is produced, under mentoring of course instructor. Emphasizes project identification, project scoping, manpower and materials budgeting, project scheduling, and completion of design proposal. Prerequisites: CEE/PUBH 3610, CEE 3640, CEE/BIE 3670. (Sp)</p>	<p><b>CEE 4200</b>                    <b>Engineering Economics</b>                    <b>2</b></p> <p>Applications of the mathematics of finance to engineering decision making. Should be taken during the junior year of the engineering curriculum. (F)</p>
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# Course Descriptions

<p><b>CEE 4300            Engineering Soil Mechanics            4</b> Physical and mechanical properties of soils. Topics include: classification, permeability, soil stresses and settlement analysis, soil strength, slope stability, lateral earth pressures, introduction to foundations, numerical solutions, and computer applications. Prerequisite: ENGR 2140. Prerequisite or corequisite: CEE 3500. (Sp)</p> <p><b>CEE 4790    CI            Environmental Engineering Design II            2</b> Provides senior environmental engineering students with integrated design experience in two-semester sequence. Design projects proposed in CEE 3890 completed under mentoring of course instructor. Emphasizes team work, scheduling, design calculations, and completion of design report. Prerequisites: CEE 3890 and concurrent enrollment in environmental engineering technical elective course during fall semester. (F)</p> <p><b>CEE 4870    CI            Civil Engineering Design II            2</b> Provides senior engineering students with integrated design experience in two-semester sequence. Design projects proposed in Junior Design Proposal placed on team work, scheduling, design calculations, and completion of design report. Prerequisite: CEE 3880; senior design technical elective should be taken concurrently. (F)</p> <p><b>CEE 4880    CI            Civil Engineering Design III            2</b> Provides senior engineering students with integrated design experience in two-semester sequence. Design projects started in CEE 4870 will be completed with presentation, report, and defense of design project. Prerequisite: CEE 4870. (Sp)</p> <p><b>CEE 4890    CI            Environmental Engineering Design III            2</b> Provides senior environmental engineering students with integrated design experience in two-semester sequence. Completion of design projects begun in CEE 4790, with presentation, report, and defense. Prerequisite: CEE 4790. (Sp)</p> <p><b>CEE 4930            Independent Study            1-3®</b> Laboratory design or research project on problem selected by student. Requires review of literature, preparation of proposal describing project, completion of design or research project, and preparation of report. (F,Sp,Su)</p> <p><b>CEE 5010            Matrix Analysis/Finite Element            3</b> Analysis of structures using matrix methods. Application of software based on the stiffness method to practical analysis problems. Introduction of Finite Element method based on stiffness approach and mathematical derivation of simple finite elements, along with application to practical problems. Prerequisite: CEE 3020. (F)</p> <p><b>CEE 5020            Finite Element Methods in Solid Mechanics I            3</b> Introduction to finite element methods and their application to the analysis and design of mechanical engineering systems. Prerequisite: MAE 3040. Also taught as MAE 5020. (F)</p> <p><b>CEE 5050            Design of Wood and Masonry Structures            3</b> Design of beams, columns, joints, walls, and diaphragms in both wood and masonry materials. Current design codes will be utilized. Prerequisite: CEE 3080. (Sp)</p> <p><b>CEE 5060            Mechanics of Composite Materials I            3</b> Stress-strain relations for nonisotropic composites, such as fiber-reinforced plastic laminates, properties and their uses, strength and life determination, and methods for design using composite materials. Prerequisite: MAE 3040 or CEE 3010. Also taught as MAE 5060. (F)</p> <p><b>CEE 5070            Structural Steel Design            3</b> Structural steel design using load and resistance factor design (LRFD) method. Focuses on design of structural beams, columns, and connections utilizing steel design codes. Prerequisites: CEE 3020, 3080. (F)</p> <p><b>CEE 5080            Numerical Methods in Elasticity            3</b> <b>(dual listing 6080)</b> Elasticity theory, stress and strain analysis, and yield criteria. Governing equilibrium, kinematic, and compatibility equations. Generalized Hooke's law. Classical solutions of flex and torsion problems. Energy methods. Introduction to finite difference, finite element, and boundary element methods. Computer applications. Prerequisite: CEE 3020. (F)</p>	<p><b>CEE 5100            Infrastructure Evaluation and Renewal            3</b> Evaluation of existing structural systems and techniques to improve their performance. Focuses on structures which are seismically deficient. Prerequisites: CEE 3080, 5070. (Sp)</p> <p><b>CEE 5110            Steel Bridge Design Project            3</b> Civil Engineering undergraduate technical elective involving design of a steel bridge. Course topics include: geotechnical, structures, and materials analysis and design. Written reports and presentations required. Hours arranged. Prerequisite: CEE 3870 (may be taken concurrently). (Sp)</p> <p><b>CEE 5120            Concrete Canoe Design Project            3</b> Civil Engineering undergraduate technical elective involving design of a concrete canoe. Course topics include: hydraulic, structures, and materials analysis and design. Written reports and presentations required. Hours arranged. Prerequisite: CEE 3870 (may be taken concurrently). (Sp)</p> <p><b>CEE 5190            Geographic Information Systems            3</b> <b>(dual listing 6190) for Civil Engineers</b> Concepts addressing data structures, spatial entities, and queries. Topics include location referencing methods, data collection techniques, current applications, and institutional and organizational issues. (Sp)</p> <p><b>CEE 5220            Traffic Engineering            3</b> <b>(dual listing 6220)</b> Topics covered include characteristics, measurements, and analysis of volume, speed, density, and travel time; capacity and level of service analysis; signalization and traffic control devices. (Sp)</p> <p><b>CEE 5230            Geometric Design of Highways            3</b> <b>(dual listing 6230)</b> Principles of highway location and planning, with full consideration of economic, environmental, and other impacts. Capacity analysis of intersections and highways, passing-lane design, and risk-cost based horizontal and vertical alignment design. Introduction to design software through coursework and term projects. Prerequisite: CEE 3210. (Sp)</p> <p><b>CEE 5240            Urban and Regional            3</b> <b>(dual listing 6240) Transportation Planning</b> Examination of travel demand forecasting, data collection, and survey data analysis techniques. Focuses on transportation-land use interactions and impact of market-based policies on travel demand. Theories and applications of traditional and advanced trip distribution, mode choice, and route assignment models. (F)</p> <p><b>CEE 5250            Environmental Engineering            2</b> <b>Cooperative Practice</b> Applied environmental employment with primary focus of work experience related to one of the environmental engineering specialty areas. Prerequisites: Senior status and permission of instructor. (F,Sp,Su)</p> <p><b>CEE 5350            Foundation Analysis and Design            3</b> <b>(dual listing 6350)</b> Applications of theories studied in soil mechanics. Design considerations for various foundation types, including shallow foundations, driven piles, drilled shafts, walls, soil anchorages, and mechanically-stabilized earth support systems. Field investigation techniques and computer applications. Prerequisite: CEE 4300. (F)</p> <p><b>CEE 5380            Earthquake Engineering            3</b> <b>(dual listing 6380)</b> Covers wide variety of earthquake engineering topics, including seismology and earthquake source characterization, strong ground motion, seismic hazard analysis, wave propagation, soil dynamics, ground response, local site effects, liquefaction, seismic slope stability, soil improvement, vibrational analyses, and structural seismic design. Prerequisite: CEE 4300. (Sp)</p> <p><b>CEE 5430            Groundwater Engineering            3</b> <b>(dual listing 6430)</b> Explores fundamentals of groundwater hydrology by focusing on theory related to aquifer systems and flow analysis, regional groundwater balance, well hydraulics, aquifer testing, capture zone analysis, unsaturated flow, saltwater intrusion, and basics of flow modeling. Prerequisite: CEE 3430 or a similar hydrology course. (F)</p>
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# Course Descriptions

<p><b>CEE 5450</b>                      <b>Hydrologic Modeling</b>                      <b>3</b>  <b>(dual listing 6450)</b>            Case studies and hands-on experience with hydrologic models and modeling methods for: (1) Design floods and spillway evaluation; (2) Flood plain delineation; (3) Dam break and inundation modeling; (4) Reservoir yield and time series modeling; (5) Reservoir inflow forecasting and operation; and (6) Urban hydrology, detention, and sedimentation basins. Prerequisite: CEE 3430. (Sp)</p>	<p><b>CEE 5690</b>                      <b>Natural Systems Engineering</b>                      <b>3</b>  <b>(dual listing 6690)</b>            Explores integrated nature of river basin planning and management through introduction of most commonly employed assessment modeling frameworks and tools for modeling physical, chemical, and ecological processes at the study site to watershed scales. Topics include: water resources system modeling; physical, chemical, and ecological processes modeling; impact assessment methods; and risk assessment. Prerequisites: CEE/PUBH 3610, CEE 3500, 3510, 3640; or instructor's permission. (F)</p>
<p><b>CEE 5460</b>                      <b>Water Resources Engineering</b>                      <b>3</b>  <b>(dual listing 6460)</b>            Engineering design course covering a wide range of topics, including: surface and groundwater hydrology, statistical analysis, water law, hydroelectric power, water supply, irrigation, flood control, wastewater, drainage, dams and reservoirs, pipelines, open channels, and planning. Prerequisites: CEE 3430, 3500, and 4200. (F)</p>	<p><b>CEE 5710</b>                      <b>Pollution Prevention and Industrial Ecology***</b>                      <b>2</b>            Explores pollution prevention and waste minimization concepts, focusing on implementation of these concepts in design of production processes and products. Discussion of pollution prevention/waste minimization concepts, energy and materials conservation, Life Cycle Analysis, materials and process audits, industrial process design for waste minimization and energy conservation, packaging, and ISO 14000. Prerequisite: Acceptance into professional program in engineering. (Sp)</p>
<p><b>CEE 5470</b>                      <b>Sedimentation Engineering</b>                      <b>3</b>  <b>(dual listing 6470)</b>            Explores river response, sediment transport, sediment and watershed yield, flow resistance, scour and erosion, and floodplain management. Prerequisite: CEE 3500. (Sp)</p>	<p><b>CEE 5720</b>                      <b>Natural Systems Modeling</b>                      <b>3</b>  <b>(dual listing 6720)</b>            Provides hands-on approach to utilizing several of the most commonly applied modeling tools employed to estimate physical, chemical, and biological impacts of existing and proposed water resource systems. Focuses on utility and limitations of specific modeling approaches, while also stressing integrative multi-disciplinary nature of impact assessment frameworks. Prerequisite: CEE 5690/6690 or instructor's permission. (Sp)</p>
<p><b>CEE 5500</b>                      <b>Open Channel Hydraulics with an Emphasis on Gradually Varied Flow</b>                      <b>3</b>  <b>(dual listing 6500)</b>            Theory and applications of steady uniform and gradually varied flow under both subcritical and supercritical flow conditions. Solutions to multiple-network canal systems by solving systems of combined ordinary differential and algebraic equations. Method for defining natural channel systems and solving steady-state flows in them. Prerequisites: CEE 3500, 3510. (F)</p>	<p><b>CEE 5730</b>                      <b>Analysis and Fate of Environmental Contaminants</b>                      <b>3</b>  <b>(dual listing 6730)</b>            Provides students with understanding of methods used in analysis of environmental samples for organic contaminants. Examines various properties and processes determining the fate of organic contaminants in the environment. Taught first half of fall semester. Prerequisites: Grades of C- or better in CHEM 1210 and 1215. Also taught as PUBH 5730/6730. (F)</p>
<p><b>CEE 5540</b>                      <b>Hydraulic Structures Design</b>                      <b>3</b>  <b>(dual listing 6540)</b>            Design of a variety of hydraulic structures is explored, both in the classroom and laboratory. Integrates student-developed, original computer programs; commercially available software; field trips; and hands-on laboratory design projects to further students' understanding of hydraulic structures. Prerequisites: CEE 3500 and 3510. (F)</p>	<p><b>CEE 5750</b>                      <b>Air Quality Measurements</b>                      <b>2</b>            Laboratory-based course designed to familiarize participants with federally-approved reference measurement techniques for ambient and source air pollutants. Also provides understanding of temporal and spatial pollutant behavior. (Sp)</p>
<p><b>CEE 5550</b>                      <b>Hydraulics of Closed Conduits</b>                      <b>3</b>  <b>(dual listing 6550)</b>            Includes design and operation of piping systems; economics; feasibility and impact of pipelines; pipe, pump, and valve selection; transient and cavitation analysis; and pipeline operation and filling. Prerequisites: CEE 3500 and 3510. (Sp)</p>	<p><b>CEE 5760</b>                      <b>Hydraulic Structures Field Course</b>                      <b>1</b>            Week-long course, with one day of in-class lectures and four days of field trips. Introduces students to field applications of hydraulic structures design. Field trips may involve backpacking to remote areas. (F,Su)</p>
<p><b>CEE 5610</b>                      <b>Environmental Quality Analysis</b>                      <b>3</b>  <b>(dual listing 6610)</b>            Familiarizes students with various methods used for analysis of chemical parameters in environmental samples (water, soil, and air). Provides students with skills enabling them to make proper selection/evaluation of analytical procedure and evaluate data generated. Prerequisite: CHEM 1210. (F)</p>	<p><b>CEE 5790</b>                      <b>Accident and Emergency Management***</b>                      <b>3</b>            Introduction to fundamentals of accident, hazard, and emergency management. Topics include legislation; chemical safety fundamentals; fire, explosion, and spill fundamentals; contaminant air transport fundamentals; hazard and risk assessment; dispersion applications; and hazard and risk management applications. Prerequisite: CHEM 1220. Also taught as PUBH 5790. (Sp)</p>
<p><b>CEE 5620</b>                      <b>Aquatic Chemistry</b>                      <b>3</b>            Provides students with understanding of principles of aquatic chemistry, emphasizing chemical equilibria, acid-base reactions, complex formation, oxidation-reduction reactions, complex formation, and dissolution chemistry. Prerequisite: CHEM 1210 or equivalent. Also taught as SOIL 5620. (F)</p>	<p><b>CEE 5810</b>                      <b>Biochemical Engineering</b>                      <b>3</b>  <b>(dual listing 6810)</b>            Fundamentals of bioreactor design and bioengineering to produce biological commodities. Emphasizes mathematical models of microbial and enzymatic processes in environmental and industrial biotechnology. Prerequisites: BIE 3200 and BIE/CEE 3670; or BIE/CEE 3670, CEE/PUBH 3610, and CEE 3640. Also taught as BIE 5810/6810. (F)</p>
<p><b>CEE 5670</b>                      <b>Hazardous Chemicals Handling and Safety</b>                      <b>2</b>            Provides students with necessary skills and knowledge for working safely in areas associated with hazardous chemicals. Topics covered include: regulations, exposure routes, toxicology, chemical and physical hazards, personal protective equipment, sampling, monitoring, decontamination, and emergency response procedures. Prerequisite: CHEM 1210. Also taught as PUBH 5670. (Sp)</p>	<p><b>CEE 5830</b>                      <b>Management and Utilization of Biological Solids and Wastewater</b>                      <b>3</b>  <b>(dual listing 6830)</b>            Focuses on production, management, and disposal of biosolids and wastewater generated in food processing and wastewater treatment. Emphasizes beneficial use of biosolids and wastewater for agricultural production, forest enhancement, and land reclamation. Prerequisite: BIE/CEE 3670. Also taught as BIE 5830/6830. (F)</p>
<p><b>CEE 5680</b>                      <b>Soil-based Waste Management</b>                      <b>2</b>  <b>(dual listing 6680)</b>            Engineering management of wastes present in the vadose zone, including extraction, containment, and biological, chemical, and physical destruction technologies for sustainable agriculture and environmental quality. Aspects include engineering characterization, problem definition, treatment, and monitoring. Analysis and design emphasized through problems, examinations, and report writing. Prerequisites: CEE/PUBH 3610, CEE 3640, 3870, CEE/BIE 3670. Also taught as BIE 5680/6680. (Sp)</p>	

# Course Descriptions

<p><b>CEE 5860 Air Quality Management</b> 3 Introduction to air quality management. Explores the legislation, sources, behaviors, and effects of regulated and nonregulated air pollution, control techniques, and air dispersion modeling. Prerequisites: CEE 3640, 3780, CEE/ BIE 3670, MAE 2300. (F)</p> <p><b>CEE 5870 Hazardous Waste Incineration</b> 2 Provides introduction to hazardous waste incineration principles. Topics include: thermodynamics, stoichiometry, thermochemistry, chemical kinetics, energy recovery, pollution control systems, and incinerator design principles. Prerequisites: CEE 3780 and acceptance into professional program in engineering. (Sp)</p> <p><b>CEE 5880 Remediation Engineering</b> 3 Physical, chemical, and biological principles associated with remediation of hazardous waste contaminated soil, water, sediments, and air. Topics include: source removal and source control, product recovery, chemical treatment methods, biological remediation concepts, in situ processes, ex situ processes, and integrated process design. Prerequisites: CEE 3780, CEE/PUBH 3610. (F)</p> <p><b>CEE 5900 Cooperative Practice</b> 3 A planned work experience in industry. Detailed program must have prior approval. Written report required. (F,Sp,Su)</p> <p><b>CEE 6010 Finite Element Methods in Solid Mechanics II</b> 3 Advanced theory and applications of finite element methods to both static and dynamic solid mechanics problems. Prerequisite: CEE 5020. (Sp)</p> <p><b>CEE 6020 Structural Stability**</b> 3 Elastic and inelastic buckling of columns; analysis of beam columns, thin-walled beams of open cross-section. Stability analysis of frame and plate structures. Large deflection theory. Historical notes on stability of structures. Computer applications. Prerequisite: CEE 3010. (F)</p> <p><b>CEE 6030 Structural Optimization*</b> 3 Introduction to optimization techniques for linear and nonlinear, univariable, and multivariable functions with or without constraints. Computer applications, and applications to structural design. Prerequisite: CEE 3010 or instructor's consent. (Sp)</p> <p><b>CEE 6040 Structural Reliability*</b> 3 Elements of probability theory and its application to structural engineering and mechanics. Statistical distribution of loads. Uncertainties in material parameters and their effects in design. Reliability-based safety analysis and computer applications. Prerequisite: Instructor's consent. (F)</p> <p><b>CEE 6050 Experimental Methods in Structural Engineering</b> 3 Experimental techniques used in research and design in structural engineering and mechanics. Structural models. Theory and practical applications. Development of principles used to design research projects. Prerequisite: Instructor's consent. (Sp)</p> <p><b>CEE 6070 Mechanics of Composite Materials II</b> 3 Second course in composite materials. Stress-strain states of laminated composite structures, including interlaminar stresses, failure criteria, and hygrothermal stresses. Prerequisite: MAE 5060. Also taught as MAE 6070. (F)</p> <p><b>CEE 6080 Numerical Methods in Elasticity</b> 3 <b>(dual listing 5080)</b> Elasticity theory, stress and strain analysis, and yield criteria. Governing equilibrium, kinematic, and compatibility equations. Generalized Hooke's law. Classical solutions of flex and torsion problems. Energy methods. Introduction to finite difference, finite element, and boundary element methods. Computer applications. Prerequisite: CEE 3020. (F)</p> <p><b>CEE 6090 Theory of Plates and Shells</b> 3 Introduction to plate and shell theories. Development of bending and buckling of plates and shells through classical theory. Prerequisite: MAE 3040 or CEE 3010. Also taught as MAE 6090. (F)</p>	<p><b>CEE 6110 Probabilistic and Statistical Methods in Engineering</b> 3 Explores principles related to probability and statistical methods commonly used in engineering practice, as well as applying these principles to the solution of engineering problems. Prerequisites: Undergraduate-equivalent knowledge in statistical methods or CEE 3030, plus 3000-level calculus and numerical methods. (F)</p> <p><b>CEE 6120 Bridge Engineering**</b> 3 Provides students with a basic understanding of the facets of bridge design pertinent to a structural engineer. Focuses on analysis and design of a slab and prestressed concrete girder bridge. (F)</p> <p><b>CEE 6130 Structural Dynamics and Seismic Design</b> 3 Development and solutions for equations of motion for single- and multi-degree of freedom systems. Dynamic analysis by Modal Superposition and Response Spectra. Design of structures for seismically active areas. Also taught as MAE 6130. (Sp)</p> <p><b>CEE 6140 Advanced Reinforced Concrete*</b> 3 Develops improved understanding of the behavior of reinforced concrete members. After students understand general behavior, codes are placed in proper perspective. Then students can design in situations not explicitly considered in current codes. (F)</p> <p><b>CEE 6180 Dynamics and Vibrations</b> 3 Fundamentals of two-dimensional and three-dimensional rigid body dynamics, including Newtonian, Lagrangian, and Leavit Energy Methods. Equations of motion, mode shapes, and natural frequencies for continuous media and multi degree-of-freedom systems. Prerequisite: MAE 5300 or CEE/MAE 6130. Also taught as MAE 6180. (Sp)</p> <p><b>CEE 6190 Geographic Information Systems (dual listing 5190) for Civil Engineers</b> 3 Introduction to GIS concepts addressing data structures, spatial entities, and queries. Topics include location referencing methods, data collection techniques, current applications, and institutional and organizational issues. (Sp)</p> <p><b>CEE 6200 Pavement Design</b> 3 Analysis and design of flexible and rigid pavements for highways and runways, including the design of overlays. Equal emphasis on current practice and advanced concepts of pavement management. Prerequisite: CEE 3010. (F)</p> <p><b>CEE 6210 Transportation Systems Analysis</b> 3 Introduces systems approach to analysis of transportation services and infrastructure. Focuses on basic and advanced concepts, including operations research techniques, simulation, and artificial intelligence. Topics include facility sizing and location, financial and economic analysis of investment projects, and privatization. Prerequisite: CEE 3030 or equivalent. (F)</p> <p><b>CEE 6220 Traffic Engineering (dual listing 5220)</b> 3 Topics covered include characteristics, measurements, and analysis of volume, speed, density, and travel time; capacity and level of service analysis; signalization and traffic control devices. (Sp)</p> <p><b>CEE 6230 Geometric Design of Highways (dual listing 5230)</b> 3 Principles of highway location and planning, with full consideration of economic, environmental, and other impacts. Capacity analysis of intersections and highways, passing-lane design, and risk-cost based horizontal and vertical alignment design. Introduction to design software through coursework and term projects. Prerequisite: CEE 3210. (Sp)</p> <p><b>CEE 6240 Urban and Regional Transportation (dual listing 5240) Planning</b> 3 Examination of travel demand forecasting, data collection, and survey data analysis techniques. Focuses on transportation-land use interactions and impact of market-based policies on travel demand. Theories and applications of traditional and advanced trip distribution, mode choice, and route assignment models. (F)</p>
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# Course Descriptions

<p><b>CEE 6250</b>                    <b>Transportation Data/Safety Analysis</b>                    <b>3</b> Statistical analysis of transportation data, including safety and risk assessment. Regression and multivariate analysis, such as discriminant analysis, canonical correlation, and factor analysis. In-depth study of selected methodologies for analyzing transportation safety and designing counter measures. Prerequisite: CEE 3210 or equivalent. (F)</p>	<p><b>CEE 6400</b>                    <b>Physical Hydrology</b>                    <b>3</b> Fundamentals of hydrologic cycle and hydrologic processes. Precipitation, infiltration, runoff generation, evaporation and transpiration, and snowmelt. Representation of hydrologic processes in hydrologic models. Prerequisite: CEE 3430. (F)</p>
<p><b>CEE 6260</b>                    <b>Public Transportation</b>                    <b>3</b> Principles of planning, design, and operation of transit systems in urban and rural areas. Determination of optimal route alignments, schedules, and station/stop spacings. Exploration of innovations in financing and pricing, including cost-cutting techniques. (Sp)</p>	<p><b>CEE 6410</b>                    <b>Water Resource Systems Analysis</b>                    <b>3</b> Systems formulation of decision problems. Solution by simulation and optimization, constrained and unconstrained optimization algorithms, case studies and applications to water supply, and quality and ecosystems management. (Sp)</p>
<p><b>CEE 6270</b>                    <b>Traffic Operations Analysis</b>                    <b>3</b> Traffic flow fundamentals, macroscopic and microscopic models of traffic flow, shock wave analysis, car following principles, queuing systems, and simulation. (Sp)</p>	<p><b>CEE 6420</b>                    <b>Engineering Risk Assessment and Risk Management</b>                    <b>3</b> Comprises both quantitative risk assessment techniques and a range of issues in risk management. Examples drawn from various civil engineering subdisciplines such as: environmental engineering, geotechnical engineering, hydraulics and hydrology, structural engineering, transportation engineering, and water resource management. (Sp)</p>
<p><b>CEE 6290</b>                    <b>Transportation Network Analysis</b>                    <b>3</b> Analytical approaches and algorithms to the formulation and solution of the equilibrium assignment problem for transportation networks. Emphasis on user equilibrium, comparison with system optimal stochastic user equilibrium, origin-destination matrix estimation, and network design problems. (Sp)</p>	<p><b>CEE 6430</b>                    <b>Groundwater Engineering</b>                    <b>3</b> <b>(dual listing 5430)</b> Explores fundamentals of groundwater hydrology by focusing on theory related to aquifer systems and flow analysis, regional groundwater balance, well hydraulics, aquifer testing, capture zone analysis, unsaturated flow, saltwater intrusion, and basics of flow modeling. Prerequisite: CEE 3430 or a similar hydrology course. (F)</p>
<p><b>CEE 6300</b>                    <b>Earth Structures</b>                    <b>3</b> Design and construction of earth and rockfill dams, embankments, excavations, and retaining structures. Prerequisites: CEE 4300, 5350/6350. (Sp)</p>	<p><b>CEE 6440</b>                    <b>Geographic Information Systems in Water Resources</b>                    <b>3</b> Principles and operation of geographic information systems. Spatial hydrologic modeling done by developing a digital representation of the environment in the GIS, then adding functions simulating hydrologic processes. Includes term project on use of GIS in water resources. (F)</p>
<p><b>CEE 6310</b>                    <b>Environmental Geotechniques</b>                    <b>3</b> Geotechnical aspects of environmental systems, with concentration on waste containment facilities. Prerequisite: CEE 4300. (F)</p>	<p><b>CEE 6450</b>                    <b>Hydrologic Modeling</b>                    <b>3</b> <b>(dual listing 5450)</b> Case studies and hands-on experience with hydrologic models and modeling methods for: (1) Design floods and spillway evaluation; (2) Flood plain delineation; (3) Dam break and inundation modeling; (4) Reservoir yield and time series modeling; (5) Reservoir inflow forecasting and operation; and (6) Urban hydrology, detention, and sedimentation basins. Prerequisite: CEE 3430. (Sp)</p>
<p><b>CEE 6320</b>                    <b>Deep Foundations</b>                    <b>3</b> Analysis, design, and construction of deep foundations with emphasis on driver piles and drilled shafts. Prerequisites: CEE 4300, 5350/6350. (Sp)</p>	<p><b>CEE 6460</b>                    <b>Water Resources Engineering</b>                    <b>3</b> <b>(dual listing 5460)</b> Engineering design course covering a wide range of topics, including: surface and groundwater hydrology, statistical analysis, water law, hydroelectric power, water supply, irrigation, flood control, wastewater, drainage, dams and reservoirs, pipelines, open channels, and planning. Prerequisites: CEE 3430, 3500, and 4200. (F)</p>
<p><b>CEE 6330</b>                    <b>Ground Reinforcement, Improvement, and Treatment</b>                    <b>3</b> Theory, design, and construction methods for ground reinforcement, improvement, and treatment applications. Prerequisites: CEE 4300, 5350/6350. (F)</p>	<p><b>CEE 6470</b>                    <b>Sedimentation Engineering</b>                    <b>3</b> <b>(dual listing 5470)</b> Explores river response, sediment transport, sediment and watershed yield, flow resistance, scour and erosion, and floodplain management. Prerequisite: CEE 3500. (Sp)</p>
<p><b>CEE 6340</b>                    <b>Laboratory and Field Methods in Geotechnical Engineering</b>                    <b>3</b> Subsurface investigation, field testing and instrumentation, and laboratory testing. Prerequisites: CEE 4300, 5350/6350. (F)</p>	<p><b>CEE 6480</b>                    <b>Groundwater Contamination: Modeling, Monitoring, and Management</b>                    <b>3</b> In-depth exploration of physical, chemical, and biological processes related to fate and transport of contaminants in the subsurface, mathematical modeling, remediation technologies, and mitigation of contaminated sites using risk-based decision-making. Prerequisite: CEE 5430/6430 or equivalent. (F)</p>
<p><b>CEE 6350</b>                    <b>Foundation Analysis and Design</b>                    <b>3</b> <b>(dual listing 5350)</b> Applications of theories studied in soil mechanics. Design considerations for various foundation types, including shallow foundations, driven piles, drilled shafts, walls, soil anchorages, and mechanically-stabilized earth support systems. Field investigation techniques and computer applications. Prerequisite: CEE 4300. (F)</p>	<p><b>CEE 6490</b>                    <b>Integrated River Basin/Watershed Planning and Management</b>                    <b>3</b> Reviews fundamental building blocks of water resource institutions, emphasizing creation of institutions which are sensitive to a particular culture, economic, and political environment. Addresses institutional mission and regulatory roles, public participation, property and water rights, and elements of production. (Sp)</p>
<p><b>CEE 6360</b>                    <b>Geotechnical Principles</b>                    <b>3</b> Theoretical soil behavior. Hydraulic conductivity, compression, and shearing properties. Prerequisites: CEE 4300, 5350/6350. (F)</p>	<p><b>CEE 6500</b>                    <b>Open Channel Hydraulics with an Emphasis on Gradually Varied Flow</b>                    <b>3</b> <b>(dual listing 5500)</b> Theory and applications of steady uniform and gradually varied flow under both subcritical and supercritical flow conditions. Solutions to multiple-network canal</p>
<p><b>CEE 6370</b>                    <b>Buried Structures</b>                    <b>3</b> Analysis of structural performance of buried structures (pipes, tanks, silos, etc.) using principles of mechanics of materials and finite element methods. Prerequisite: CEE 4300. (Sp)</p>	
<p><b>CEE 6380</b>                    <b>Earthquake Engineering</b>                    <b>3</b> <b>(dual listing 5380)</b> Covers wide variety of earthquake engineering topics, including seismology and earthquake source characterization, strong ground motion, seismic hazard analysis, wave propagation, soil dynamics, ground response, local site effects, liquefaction, seismic slope stability, soil improvement, vibrational analyses, and structural seismic design. Prerequisite: CEE 4300. (Sp)</p>	

# Course Descriptions

systems by solving systems of combined ordinary differential and algebraic equations. Method for defining natural channel systems and solving steady-state flows in them. Prerequisites: CEE 3500, 3510. (F)

**CEE 6510 Numerical Methods for Civil Engineers 3**  
Engineering applications of approximation and interpolation, solution methods for ordinary differential equations, numerical solution of partial differential equations, nonparametric and parametric probability and regression estimation, and Monte Carlo and uncertainty analysis. (F)

**CEE 6520 Applied Hydraulics 3**  
Basic fluid mechanics applied to wildland watershed systems and directed at nonengineering students. Explores nature of fluid state, fluid motion, and steady uniform and varied flow in open channels, under both subcritical and supercritical conditions. Surveys concepts of boundary layers, turbulence, convection, dispersal, and wave formation in unsteady flows. Emphasizes problem formulation and solving. Prerequisites: WATS 5490/4490; MATH 2280 (recommended). Also taught as WATS 6520. (F)

**CEE 6530 Unsteady Flows in Open Channels and Numerical Solutions of St. Venant Equations 3**  
Derivation and physical meaning of the St. Venant equations, types of water waves, solutions to unsteady free surface flows based on the characteristics, and direct and iterative implicit methods of solution. Emphasizes solving unsteady flow problems in channel systems. Prerequisite: CEE 6500. (Sp)

**CEE 6540 Hydraulic Structures Design (dual listing 5540) 3**  
Explores design of a variety of hydraulic structures, both in the classroom and laboratory. Integrates student-developed, original computer programs; commercially available software; field trips; and hands-on laboratory design projects to further students' understanding of hydraulic structures. Prerequisites: CEE 3500 and 3510. (F)

**CEE 6550 Hydraulics of Closed Conduits (dual listing 5550) 3**  
Includes design and operation of piping systems; economics; feasibility and impact of pipelines; pipe, pump, and valve selection; transient and cavitation analysis; and pipeline operation and filling. Prerequisites: CEE 3500 and 3510. (Sp)

**CEE 6580 Intermediate Fluid Mechanics 3**  
Survey of mathematical methods used in fluid mechanics, including: potential flow solutions (complex variables), laminar flow and turbulent flow solutions, boundary layer theory, and introduction to dispersion in fluid. (F)

**CEE 6590 Evaluation of Hydrologic Modeling Systems 3**  
Focuses on different techniques for evaluating the performance, diagnosing the model structure, and assessing the uncertainty of hydrologic modeling systems. Examines mathematical and systems theory methods for examining the interrelation between model inputs and outputs. Prerequisite: CEE 6400. (Sp)

**CEE 6600 Environmental Chemistry of Inorganic Contaminants 2**  
Inorganics of environmental concern discussed in terms of processes affecting their behavior in soil and water systems. Explores remediation of environmental systems contaminated with inorganic pollutants. Taught second half of spring semester. (Sp)

**CEE 6610 Environmental Quality Analysis (dual listing 5610) 3**  
Familiarizes students with various methods used for analysis of chemical parameters in environmental samples (water, soil, and air). Provides students with skills enabling them to make proper selection/evaluation of analytical procedure and evaluate data generated. Prerequisite: CHEM 1210. (F)

**CEE 6620 Field Sampling and Analysis of Environmental Systems 3**  
Explores applied field sampling, as well as field and laboratory techniques used in the monitoring of environmental media. Includes theory and practice of field site monitoring and measurement of physical, chemical, and biological processes in the environment. Prerequisite: Consent of instructor. (F)

**CEE 6630 Process Dynamics in Environmental Engineering Systems 2**  
Fundamental principles used in analysis and simulation of environmental systems. Emphasizes reaction kinetics, mass transfer, reactor analysis and design, and development and solution of mathematical models to describe natural and engineered environmental systems. Prerequisites: CEE 3500, 3510. (F)

**CEE 6640 Physical and Chemical Environmental Process Engineering 3**  
Principles of physical and chemical environmental engineering processes, including sedimentation, filtration, gas transfer, aeration, absorption, ion exchange, membrane processes, coagulation, flocculation, precipitation, oxidation, reduction, and disinfection. Process modeling and analysis applications in treatment of water, wastewater, industrial wastes, vapor treatment, and soil remediation. Prerequisites: CEE 5610/6610 and 6630. Corequisites: CEE 6650 and 6670. (Sp)

**CEE 6650 Biological Processes in Environmental Engineering 2**  
Theory and design of biological processes used in environmental engineering. Stoichiometric, energetic, and kinetic analysis of biological treatment processes; modeling and design of suspended growth and fixed-film processes for treatment of municipal, industrial, and hazardous wastes; nutrient removal; and bioremediation. Prerequisites: CEE 6630 and 6710. Corequisites: CEE 6640 and 6670. (Sp)

**CEE 6660 Environmental Data Analysis and Experimentation 2**  
Data analysis and experimental design for environmental science and engineering. Graphical data analysis, parametric and nonparametric statistics, frequency distributions, hypothesis testing, propagation of variance, censored data, correlation and causation, parameter estimation, factorial experimental design and response surfaces, environmental monitoring and uncertainty. (F)

**CEE 6670 Environmental Process Laboratory 2**  
Laboratory testing to demonstrate physical, chemical, and biological principles utilized in environmental engineering processes. Corequisites: CEE 6640, 6650. (Sp)

**CEE 6680 Soil-based Waste Management (dual listing 5680) 2**  
Engineering management of wastes present in the vadose zone, including extraction, containment, and biological, chemical, and physical destruction technologies for sustainable agriculture and environmental quality. Aspects include engineering characterization, problem definition, treatment, and monitoring. Analysis and design emphasized through problems, examinations, and report writing. Prerequisites: CEE/PUBH 3610, CEE 3640, 3870, CEE/BIE 3670. Also taught as BIE 6680/5680. (Sp)

**CEE 6690 Natural Systems Engineering (dual listing 5690) 3**  
Explores integrated nature of river basin planning and management through introduction of most commonly employed assessment modeling frameworks and tools for modeling physical, chemical, and ecological processes at the study site to watershed scales. Topics include: water resources system modeling; physical, chemical, and ecological processes modeling; impact assessment methods; and risk assessment. Prerequisites: CEE/PUBH 3610, CEE 3500, 3510, 3640; or instructor's permission. (F)

**CEE 6710 Environmental Engineering Microbial Ecology 2**  
Principles of microbial ecology applied to engineered and natural systems. Prerequisites: BIOL 3300, CEE/PUBH 3610. (F)

**CEE 6720 Natural Systems Modeling (dual listing 5720) 3**  
Provides hands-on approach to utilizing several of the most commonly applied modeling tools employed to estimate physical, chemical, and biological impacts of existing and proposed water resource systems. Focuses on utility and limitations of specific modeling approaches, while also stressing integrative multi-disciplinary nature of impact assessment frameworks. Prerequisite: CEE 6690/5690 or instructor's permission. (Sp)

# Course Descriptions

<p><b>CEE 6730</b>                    <b>Analysis and Fate of</b> <b>(dual listing 5730)</b>    <b>Environmental Contaminants</b>                    <b>3</b> Provides students with understanding of methods used in analysis of environmental samples for organic contaminants. Examines various properties and processes determining the fate of organic contaminants in the environment. Taught first half of fall semester. Prerequisites: Grades of C- or better in CHEM 1210 and 1215. Also taught as PUBH 6730/5730. (F)</p>	<p><b>CEE 6950</b>                    <b>Practical Training</b>                    <b>3</b> Intended for graduate students who are interested in practical training before graduation. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>
<p><b>CEE 6740</b>                    <b>Environmental Quality Modeling</b>                    <b>3</b> Development and application of mathematical models for conventional and toxic pollutants in environmental systems. Description of advection, dispersion, sediment transport, partitioning, interphase transfer, and transformation kinetics applied to organic and inorganic pollutants. Equilibrium, steady state, and nonsteady systems. (Sp)</p>	<p><b>CEE 6970</b>                    <b>Thesis Research</b>                    <b>1-6<sup>®</sup></b> Graded Pass/Fail <i>only</i>. Prerequisite: Instructor's consent. (F,Sp,Su)</p>
<p><b>CEE 6750</b>                    <b>Eco-Hydraulics for Natural</b> <b>Systems Engineering</b>                    <b>4</b> Provides students with advanced multi-disciplinary modeling course in the application of hydraulics and water resource modeling in light of impact assessment frameworks for natural systems modeling. Focuses on application on one-dimensional and two-dimensional hydraulic modeling as basis for examining quantitative impacts on stream and riparian ecosystems under altered flow, as well as channel conditions with particular emphasis on fish and aquatic macro-invertebrates. Prerequisite: CEE 6690/5690. (F)</p>	<p><b>CEE 6990</b>                    <b>Continuing Graduate Advisement</b>                    <b>1-9<sup>®</sup></b> Graded Pass/Fail <i>only</i>. Prerequisite: Instructor's consent. (F,Sp,Su)</p>
<p><b>CEE 6800</b>                    <b>Division of Environmental</b> <b>Engineering Seminar</b>                    <b>1</b> Environmental engineering graduate seminar for faculty, student, and guest lecturer research presentations. (F,Sp)</p>	<p><b>CEE 7050</b>                    <b>Plasticity</b>                    <b>3</b> Analysis of stresses, deformation, and collapse in devices constructed of plastic material. Prerequisite: MAE 6040 or CEE 6080/5080 or instructor's consent. Also taught as MAE 7050. (Sp)</p>
<p><b>CEE 6810</b>                    <b>Biochemical Engineering</b>                    <b>3</b> <b>(dual listing 5810)</b> Fundamentals of bioreactor design and bioengineering to produce biological commodities. Emphasizes mathematical models of microbial and enzymatic processes in environmental and industrial biotechnology. Prerequisites: BIE 3200 and BIE/CEE 3670; or BIE/CEE 3670, CEE/PUBH 3610, and CEE 3640. Also taught as BIE 6810/5810. (F)</p>	<p><b>CEE 7080</b>                    <b>Advanced Plate and Shell Theory</b>                    <b>3</b> Analysis of plate and shell structures by classical and numerical methods. Emphasis on numerical solutions. Prerequisite: Instructor's consent. Also taught as MAE 7080. (F)</p>
<p><b>CEE 6830</b>                    <b>Management and Utilization of</b> <b>(dual listing 5830)</b>    <b>Biological Solids and Wastewater</b>                    <b>3</b> Focuses on production, management, and disposal of biosolids and wastewater generated in food processing and wastewater treatment. Emphasizes beneficial use of biosolids and wastewater for agricultural production, forest enhancement, and land reclamation. Prerequisite: BIE/CEE 3670. Also taught as BIE 6830/5830. (F)</p>	<p><b>CEE 7110</b>                    <b>Constitutive Modeling and Structural</b> <b>Response of Engineering Materials**</b>                    <b>3</b> Constitutive modeling of reinforced concrete, metals, soils, and composite materials. Plasticity and endochronic theories. Finite element modeling and predictive analysis of two- and three-dimensional structures. Computer applications and implementations. Prerequisite: Instructor's consent. (F)</p>
<p><b>CEE 6840</b>                    <b>Application of Technology</b> <b>Transfer for Teachers</b>                    <b>2<sup>®</sup></b> Focuses on application of modern instructional strategies to the transfer of technology and science to the public education setting. Part of a series of six courses. Prerequisite: Participation in an In*Step Science Program in the public schools. (F,Sp,Su)</p>	<p><b>CEE 7120</b>                    <b>Advanced Topics in Civil Engineering</b>                    <b>3</b> Discussion of current research topics conducted by civil and other engineering faculty and staff at USU and elsewhere. Offered on either arranged or regular basis. Topics and times can be arranged with instructor and advisor. Prerequisite: Instructor's consent. (F,Sp,Su)</p>
<p><b>CEE 6850</b>                    <b>Atmospheric and Air Pollution Chemistry</b>                    <b>3</b> Provides students with training in the fundamentals of natural and anthropogenically impacted atmospheric chemistry, primarily focusing on tropospheric meteorology, kinetics, and photochemistry, including gas-phase, aqueous-phase, and aerosol-forming reactions. Prerequisite: CEE 5680/6680 or upper-level chemistry or consent of instructor. (Sp)</p>	<p><b>CEE 7150</b>                    <b>Effective Engineering Instruction</b>                    <b>1</b> Seminar-style course designed to give PhD candidates insight and guidance for becoming effective engineering instructors. (F)</p>
<p><b>CEE 6900</b>                    <b>Directed Reading</b>                    <b>1-3<sup>®</sup></b> Prerequisite: Instructor's consent. (F,Sp,Su)</p>	<p><b>CEE 7160</b>                    <b>Successful Faculty Strategies</b>                    <b>1</b> Seminar-style course designed to give PhD candidates insight and guidance into the expectations and approaches for becoming successful university faculty members. (Sp)</p>
<p><b>CEE 6930</b>                    <b>Special Problems</b>                    <b>1-4<sup>®</sup></b> Independent or group study of engineering problems not covered in regular course offerings. Prerequisite: Instructor's consent. (F,Sp,Su)</p>	<p><b>CEE 7170</b>                    <b>Research Methods in Engineering</b>                    <b>1</b> Seminar-style course designed to give PhD candidates insight and guidance into research methods in engineering. (F)</p>
<p><b>CEE 6940</b>                    <b>Snow Hydrology</b>                    <b>3</b> Focuses on snow science, including atmospheric formation, precipitation, distribution on the landscape, metamorphosis prior to melt, and snow pack melt dynamics. Also covers related issues, such as snow melt modeling, remote sensing, water supply, and biogeochemical cycling. Prerequisites: WATS 3700 or 4600 or SOIL 4600 or CEE 3430, or permission of instructor. Also taught as WATS 6940. (Sp)</p>	<p><b>CEE 7270</b>                    <b>Travel Demand and Supply Analysis</b>                    <b>3</b> Fundamentals of demand and supply analysis. Theoretical aspects of travel demand modeling techniques. Modeling of performance characteristics and costs of transportation modes. Emphasis on theoretical aspects of discrete choice analysis and their applications in the modeling of transportation systems. (F)</p>
	<p><b>CEE 7300</b>                    <b>Theoretical Soil Mechanics</b>                    <b>3</b> Advanced studies of stress distribution in soil masses, shear strength, consolidation, constitutive modeling, and finite applications. Prerequisite: CEE 6360. (Sp)</p>
	<p><b>CEE 7310</b>                    <b>Fundamentals of Soil Behavior**</b>                    <b>3</b> The influence of clay mineralogy, clay chemistry, and soil origin on the engineering properties of soil. Prerequisite: CEE 6360. (F)</p>
	<p><b>CEE 7320</b>                    <b>Advanced Soil Dynamics**</b>                    <b>3</b> Advanced studies in the response of soil structures and foundations to dynamic loads. Prerequisite: CEE 6360. (F)</p>
	<p><b>CEE 7430</b>                    <b>Stochastic Hydrology***</b>                    <b>3</b> Stochastic description of hydrologic variability in time, space, and space-time. Markov processes, time series synthesis and forecasting, spectral analysis, spatial interpolation and random field simulation, data imputation, and parameter estimation for physical models. Lattice and Markov chain Monte Carlo methods, simulated annealing, and Gibbs processes. Applications to rainfall, streamflow, groundwater quality and quantity, and subsurface characterization. (Sp)</p>

# Course Descriptions

<b>CEE 7460</b>	<b>Advanced Topics in Hydrology</b>	<b>3<sup>®</sup></b>
Topics of prominent current interest for advanced MS and PhD students. Can be repeated for credit with consent of instructor. (Sp)		
<b>CEE 7470</b>	<b>Continuous and Macro-Scale Hydrologic Modeling</b>	<b>3</b>
Presents existing different approaches to the modeling of continuous hydrologic systems and long-term forecasting. Reviews and analyzes lumped and distributed catchment and macroscale hydrologic models, as well as state-of-the-art computer codes. Prerequisite: CEE 6440. (F)		
<b>CEE 7520</b>	<b>Mathematical Methods for Civil and Environmental Engineers</b>	<b>3</b>
Applications of advanced mathematical methods to analyze civil and environmental engineering problems, including analysis of dynamical systems, solutions to nonlinear and stochastic differential equations, Fourier analysis, and neural networks. (Sp)		
<b>CEE 7580</b>	<b>Advanced Finite Element Analysis in Fluid Mechanics</b>	<b>3</b>
Application of the finite element method of analysis to problems in fluid mechanics. Use of higher order element to two- and three-dimensional flows. Prerequisites: CEE 3510 or MAE 3420, CEE/MAE 5020. Also taught as MAE 7580. (Sp)		
<b>CEE 7970</b>	<b>Dissertation Research</b>	<b>1-10<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . Prerequisite: Instructor's consent. (F,Sp,Su)		
<b>CEE 7990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . Prerequisite: Instructor's consent. (F,Sp,Su)		

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

\*Taught 2010-2011.

\*\*Taught 2009-2010.

\*\*\*This course is taught alternating years. Check with department for information about when course will be taught.

## Chemistry and Biochemistry (CHEM)

See *Department of Chemistry and Biochemistry, pages 196-202*

<b>CHEM 1010 BPS</b>	<b>Introduction to Chemistry</b>	<b>3</b>
For nonscience majors. Includes basic chemical concepts and a survey of the various branches of chemistry. Heavy emphasis on everyday applications to problems involving environmental pollution, radioactivity, energy sources, and human health. No prerequisites. (F,Sp) <sup>DE</sup>		
<b>CHEM 1110 BPS</b>	<b>General Chemistry I</b>	<b>4</b>
For nonscience majors. Progression made from the basic tenets of general chemistry to introduction to organic chemistry, with ascent in terms of practical importance and sophistication. Prerequisite: Math ACT score of at least 23, or MATH 1050 or higher; or corequisite of MATH 1050. (F,Sp) <sup>DE</sup>		
<b>CHEM 1115</b>	<b>General Chemistry Laboratory</b>	<b>1</b>
Laboratory course designed for nonscience majors. Covers basic aspects of general chemistry. Prerequisite: CHEM 1110. (F,Sp)		
<b>CHEM 1120 BPS</b>	<b>General Chemistry II</b>	<b>4</b>
Continuation of CHEM 1110. Continued coverage of organic chemistry, along with introduction to biochemistry. Prerequisite: CHEM 1110. (Sp)		
<b>CHEM 1210</b>	<b>Principles of Chemistry I</b>	<b>4</b>
First of a two-semester sequence, covering fundamentals of chemistry. Designed for science and engineering students. Prerequisite: Math ACT score of at least 25, or MATH 1050 or higher; or corequisite of MATH 1050. High school chemistry recommended. (F,Sp) <sup>DE</sup>		
<b>CHEM 1215</b>	<b>Chemical Principles Laboratory I</b>	<b>1</b>
Laboratory course designed to be taken concurrently with CHEM 1210. Experiments cover acids/bases, thermochemistry separations, molecular weights, gases, and spectroscopy. Prerequisite: CHEM 1210 (may be taken concurrently). (F,Sp) <sup>DE</sup>		

<b>CHEM 1220 BPS</b>	<b>Principles of Chemistry II</b>	<b>4</b>
Continuation of CHEM 1210. Prerequisite: CHEM 1210. (F,Sp,Su) <sup>DE</sup>		
<b>CHEM 1225</b>	<b>Chemical Principles Laboratory II</b>	<b>1</b>
Continuation of CHEM 1215. Normally taken concurrently with CHEM 1220. Experiments cover elementary kinetics, electrochemistry, gravimetric analysis, chromatography, and equilibria. Prerequisite: CHEM 1215. (F,Sp) <sup>DE</sup>		
<b>CHEM 1990</b>	<b>Introduction to the Chemistry and Biochemistry Professions</b>	<b>1<sup>®</sup></b>
Seminar-format course designed to expose students to exciting areas of chemistry and biochemistry. Includes seminars on topical issues presented by faculty and invited guests. Discussion of career options. Graded Pass/Fail <i>only</i> . (Sp)		
<b>CHEM 2300</b>	<b>Principles of Organic Chemistry</b>	<b>3</b>
Shape, bonding, nomenclature, stereochemistry, physical properties, and reactivity of organic molecules is covered for a range of molecules, beginning with simple alkanes and finishing with some of the more complex abiotic and biotic organic molecules known today. Prerequisite: CHEM 1210. (F)		
<b>CHEM 2310</b>	<b>Organic Chemistry I</b>	<b>4</b>
First of a two-semester sequence, covering physical properties, nomenclature, mechanisms of reactions, and biological relevance of organic and bioorganic molecules. Prerequisite: CHEM 1220. (F) <sup>DE</sup>		
<b>CHEM 2315</b>	<b>Organic Chemistry Laboratory I</b>	<b>1</b>
Laboratory course designed to accompany CHEM 2310. Covers basic aspects of experimental organic chemistry. Prerequisites: CHEM 1210 and 1215. (F) <sup>DE</sup>		
<b>CHEM 2320</b>	<b>Organic Chemistry II</b>	<b>4</b>
Continuation of CHEM 2310. Prerequisite: CHEM 2310 <i>or</i> CHEM 2300 and permission of instructor. (Sp) <sup>DE</sup>		
<b>CHEM 2325</b>	<b>Organic Chemistry Laboratory II</b>	<b>1</b>
Continuation of CHEM 2315. Prerequisite: CHEM 2315. (Sp) <sup>DE</sup>		
<b>CHEM 3000 QI</b>	<b>Quantitative Analysis</b>	<b>3</b>
Basic theory and laboratory practice in analytical chemistry, including introduction to multiple equilibria and chemical separation methods. Prerequisites: CHEM 1215, 1225, MATH 1050 or higher. (F)		
<b>CHEM 3005</b>	<b>Quantitative Analysis Laboratory</b>	<b>1</b>
One three-hour laboratory per week. Must be taken concurrently with CHEM 3000. Prerequisites: CHEM 1215, 1225, MATH 1050 or higher. (F)		
<b>CHEM 3060 QI</b>	<b>Physical Chemistry</b>	<b>3</b>
Chemical thermodynamics. Laws of thermodynamics. Changes of state. Chemical equilibrium. Introduction to quantum mechanics. Schrodinger equation. Exactly-soluble problems. Prerequisites: CHEM 1220, MATH 2210, PHYX 2220. (F)		
<b>CHEM 3070 QI</b>	<b>Physical Chemistry</b>	<b>3</b>
Chemical applications of quantum mechanics, periodic table, and chemical bonding. Spectroscopy. Statistical thermodynamics. Chemical kinetics. Rate laws. Reaction mechanisms. Theories of reaction rates. Prerequisite: CHEM 3060. (Sp)		
<b>CHEM 3080 CI</b>	<b>Physical Chemistry Laboratory I</b>	<b>1</b>
Experimental work to accompany CHEM 3060. Corequisite: CHEM 3060. (F)		
<b>CHEM 3090 CI</b>	<b>Physical Chemistry Laboratory II</b>	<b>1</b>
Continuation of CHEM 3080. Experimental work to accompany CHEM 3070. Corequisite: CHEM 3070. (Sp)		
<b>CHEM 3510</b>	<b>Intermediate Inorganic Chemistry</b>	<b>2</b>
Survey of basic structure, bonding, and reactivity across the periodic table. Prerequisites: CHEM 1220, 2310, and 2315. (Sp)		
<b>CHEM 3520</b>	<b>Inorganic Chemistry Laboratory</b>	<b>1</b>
Covers basic aspects of inorganic synthesis and compound characterization. Corequisite: CHEM 3510. (Sp)		



# Course Descriptions

<b>CHEM 3650 DSC</b>	<b>Environmental Chemistry***</b>	<b>3</b>	Survey of issues and chemical nature of environmental problems, including air, soil, and water pollution. Prerequisite: CHEM 1010 or 1120 or 1220. (Sp)
<b>CHEM 3700</b>	<b>Introductory Biochemistry</b>	<b>3</b>	Brief survey of the chemistry of biologically important compounds and their role in microbial, animal, and plant metabolism. Prerequisite: CHEM 2300 or 2310. (Sp) <sup>DE</sup>
<b>CHEM 3710</b>	<b>Introductory Biochemistry Laboratory</b>	<b>1</b>	Laboratory course designed to accompany CHEM 3700. Corequisite: CHEM 3700. (Sp) <sup>DE</sup>
<b>CHEM 3750</b>	<b>Chemistry Special Topics (Topic)</b>	<b>1-3</b>	(F,Sp,Su)
<b>CHEM 4250</b>	<b>Cooperative Experience</b>	<b>1-2<sup>®</sup></b>	Planned work outside the University. Specific experience must receive prior approval for credit to be earned. Consult advisor or department head for details. (F,Sp,Su)
<b>CHEM 4800 CI</b>	<b>Research Problems</b>	<b>1-3<sup>®</sup></b>	Directed undergraduate research. Departmental permission required. (F,Sp,Su) <sup>DE</sup>
<b>CHEM 4890 CI</b>	<b>Undergraduate Biochemistry Seminar</b>	<b>2</b>	Presentation of scientific seminars, critiquing of and participation in departmental seminars, scientific literature searching, accessing and using scientific databases, career preparation and development. To be taken during senior year of biochemistry major. (F,Sp)
<b>CHEM 4990 CI</b>	<b>Undergraduate Seminar</b>	<b>2<sup>®</sup></b>	Writing and speaking skills necessary for presenting scientific information. (F,Sp)
<b>CHEM 5070</b>	<b>Biophysical Chemistry</b>	<b>3</b>	Biological applications and theories of physical chemistry. Equilibrium, thermodynamics, chemical kinetics, transport properties, and spectroscopy. Prerequisites: CHEM 1220; MATH 1220; and PHYX 2120 or 2220. (F)
<b>CHEM 5520</b>	<b>Advanced Inorganic Chemistry</b>	<b>2</b>	Advanced treatment of the structure/bonding/reactivity relationships across the periodic table. Prerequisites: CHEM 3070, 3510. (F)
<b>CHEM 5530</b>	<b>Advanced Synthesis Laboratory</b>	<b>2</b>	Laboratory course in advanced synthetic techniques, including vacuum lines, inert atmosphere, Schlenk manipulations, liquid ammonia solvent, and tube furnace reactions. Prerequisites: CHEM 2325, 3070, 3520. (Sp)
<b>CHEM 5640</b>	<b>Instrumental Analysis</b>	<b>3</b>	Theory and application of physicochemical methods of analysis. Chromatography. Selected electrochemical and optical methods. Prerequisites: CHEM 3005, 3080. (Sp)
<b>CHEM 5650</b>	<b>Instrumental Analysis Laboratory</b>	<b>2</b>	Laboratory course to accompany CHEM 5640. Two three-hour labs per week. Prerequisites: CHEM 3005, 3080. (Sp)
<b>CHEM 5670</b>	<b>Intermediate Environmental Chemistry**</b>	<b>3</b>	Survey of chemical processes and pollutants in the environment. Sampling and analysis of pollutants to determine chemical fate. Prerequisites: CHEM 3000 and 3005; CHEM 3070 recommended. (Sp)
<b>CHEM 5680</b>	<b>Environmental Chemistry Laboratory**</b>	<b>2</b>	Laboratory course to accompany CHEM 5670. Field sampling and laboratory analysis of air, water, and soil samples. Method building and hypothesis testing. Prerequisites: CHEM 3000, 3005. Corequisite: CHEM 5670. (Sp)
<b>CHEM 5700</b>	<b>General Biochemistry I</b>	<b>3</b>	General biochemistry for science majors, including proteins, enzymes, catalysis, bioenergetics, and catabolic metabolism. Prerequisite: CHEM 2320. (F)
<b>CHEM 5710</b>	<b>General Biochemistry II</b>	<b>3</b>	Continuation of CHEM 5700. General biochemistry for science majors, including anabolic metabolism, DNA, RNA, and protein synthesis. Prerequisite: CHEM 5700. (Sp)
<b>CHEM 5720</b>	<b>General Biochemistry Laboratory</b>	<b>3</b>	Prerequisite: CHEM 5710 (may be taken concurrently). (Sp)
<b>CHEM 5730</b>	<b>Genomic Technologies</b>	<b>4</b>	Provides theoretical background in genomics/proteomics technologies and laboratory training in advanced techniques. Topics include: whole genome sequencing, transcriptome and proteome characterization, DNA and expressed gene libraries, and operation of modern genomics laboratory equipment. Prerequisites: BIOL 1220, 3200; CHEM 3700 or 5710; CS 2200; STAT 3000. Also taught as BIOL 5730. (Sp)
<b>CHEM 6010</b>	<b>Quantum Chemistry***</b>	<b>3</b>	Quantum mechanics applied to chemical problems. Theory of atoms and molecules. Prerequisites: CHEM 3070, MATH 2250. (F)
<b>CHEM 6020</b>	<b>Molecular Spectroscopy***</b>	<b>3</b>	Spectroscopy of atoms and molecules. Prerequisite: CHEM 6010. (Sp)
<b>CHEM 6250</b>	<b>Curricular Practical Training</b>	<b>1-6<sup>®</sup></b>	Work experience tied to academics, in the graduate student's major field of study, either chemistry or biochemistry, for which the student is paid. Prerequisite: Permission of department head prior to enrollment. (F,Sp,Su)
<b>CHEM 6300</b>	<b>Advanced Modern Organic Chemistry***</b>	<b>3</b>	Covers topics in molecular structure, reaction mechanisms of organic molecules, and physical organic chemistry. Prerequisites: CHEM 2320, 3070. (F)
<b>CHEM 6500</b>	<b>Reactivity and Mechanisms in Inorganic Chemistry***</b>	<b>3</b>	Inorganic reactions and mechanisms relevant to areas of main group, transition metals, and bioinorganic and organometallic chemistry. Prerequisite: CHEM 5520. (Sp)
<b>CHEM 6510</b>	<b>Chemical Applications of Group Theory</b>	<b>1</b>	Introduction to symmetry point groups and theorems of group theory for application to structure, bonding, and spectroscopy. Some familiarity with linear algebra is recommended. Prerequisite: CHEM 3070. (F)
<b>CHEM 6600</b>	<b>Modern Chemical Analysis***</b>	<b>3</b>	Methodology and statistical treatment of chemical data, experimental design, quality control, and chemical separations. Prerequisites: CHEM 5640, graduate standing, or instructor's permission. (Sp)
<b>CHEM 6700</b>	<b>Advanced Biochemistry I</b>	<b>3</b>	Advanced-level biochemistry course intended for biochemistry MS and PhD students. Covers proteins, enzyme mechanism, nucleic acid structure and function, and catabolic metabolism at a level appropriate for students preparing for the qualifying examination. This course (which is co-instructed with CHEM 5700, with additional projects for CHEM 6700) cannot be taken for credit by students who have previously taken CHEM 5700 for credit. (F)
<b>CHEM 6710</b>	<b>Advanced Biochemistry II</b>	<b>3</b>	Advanced-level biochemistry course intended for biochemistry MS and PhD students. Covers anabolic metabolism and bioinformation processes at a level appropriate for students preparing for the qualifying examination. This course (which is co-instructed with CHEM 5710, with additional projects for CHEM 6710) cannot be taken for credit by students who have previously taken CHEM 5710 for credit. (Sp)
<b>CHEM 6720</b>	<b>Advanced Biochemistry Laboratory</b>	<b>2<sup>®</sup></b>	To obtain advanced laboratory skills, students complete specific laboratory experiments in research laboratories of departmental faculty members. (F,Sp)
<b>CHEM 6730</b>	<b>Principles of Enzymology*</b>	<b>3</b>	Mechanisms of enzyme action, emphasizing recent advances in enzymology, including theory and modern experimental approaches to elucidation of mechanism. Prerequisite: CHEM 5700 or 6700 or permission of instructor. (Sp)
<b>CHEM 6740</b>	<b>Cellular Communication by Small Molecules and Proteins**</b>	<b>3</b>	Using post-translational modifications, small molecules, and protein motifs in cellular communication. Variations in the communication systems related to disease state and/or cell stress and therapeutic strategies to manipulate the communication systems. Prerequisite: CHEM 5700 or 6700 or permission of instructor. Also taught as BIOL 6740. (Sp)

# Course Descriptions

<b>CHEM 6750</b>	<b>Principles of Structural Biology*</b>	<b>3</b>
General principles of protein and nucleic acid structure. Approaches to understanding biological function through structural analysis. Prerequisite: CHEM 5700 or 6700 or instructor approval. (F)		
<b>CHEM 6760</b>	<b>Principles of Bioenergetics**</b>	<b>3</b>
Global biological energy cycles including carbon, nitrogen, and sulfur cycles; respiration; electron transfer; and energy transduction. Prerequisite: CHEM 5700 or 6700 or permission of instructor. (F)		
<b>CHEM 6910</b>	<b>Special Problems in Chemistry and Biochemistry</b>	<b>1-4</b>
Selected problems in chemistry and biochemistry. Registration permitted only with written permission from department head. (F,Sp,Su)		
<b>CHEM 6970</b>	<b>Thesis Research</b>	<b>1-10<sup>®</sup></b>
Research for MS degree. Graded Pass/Fail only. (F,Sp,Su)		
<b>CHEM 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail only. (F,Sp,Su)		
<b>CHEM 7020</b>	<b>Statistical Mechanics***</b>	<b>3</b>
Statistical mechanics with applications to research problems of current interest. Prerequisite: CHEM 6010.		
<b>CHEM 7030</b>	<b>Special Topics in Physical Chemistry (Topic)***</b>	<b>3<sup>®</sup></b>
Covers special areas of current interest and activity in physical chemistry. (F,Sp)		
<b>CHEM 7300</b>	<b>Reactions and Synthesis in Modern Organic Chemistry*</b>	<b>3</b>
Reactions of modern organic chemistry and their application to organic synthesis. Prerequisite: CHEM 6300. (Sp)		
<b>CHEM 7310</b>	<b>Molecular Structure/Spectroscopy of Organic Compounds**</b>	<b>3</b>
Modern methods of predicting and determining molecular structure of organic compounds using advanced computational and spectroscopic tools. Prerequisite: CHEM 6300. (F)		
<b>CHEM 7330</b>	<b>Special Topics in Organic Chemistry (Topic)***</b>	<b>3<sup>®</sup></b>
Covers special areas of current interest and activity in organic chemistry. Prerequisite: CHEM 6300. (F,Sp)		
<b>CHEM 7500</b>	<b>Coordination Chemistry***</b>	<b>3</b>
Theory and spectroscopy of transition metal coordination complexes. Prerequisites: CHEM 3070, 6500, 6510. (Sp)		
<b>CHEM 7510</b>	<b>Bioinorganic Chemistry***</b>	<b>1-3</b>
Advanced systematic study of metallochemical structure and function. Prerequisite: CHEM 6500. (F)		
<b>CHEM 7530</b>	<b>Special Topics in Inorganic Chemistry (Topic)***</b>	<b>3<sup>®</sup></b>
Topics of current interest in inorganic chemistry. Prerequisite: CHEM 6500. (Sp)		
<b>CHEM 7600</b>	<b>Analytical Spectroscopy**</b>	<b>3</b>
Practical description of spectroscopy-based analysis, emphasizing instrumentation and methods. Prerequisites: CHEM 5640, graduate standing, or instructor's permission. (Sp)		
<b>CHEM 7610</b>	<b>Chemical Separations*</b>	<b>3</b>
Survey of theory and practice of modern chemical separations, including extractions, chromatography, distillation, and phase separations. Prerequisites: CHEM 5640, graduate standing, or instructor's permission. (F)		
<b>CHEM 7620</b>	<b>Electrochemistry***</b>	<b>3</b>
Survey of electrochemistry with emphasis on electrochemical analysis. Prerequisites: CHEM 5640, graduate standing, or instructor's permission. (F)		

<b>CHEM 7640</b>	<b>Special Topics in Analytical Chemistry (Topic)***</b>	<b>1-3<sup>®</sup></b>
Topics may include electronics from the scientist's perspective, laser-based spectroscopy, mass spectrometry, and chemometrics. Prerequisites: CHEM 5640, graduate standing, or instructor's permission. (F,Sp)		
<b>CHEM 7770</b>	<b>Special Topics in Biochemistry (Topic)*</b>	<b>1-3<sup>®</sup></b>
Topics of current interest in biochemistry.		
<b>CHEM 7800</b>	<b>Seminar</b>	<b>1<sup>®</sup></b>
Graduate seminar. Graded Pass/Fail only. (F,Sp)		
<b>CHEM 7970</b>	<b>PhD Dissertation Research</b>	<b>1-12<sup>®</sup></b>
Graded Pass/Fail only. (F,Sp,Su)		
<b>CHEM 7990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail only. (F,Sp,Su)		

\*Taught 2010-2011.

\*\*Taught 2009-2010.

\*\*\*Contact Department of Chemistry and Biochemistry for information about when this course will be taught.

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Chinese (CHIN)

See Department of Languages, Philosophy, and Speech Communication, pages 334-346

<b>CHIN 1010</b>	<b>Chinese First Year I</b>	<b>5</b>
Communicative competencies in the four language skills: speaking, listening, reading, and writing with exposure to cultures and customs. Native speaker instructor. (F) <sup>DE</sup>		
<b>CHIN 1020</b>	<b>Chinese First Year II</b>	<b>5</b>
Communicative competencies in the four language skills: speaking, listening, reading, and writing with exposure to cultures and customs. Native speaker instructor. Prerequisite: CHIN 1010 or equivalent. (Sp) <sup>DE</sup>		
<b>CHIN 2010</b>	<b>Chinese Second Year I</b>	<b>5</b>
Second-year overview of speaking, listening, reading, and writing with exposure to cultures and customs. Native speaker instructor. Prerequisite: CHIN 1020 or equivalent. (F)		
<b>CHIN 2020</b>	<b>Chinese Second Year II</b>	<b>5</b>
Second-year overview of speaking, listening, reading, and writing with exposure to cultures and customs. Native speaker instructor. Prerequisite: CHIN 2010 or equivalent. (Sp)		
<b>CHIN 3010</b>	<b>Chinese Third Year I</b>	<b>4</b>
First segment of the third-year overview of speaking, listening, reading, and writing, with additional exposure to cultures and customs. Readings include excerpts from televised drama. Prerequisite: CHIN 2020 or equivalent. (F)		
<b>CHIN 3020</b>	<b>Chinese Third Year II</b>	<b>4</b>
Second segment of the third-year overview of speaking, listening, reading, and writing, with additional exposure to cultures and customs. Readings include short essays, Chinese proverbs and folktales, and other literary selections. Prerequisite: CHIN 3010 or equivalent. (Sp)		
<b>CHIN 3100 DHA</b>	<b>Readings in Contemporary Chinese Culture</b>	<b>3</b>
Introduction to contemporary Chinese culture through readings from newspapers and other source materials. Prerequisite: CHIN 3010 or permission of instructor. (F)		

# Course Descriptions

**CHIN 3510 Chinese Business Language 3**  
Designed to develop students' business Chinese language skills in speaking, listening, reading, and writing, as well as cultural competence. Classwork focuses on Chinese business terms, business conversation, and basic business practices, as well as the Chinese cultural environment. Prerequisite: CHIN 2020 or equivalent. (F)

**CHIN 3880 Individual Readings in Chinese 1-2**  
Individual study of selected readings in Chinese. Designed to broaden student's reading comprehension beyond the level addressed in CHIN 3020. Prerequisite: Instructor's permission. (F,Sp)<sup>PE</sup>

**CHIN 4920 Chinese Language Tutoring 1<sup>®</sup>**  
Allows students to develop tutoring skills by assisting professors in lower-division courses or fulfilling instructional duties for a comparable amount of time in the language laboratory, public schools, or similar activities with departmental approval. May be repeated to a maximum of 3 credits. Prerequisite: Permission of instructor. (F,Sp)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>PE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Classics (CLAS)

See *Classics Minor*, page 211

Also see *Department of History*, pages 304-309

**CLAS 1100 The Latin and Greek Element in English\* 3**  
Survey of classical word roots in English, with a view to enhancing students' comprehension of English vocabulary and its Indo-European heritage. (F,Sp)

**CLAS 3210 Classical Mythology\* 3**  
Introduces major myths of the Classical world. Explores how these myths serve as keys to understanding the documents and arts of Classical civilization. Also taught as ART 3210. (F,Sp)

\*Taught 2010-2011.

## Climate (CLIM)

See *Department of Plants, Soils, and Climate*, pages 415-423

**Note:** Effective Spring Semester 2010, courses listed with the CLIM prefix will use the Plants, Soils, and Climate (PSC) prefix.

**CLIM 2000 BPS The Atmosphere and Weather 3**  
Survey of the processes governing the behavior of the atmosphere and the phenomenon of weather. Basic physical principles of radiation, energy, evaporation, and heat transport are introduced and connected to atmospheric circulation and weather. (F,Sp)

**CLIM 3250 Aviation Weather 3**  
Discussion, observation, and analysis of weather important for pilots and those associated with air travel. (Sp)

**CLIM 3820 DSC/QI Climate Change 3**  
Emphasizes physical basis of climate (climate dynamics), as well as the mechanisms and processes for its fluctuations on sub-seasonal to interannual time scales (climate variations) and on regional to hemispheric/global time scales. Prerequisites: CLIM 2000 or GEOG 1130. Also taught as WATS 3820. (Sp)

**CLIM 5250 Remote Sensing of Land Surfaces 4 (dual listing 6250)**  
Basic principles of radiation and remote sensing. Techniques for ground-based measurements of reflected and emitted radiation, as well as ancillary data collection to support airborne and satellite remote sensing studies in agriculture, geography, and hydrology. Prerequisites: MATH 1100 or 1210; and PHYS 2110 or 2210. Also taught as BIE 5250/6250 and WATS 5250/6250. (Sp)

**CLIM 5400 General Meteorology 3 (dual listing 6400)**  
Designed for senior and graduate students in different fields who desire some basic introduction to meteorology. Bridges a large gap between courses describing meteorological phenomena in broad and simple terms and other courses treating the atmosphere more theoretically. (F)

**CLIM 5500 Land-Atmosphere Interactions 3 (dual listing 6500)**  
Examination of interactions between the surface and atmosphere. Consideration of flows of mass and energy in soil-vegetation-atmosphere continuum, and their linkage to local and regional climates. Detailed study of feedbacks between vegetation and atmosphere. (Sp odd)

**CLIM 5680 Paleoclimatology\* 3 (dual listing 6680)**  
Covers climate through the past four billion years of geologic time. Explores driving forces behind climate changes. Examines data and methods used in paleoclimate research. Includes discussion of literature and stresses local paleoclimate records. Three lectures per week, along with field trips. Prerequisite: GEO/WATS 3600 or permission of instructor. Also taught as GEO 5680/6680 and WATS 5680/6680.

**CLIM 6250 Remote Sensing of Land Surfaces 4 (dual listing 5250)**  
Basic principles of radiation and remote sensing. Techniques for ground-based measurements of reflected and emitted radiation, as well as ancillary data collection to support airborne and satellite remote sensing studies in agriculture, geography, and hydrology. Prerequisites: MATH 1100 or 1210; and PHYS 2110 or 2210. Also taught as BIE 6250/5250 and WATS 6250/5250. (Sp)

**CLIM 6400 General Meteorology 3 (dual listing 5400)**  
Designed for senior and graduate students in different fields who desire some basic introduction to meteorology. Bridges a large gap between courses describing meteorological phenomena in broad and simple terms and other courses treating the atmosphere more theoretically. (F)

**CLIM 6500 Land-Atmosphere Interactions 3 (dual listing 5500)**  
Examination of interactions between the surface and atmosphere. Consideration of flows of mass and energy in soil-vegetation-atmosphere continuum, and their linkage to local and regional climates. Detailed study of feedbacks between vegetation and atmosphere. (Sp odd)

**CLIM 6680 Paleoclimatology\* 3 (dual listing 5680)**  
Covers climate through the past four billion years of geologic time. Explores driving forces behind climate changes. Examines data and methods used in paleoclimate research. Includes discussion of literature and stresses local paleoclimate records. Three lectures per week, along with field trips. Prerequisite: GEO/WATS 3600 or permission of instructor. Also taught as GEO 6680/5680 and WATS 6680/5680.

**CLIM 6800 Environmental Biophysics 2**  
Explores connections between biosphere and atmosphere at many scales. Introduces processes governing exchanges of mass and energy between surface and atmosphere, as well as connections to climate. Examines role of the biota at local to global scales. (Sp)

**CLIM 6910 Special Problems in Climatology 3<sup>®</sup>**  
Study of physical causes and effects of various climate regimes found upon the Earth. Study of the basis and mechanisms of all types of physically-based climate models. Assists students in comprehending relative complexities and applicabilities of the whole range of climate models. (Sp)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

\*This course is taught alternating years. Check with department for information about when course will be taught.

## Communicative Disorders and Deaf Education (COMD)

See *Department of Communicative Disorders and Deaf Education*, pages 212-220

**COMD 2400 Orientation and Observation 1<sup>®</sup>**  
Introduces students to the professional responsibilities required of communicative disorders and deaf education specialists in a variety of employment settings. Observation of normal/abnormal communication abilities. Language, hearing, and speech disorders. Graded Pass/Fail *only*. (F,Sp)

**COMD 2500 Language, Speech, and Hearing Development 3**  
Language, speech, and hearing development throughout life and strategies for facilitating development. Requisites for human communication and language learning. Theoretical models of language acquisition and intracultural/intercultural differences. (F,Sp)<sup>DE</sup>

**COMD 2600 Introduction to Communication Disorders 2**  
Addresses undergraduate study of types of communication disorders existing across the lifespan. Includes characteristics, etiologies, and brief introduction to assessment and intervention practices. Also explores fields of speech language pathology and audiology. (F)

**COMD 2910 CI Sign Language I 4**  
Introduction to American Sign Language and Deaf Culture. Basic study of grammatical structure of ASL, as well as the history and folklore associated with the culture. Students have ample opportunities for laboratory practice of ASL. Course taught in a no-voice, total immersion atmosphere. (F,Sp,Su)<sup>DE</sup>

**COMD 3050 Practicum and Methods in Teaching Children who are Deaf and Hard of Hearing 1-3<sup>®</sup>**  
Students investigate various aspects of teaching methods through field experiences in the classroom, curriculum and effective teaching assessment, observation and reflections, and guest speakers focusing on areas of mathematics and science in the primary grades. (F,Sp)

**COMD 3080 American Sign Language Practicum 1<sup>®</sup>**  
Provides opportunities for practice and continued improvement of receptive and expressive skills in American Sign Language. (F,Sp)

**COMD 3100 Fundamentals of Anatomy for Speech and Language 3**  
Basic study of the structures and functions associated with the subprocesses of speech and hearing, including respiration, phonation, resonance, articulation, neurology, and hearing. Prerequisite: BIOL 2320 or 2420. (F)<sup>DE</sup>

**COMD 3120 Disorders of Articulation and Phonology 3**  
Introduction to articulation and phonological disorders and related problems. Emphasis directed at evaluation, management, and measures of success. Principles of programming are presented. Prerequisites: COMD 2500 and 3500. (Sp)<sup>DE</sup>

**COMD 3300 Introduction to Blindness and Visual Impairment 3**  
Explores learning characteristics and needs of children and youth (preschool through high school) who are blind or visually impaired, as well as educational settings they are in and professionals who serve them. (F,Sp,Su)

**COMD 3320 The Human Eye and Visual System 3**  
Covers structure and function of the human eye and visual system. Addresses the most common eye conditions causing visual impairment in children and youth, along with their implications and treatment. Explores the role of eye care specialists. (F,Sp,Su)<sup>DE</sup>

**COMD 3330 Introduction to Low Vision 3**  
Introduction to the needs of students having low vision. Methods of adapting materials, activities, and the environment to better meet the learning needs of these students. Includes training in the use of low-vision aids. Explores the role of professionals and their services. (F,Sp,Su)

**COMD 3340 The Role of Paraeducators with Individuals who are Blind or Visually Impaired 3**  
Addresses the roles and responsibilities of paraeducators who work in educational settings with children and youth who are blind or visually impaired. Covers the role of the educational team, as well as how the paraeducator functions as part of that team. (F,Sp,Su)

**COMD 3350 Introduction to Multiple Disabilities 3**  
Presents introductory information about various disabilities, including those associated with sensory losses. Covers neurological issues related to brain development and learning. Addresses communication issues and strategies for working with individuals having multiple disabilities and sensory loss. (F,Sp,Su)

**COMD 3360 Introduction to Braille 3**  
Introduction to braille literacy, as well as braille codes, software, and technology used to produce braille. Teaches students how to read and write uncontracted braille using a slate and stylus and a braille writer (actual or simulated). (F,Sp,Su)<sup>DE</sup>

**COMD 3400 Acoustics and Anatomy of the Ear 3**  
Principles of physical acoustics as applied to Communicative Disorders. Course includes anatomy, physiology, and metabolism of the human auditory system. (Sp)<sup>DE</sup>

**COMD 3500 Phonetics/Developmental Phonology 3**  
Study of the development of the phonological subsystem in English and the acoustic and physiological characteristics of speech sounds. (F)<sup>DE</sup>

**COMD 3650 CI Clinical Processes and Behavior 2**  
A consideration of clinical management as an interactive process. Interpersonal sensitivity, technical knowledge and skills, professional infection-control measures, and behavior modification are core considerations. Prerequisites: COMD 2500 and PSY 1010. (Sp)<sup>DE</sup>

**COMD 3700 Basic Audiology 3**  
Study of pure tone audiometry, including clinical masking, speech audiometry, and clinical immittance measures. Laboratory exercises are required. Prerequisite: COMD 3400. (F)<sup>DE</sup>

**COMD 3910 Sign Language II 4**  
Provides a more in-depth study of American Sign Language, Deaf folklore and literature, and the grammatical structure of ASL. Focuses on unique number systems, idioms, lexicalized fingerspelling, and ASL poetry. Course taught with a total immersion approach, with ample opportunities for practice with fluent users of ASL in the lab. Prerequisite: COMD 2910 or instructor approval. (F,Sp,Su)

**COMD 4100 CI Clinical Practicum in Speech-Language Pathology 1-2<sup>®</sup>**  
Supervised diagnostic and treatment practicum with individuals who have communication disorders. Prerequisites: COMD 2500, 3120, 3650, and permission of instructor. (F,Sp,Su)

**COMD 4250 Cooperative Practicum/Work Experience 1-6**  
Provides practicum and work experience in serving children and youth having deaf-blindness or blindness. Assignments and projects vary, depending upon the student and the setting. (F,Sp,Su)<sup>DE</sup>

**COMD 4400 Clinical Practicum in Audiology 1-2<sup>®</sup>**  
Supervised diagnostic and treatment practicum with individuals with hearing loss. Prerequisites: COMD 3400, 3650, 3700, and consent of instructor. (F,Sp,Su)

**COMD 4450 Assessment and Treatment of Communicative Disorders in the Pediatric Population 3**  
Designed to give students an introductory understanding of assessment and treatment procedures when working with the pediatric population having communicative disorders. Addresses multicultural considerations in assessment and treatment of communicative disorders. (Sp)

**COMD 4600 Senior Thesis 1-6<sup>®</sup>**  
Student-initiated research project under faculty supervision. Prerequisites: Satisfactory grade point average, instructor recommendation, and approval of Honors Committee. (F,Sp,Su)

# Course Descriptions

<b>COMD 4630</b> <b>(dual listing 6630)</b>	<b>Teaching Speech to Deaf and Hard of Hearing Children</b>	<b>3</b>
Evaluative and instructional models, processes, and methodologies in the development of speech for children who are deaf and hard of hearing. (Sp)		
<b>COMD 4660</b> <b>(dual listing 6660)</b>	<b>Introduction to Deaf-blindness</b>	<b>3-5</b>
Covers combined vision and hearing loss, as well as its impact on learning, communication, and overall development. Also explores neurological issues and other senses. (F,Sp,Su) <sup>DE</sup>		
<b>COMD 4750</b> <b>(dual listing 6750)</b>	<b>Teaching the English Language to Individuals who are Deaf and Hard of Hearing</b>	<b>3</b>
Evaluation and teaching of the English language to individuals who are deaf and hard of hearing. Language development and remediation using structure, modeling, natural approach, and grammar. Prerequisite: COMD 2500. (F)		
<b>COMD 4760</b> <b>(dual listing 6760)</b>	<b>Early Intervention for Children who are Deaf and Hard of Hearing</b>	<b>3</b>
Family-centered early intervention for infants and young children who are deaf and hard of hearing. Identification, testing, hearing aids, communication, auditory, language, and emerging literacy programming, parent and family programs, mentoring. (F)		
<b>COMD 4770</b> <b>(dual listing 6770)</b>	<b>Audiology and Teachers of Children who are Deaf and Hard of Hearing</b>	<b>3</b>
Focuses on the fields of hearing science and audiology and how information from these disciplines relates to education of deaf and hard of hearing children. (F)		
<b>COMD 4780</b> <b>(dual listing 6780)</b>	<b>Socio-Cultural Aspects of Deafness</b>	<b>3</b>
Leads students to understand how society, political institutions, and education have impacted the Deaf culture. (F)		
<b>COMD 4790</b> <b>(dual listing 6790)</b>	<b>Psychological Principles and Individuals who are Deaf and Hard of Hearing</b>	<b>3</b>
Psychological theories and research used to describe the deaf and hard of hearing. Exploration of principles that can be used in helping these individuals achieve emotional well-being. Also taught as PSY 4790/6790. (Sp)		
<b>COMD 4840</b> <b>(dual listing 6840)</b>	<b>Children with Combined Vision, Hearing Loss, and Multiple Disabilities</b>	<b>3-5</b>
Designed to teach students how to implement appropriate intervention strategies for infants and young children (ages 0-3) related to communication, cognition, touch, play, self-care, orientation to the environment, etc., and how to help the family learn to communicate with their child. (F,Sp,Su) <sup>DE</sup>		
<b>COMD 4910 CI</b> <b>(dual listing 6910)</b>	<b>Sign Language III</b>	<b>4</b>
Students receive individual, detailed feedback concerning their expressive ASL skills. Students present material in American Sign Language, with a focus on improving identified areas of weakness. Cooperative learning is encouraged. Experiences with fluent users of ASL and interpreter mentors via the lab provide students with basic interpreting skills. Prerequisites: COMD 2910 and 3910; or instructor approval. (F,Sp)		
<b>COMD 4920</b> <b>(dual listing 6920)</b>	<b>Sign Language IV</b>	<b>4</b>
Basic concepts of linguistics are explored, as well as an in-depth analysis of ASL history, grammatical structure, and ASL poetry. Students apply linguistic principles to the analysis of American Sign Language, with ample opportunities to interact with fluent users of ASL via the lab experience. Prerequisites: COMD 2910 and 3910; or permission of instructor. (Sp)		
<b>COMD 5000</b>	<b>Institute in Communicative Disorders and Deaf Education</b>	<b>0.5-3<sup>®</sup></b>
Special colloquial offerings in communicative disorders and deaf education. (F,Sp,Su) <sup>DE</sup>		
<b>COMD 5070</b>	<b>Speech Science</b>	<b>3</b>
Explores contemporary theory, research findings, clinical applications, and measurement and analysis of normal speech and voice production and perception. Speech production subsystems of respiration, phonation, articulation,		

and resonance are examined in detail through the collection and analysis of physiologic data. (F) <sup>DE</sup>		
<b>COMD 5100</b>	<b>Language Science</b>	<b>3</b>
Study of clinical analysis of syntactic and morphological properties of speech. (Sp) <sup>DE</sup>		
<b>COMD 5200</b>	<b>Language Assessment and Intervention for Children Birth to Age Five</b>	<b>3</b>
Language assessment and intervention for children from birth to age five, including language sampling and analysis procedures, interpreting formal and informal testing, facilitating language through strategies and corresponding theories, planning clinical management and intervention, and enhancing emergent literacy. Prerequisites: COMD 2500, 5100, or equivalent. (Sp) <sup>DE</sup>		
<b>COMD 5210</b> <b>(dual listing 6210)</b>	<b>Cultural and Linguistic Diversity in Communicative Disorders</b>	<b>3</b>
Assessment and remediation of culturally and linguistically diverse clients in communicative disorders. Graduate students taking course as COMD 6210 must complete different and additional assignments than are required for undergraduate students enrolled in COMD 5210. (F)		
<b>COMD 5250</b>	<b>Diagnosis and Treatment of Adults in Speech-Language Pathology</b>	<b>3</b>
Introduction to the diagnostic and treatment methods used for communication disorders associated with the adult population. Discusses specific disorders, including aphasia, apraxia, dysarthria, laryngectomy, stuttering, dysphagia, voice, and foreign accent/dialect. Explores cognitive and social aspects of communication. (Sp)		
<b>COMD 5330</b>	<b>Pediatric Aural Rehabilitation</b>	<b>3</b>
Ramifications of hearing loss for children. Rehabilitative audiologic techniques and programs to improve communication abilities of children having hearing loss. (Sp) <sup>DE</sup>		
<b>COMD 5600</b>	<b>Classroom Teaching Using American Sign Language</b>	<b>3</b>
Emphasizes development and presentation of lesson plans for different grade levels. Focuses on developing students' abilities in moving from and linking Language 1 (American Sign Language) and Language 2 (the written form of English). Prerequisites: COMD 2910, 3910, and 4910. (Sp)		
<b>COMD 5610</b>	<b>Introduction to Education of the Deaf and Hard of Hearing</b>	<b>3</b>
Overview of the history of educating children who are deaf and hard of hearing. Presents an overview of techniques, anatomy of the ear, and different philosophical views for teaching people who are deaf and hard of hearing. (F)		
<b>COMD 5620</b>	<b>Teaching School Subjects to Students who are Deaf and Hard of Hearing</b>	<b>3</b>
Focuses on effective strategies for teaching students who are deaf and hard of hearing across curricular subject areas. Emphasizes infusion of language and reading into all content areas. (Sp)		
<b>COMD 5730</b> <b>(dual listing 6730)</b>	<b>Children with Multiple Disabilities and Hearing Loss</b>	<b>3</b>
Students will obtain a basic understanding of the problems and characteristics of children who have hearing loss plus one or more disabling conditions. Teaching strategies will also be discussed. (F)		
<b>COMD 5740</b> <b>(dual listing 6740)</b>	<b>Teaching Reading to Deaf and Hard of Hearing Children</b>	<b>3</b>
Exploration of resources and methods used to teach reading to deaf and hard of hearing children. Discussion of current research regarding the effectiveness of these methods and ideas for improving reading instruction. (F)		
<b>COMD 5860</b> <b>(dual listing 6860)</b>	<b>Interdisciplinary Training in Assistive Technology I</b>	<b>3</b>
Provides interdisciplinary training in assistive technology, focusing on assistive devices related to powered mobility, seating and positioning, computer access, and augmentative and alternative communication. Prerequisite: Departmental permission. (F)		

# Course Descriptions

<p><b>COMD 5870</b>                    <b>Interdisciplinary Training</b> <b>(dual listing 6870) in Assistive Technology II</b>                    <b>3</b> Provides advanced training in assistive technology, focusing on assistive devices related to cognitive, hearing, visual, and dual sensory impairments. Funding issues also addressed. (Sp)</p> <p><b>COMD 5900</b>                    <b>Independent Study</b>                    <b>1-6®</b> Selected work individually assigned, handled, and directed. Problems of mutual interest to students and the instructor are investigated and reported. (F,Sp,Su)<sup>DE</sup></p> <p><b>COMD 6020</b>                    <b>Language Assessment and</b> <b>Intervention for School-age</b> <b>Children and Adolescents</b>                    <b>3</b> Language assessment and intervention for school-age children and adolescents, including developmental oral and written language deficits, dynamic language assessment, interpreting formal and informal testing, facilitating language through strategies and corresponding theories, planning clinical management and intervention, and linking curriculum-based instruction. Prerequisite: COMD 5200 or equivalent. (F)</p> <p><b>COMD 6030</b>                    <b>Disorders of Fluency—Stuttering</b>                    <b>3</b> Provides understanding of theory, nature, etiologies, and principles of diagnosis and treatment of communication disorders related to stuttering and other disorders of fluency. (F)</p> <p><b>COMD 6040</b>                    <b>Communication Disorders</b> <b>Related to Orofacial Anomalies</b>                    <b>3</b> Nature, etiologies, and principles of diagnosis and treatment of communication disorders related to orofacial anomalies. Prerequisite: Graduate standing. (F)</p> <p><b>COMD 6050</b>                    <b>Professional Practice in</b> <b>Speech-Language Pathology</b>                    <b>1</b> Lecture, discussion, and guest presenters on various professional practice topics pertaining to speech-language pathology. Prerequisite: Graduate standing. (F)</p> <p><b>COMD 6060</b>                    <b>Seminar in Speech-Language</b> <b>Pathology</b>                    <b>1-3®</b> Covers professional issues and school-based practices in speech-language pathology. (Sp)</p> <p><b>COMD 6100</b>                    <b>Advanced Clinical Practicum</b> <b>in Speech-Language Pathology</b>                    <b>1-4®</b> Supervised diagnostic and treatment practicum with individuals who have communication disorders. Prerequisites: COMD 2500, 3120, 3650, or equivalent, and permission of instructor. (F,Sp,Su)<sup>DE</sup></p> <p><b>COMD 6120</b>                    <b>Adult Disorders of Motor</b> <b>Speech and Swallowing</b>                    <b>4</b> Considers the neurological substrates and clinical manifestation of dysarthria, apraxia, and dysphagia in the adult population. Addresses diagnostic methods and management of these disorders. (Sp)<sup>DE</sup></p> <p><b>COMD 6130</b>                    <b>Neuropathologies of Speech</b> <b>and Language</b>                    <b>4</b> Study of neuropathologies of speech and language associated with aphasia, traumatic brain injury, right hemisphere syndrome, dementia, and degenerative neurological diseases. (F)<sup>DE</sup></p> <p><b>COMD 6140</b>                    <b>Pediatric Neurogenic Disorders</b>                    <b>3</b> Global perspective of normal pediatric development. Study of neurogenic pathologies and effects on respiration, phonation, and articulation. Also addresses assessment and intervention of oral-motor skills for speech and swallowing purposes. (Sp)</p> <p><b>COMD 6150</b>                    <b>Phonological Assessments</b> <b>and Intervention</b>                    <b>3</b> Graduate study of theoretical and clinical issues related to the assessment and intervention of articulation and phonological disorders in children. (Sp)</p> <p><b>COMD 6200</b>                    <b>Internship in Public Schools—</b> <b>Speech-Language Pathology</b>                    <b>4-5®</b> Supervised public school practicum in speech-language pathology. (F,Sp,Su)</p>	<p><b>COMD 6210</b>                    <b>Cultural and Linguistic Diversity</b> <b>(dual listing 5210) in Communicative Disorders</b>                    <b>3</b> Assessment and remediation of culturally and linguistically diverse clients in communicative disorders. Graduate students taking course as COMD 6210 must complete different and additional assignments than are required for undergraduate students enrolled in COMD 5210. (F)</p> <p><b>COMD 6220</b>                    <b>Severe Communication Impairments</b>                    <b>3</b> Study of assessment and treatment strategies for individuals with severe communication impairments, including those requiring augmentative and alternative communication systems. (Sp)</p> <p><b>COMD 6230</b>                    <b>Introduction to Research in</b> <b>Communicative Disorders</b>                    <b>3</b> Introduction to experimental research designs, including educational research and development, causal-comparative, correlational, and qualitative research. Includes research reviews, research proposals, threats to internal and external validity, and statistical/practical significance. Prerequisite: PSY 2800. (F)</p> <p><b>COMD 6300</b>                    <b>Externship in Speech-Language</b> <b>Pathology</b>                    <b>1-12®</b> Supervised off-campus practicum in speech-language pathology. Prerequisite: Consent of instructor. (F,Sp,Su)<sup>DE</sup></p> <p><b>COMD 6320</b>                    <b>Language Learning and Literacy</b> <b>Acquisition in Children with</b> <b>Hearing Loss</b>                    <b>3</b> Addresses unique process of language learning in children with hearing loss. Explores processes and strategies to facilitate literacy acquisition in these children through an auditory-oral approach. (Su)</p> <p><b>COMD 6340</b>                    <b>Auditory Learning and Spoken</b> <b>Language for Young Children</b> <b>with Hearing Loss</b>                    <b>3</b> Examines developmental processes underpinning audition and spoken language acquisition. Explores specific techniques, strategies, and teaching behaviors for developing listening and spoken language in young children who are deaf or hard of hearing. (F,Sp,Su)</p> <p><b>COMD 6370</b>                    <b>Educational Audiology</b>                    <b>3</b> Management of deaf and hard of hearing children in the regular schools. Population and individual profiles, evaluation and staffing, models of delivery, integration considerations, remedial and facilitative programming. (F)</p> <p><b>COMD 6430</b>                    <b>Speech Communication and Hearing Loss</b>                    <b>3</b> History of listening and speech programs for the hearing impaired. Hearing aids and FM systems, as well as computer and electronic devices used in supporting the speech of this population. Discussion of cochlear implants, the palatometer, and TranSonic hearing aids. (F)</p> <p><b>COMD 6500</b>                    <b>Studies in Blindness and</b> <b>Visual Impairment</b>                    <b>3</b> Survey and discussion of studies of the learning characteristics and needs of children and youth who are blind or visually impaired (preschool through high school), the educational settings they are in, and the professionals who serve them. (F,Sp,Su)</p> <p><b>COMD 6520</b>                    <b>Anatomy, Function, and</b> <b>Disorders of the Eye</b>                    <b>3</b> Covers structure and function of the human eye and visual system. Explores the most common eye conditions causing visual impairment in children and youth, as well as their implications and treatment. Examines the role of eye care specialists. With additional projects and readings, course goes beyond the information provided in undergraduate courses. (F,Sp,Su)<sup>DE</sup></p> <p><b>COMD 6530</b>                    <b>Issues in Low Vision</b>                    <b>3</b> Investigates students having low vision. Explores methods of adapting materials, activities, and the environment to better meet their learning needs. Includes training in the use of low-vision aids, while exploring the role of professionals and their services. Continuation and expansion of the related undergraduate course, COMD 3330. (F,Sp,Su)</p>
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# Course Descriptions

**COMD 6540 Visual Impairments and the Role of Paraeducators 3**

Examines the roles and responsibilities of paraeducators who work with children and youth who are blind or visually impaired in educational settings. Explores the role of the educational team and how team members can best include and utilize paraeducators as part of the team. Continuation and expansion of the related undergraduate course, COMD 3340. (F,Sp,Su)

**COMD 6550 Vision Loss with Multiple Disabilities 3**

Presents specific information about the impact of multiple disabilities on individuals having visual sensory losses. Covers neurological issues related to brain development and learning. Addresses communication issues and strategies for working with individuals who have multiple disabilities and sensory loss. Continuation and expansion of the related undergraduate course, COMD 3350. (F,Sp,Su)

**COMD 6560 Braille 3**

Online course open to graduate students. Explores braille literacy. Provides instruction in braille codes, software, and technology used to produce braille. (F,Sp,Su)<sup>DE</sup>

**COMD 6600 Practicum in Early Intervention, 0-3 1-4<sup>®</sup>**

Supervised student practice in early intervention programs for children ages 0-3. (F,Sp,Su)

**COMD 6630 Teaching Speech to Deaf and (dual listing 4630) Hard of Hearing Children 3**

Evaluative and instructional models, processes, and methodologies in the development of speech for children who are deaf and hard of hearing. (Sp)

**COMD 6640 Strategies for Teaching Children who are Deaf and Hard of Hearing 3**

Explores strategies employed in providing appropriate services to children who are deaf and hard of hearing. Includes application of special education law, appropriate assessment to aid instruction, supervision techniques, and learning principles applied to deaf and hard of hearing students. Prerequisite: COMD 4630/6630. (F)

**COMD 6650 Strategies for Teaching English Language to Children who are Deaf and Hard of Hearing 3**

Practical methods for applying theories of teaching the English language in classrooms where deaf and hard of hearing children are educated. Prerequisite: COMD 4750/6750. (F)

**COMD 6660 Introduction to Deaf-blindness (dual listing 4660) 3-5**

Covers combined vision and hearing loss, as well as its impact on learning, communication, and overall development. Also explores neurological issues and other senses. (F,Sp,Su)<sup>DE</sup>

**COMD 6670 Medical Aspects and Assessment of Young Children with Visual Impairments, 0-3 3-5**

Examines impact of vision impairment on the development and learning of infants and toddlers; medical aspects of vision loss; tools, materials, and strategies to use in assessing functional vision and overall development; and working with families and intervention teams. (F)

**COMD 6680 SKI\*HI Training 1-3**

Training in implementation of the SKI\*HI Model. Early home intervention for infants and young children who are deaf and hard of hearing, and their families. (F,Sp,Su)<sup>DE</sup>

**COMD 6690 Early Intervention Methods and Materials for Young Children with Visual Impairments, 0-3 3-5<sup>®</sup>**

Covers intervention strategies and materials; adapting routines and materials in the home; working with support staff; use of other senses; and familiarization with curriculum resources in all developmental domains (e.g., fine and gross matter, communication and language, cognition, etc.). (F,Sp)<sup>DE</sup>

**COMD 6700 Practicum in Education of Children who are Deaf and Hard of Hearing 1-3<sup>®</sup>**

Supervised diagnostic and remedial casework in education of the deaf and hard of hearing. (F,Sp,Su)

**COMD 6710 Mainstreaming Children who are Deaf and Hard of Hearing 3**

Rationale and procedures used to successfully mainstream children with hearing loss. Also methods of evaluating programs where children with hearing loss are to be placed. (F)

**COMD 6720 Serving Preschoolers with Vision Impairments in Center Based Settings 3-4**

To provide students with knowledge and skills in working with children with visual impairments in the preschool setting. (F,Sp,Su)<sup>DE</sup>

**COMD 6730 Children with Multiple Disabilities (dual listing 5730) and Hearing Loss 3**

Students will obtain a basic understanding of the problems and characteristics of children who have hearing loss plus one or more disabling conditions. Teaching strategies will also be discussed. (F)

**COMD 6740 Teaching Reading to Deaf and (dual listing 5740) Hard of Hearing Children 3**

Exploration of resources and methods used to teach reading to deaf and hard of hearing children. Discussion of current research regarding the effectiveness of these methods and ideas for improving reading instruction. (F)

**COMD 6750 Teaching the English Language to (dual listing 4750) Individuals who are Deaf and Hard of Hearing 3**

Evaluation and teaching of the English language to individuals who are deaf and hard of hearing. Language development and remediation using structure, modeling, natural approach, and grammar. Prerequisite: COMD 2500. (F)

**COMD 6760 Early Intervention for Children who (dual listing 4760) are Deaf and Hard of Hearing 3**

Family-centered early intervention for infants and young children who are deaf and hard of hearing. Identification, testing, hearing aids, communication, auditory, language, and emerging literacy programming, parent and family programs, mentoring. (F)

**COMD 6770 Audiology and Teachers of Children (dual listing 4770) who are Deaf and Hard of Hearing 3**

Focuses on the fields of hearing science and audiology and how information from these disciplines relates to education of deaf and hard of hearing children. (F)

**COMD 6780 Socio-Cultural Aspects of Deafness (dual listing 4780) 3**

Leads students to understand how society, political institutions, and education have impacted the Deaf culture. (F)

**COMD 6790 Psychological Principles and Individuals (dual listing 4790) who are Deaf and Hard of Hearing 3**

Psychological theories and research used to describe the deaf and hard of hearing. Exploration of principles that can be used in helping these individuals achieve emotional well-being. Also taught as PSY 6790/4790. (Sp)

**COMD 6800 Student Teaching—Day-School Program 6-12<sup>®</sup>**

Full-time student teaching in a day-school program for the deaf. (F)

**COMD 6810 Disorders of Phonation 3**

Explores anatomy and physiology of the laryngeal and respiratory systems, contemporary theory, and evidence-based practice in the diagnosis and treatment of voice disorders. (F)

**COMD 6820 Principles of Intervention for Children who are Deaf and Hard of Hearing 3**

Application of teaching principles to classrooms for the deaf and hard of hearing. Practicum with children is part of this course. Prerequisites: COMD 6640, 6650, and permission of instructor. (Sp)

# Course Descriptions

<p><b>COMD 6830</b>            <b>Student Teaching—Residential</b>            <b>6-12</b> Full-time student teaching at a residential school for the deaf. Prerequisite: Permission of instructor. (Sp)</p> <p><b>COMD 6840</b>            <b>Children with Combined Vision, (dual listing 4840) Hearing Loss, and Multiple Disabilities</b>            <b>3-5</b> Designed to teach students how to implement appropriate intervention strategies for infants and young children (ages 0-3) related to communication, cognition, touch, play, self-care, orientation to the environment, etc., and how to help the family learn to communicate with their child. (F,Sp,Su)<sup>DE</sup></p> <p><b>COMD 6850</b>            <b>Seminar in Communicative Disorders and Deaf Education</b>            <b>1-3<sup>®</sup></b> Research and analysis of selected topics. (F,Sp,Su)</p> <p><b>COMD 6860</b>            <b>Interdisciplinary Training (dual listing 5860) in Assistive Technology I</b>            <b>3</b> Provides interdisciplinary training in assistive technology, focusing on assistive devices related to powered mobility, seating and positioning, computer access, and augmentative and alternative communication. Prerequisite: Departmental permission. (F)</p> <p><b>COMD 6870</b>            <b>Interdisciplinary Training in (dual listing 5870) Assistive Technology II</b>            <b>3</b> Provides advanced training in assistive technology, focusing on assistive devices related to cognitive, hearing, visual, and dual sensory impairments. Funding issues also addressed. (Sp)</p> <p><b>COMD 6880</b>            <b>Methods and Procedures in Early Intervention</b>            <b>3</b> Teaches specific methods and procedures necessary for working in early intervention programs serving families of infants and young children with hearing loss, including assessment procedures, specific home visit delivery procedures, and methods of working with support professionals and team members. (Sp)</p> <p><b>COMD 6900</b>            <b>Independent Study</b>            <b>1-9<sup>®</sup></b> Prerequisite: Permission of instructor. (F,Sp,Su)<sup>DE</sup></p> <p><b>COMD 6910</b>            <b>Sign Language III (dual listing 4910)</b>            <b>4</b> Students receive individual, detailed feedback concerning their expressive ASL skills. Students present material in American Sign Language, with a focus on improving identified areas of weakness. Cooperative learning is encouraged. Experiences with fluent users of ASL and interpreter mentors via the lab provide students with basic interpreting skills. Prerequisites: COMD 2910 and 3910; or instructor approval. (F,Sp)</p> <p><b>COMD 6920</b>            <b>Sign Language IV (dual listing 4920)</b>            <b>4</b> Basic concepts of linguistics are explored, as well as an in-depth analysis of ASL history, grammatical structure, and ASL poetry. Students apply linguistic principles to the analysis of American Sign Language, with ample opportunities to interact with fluent users of ASL via the lab experience. Prerequisites: COMD 2910 and 3910; or permission of instructor. (Sp)</p> <p><b>COMD 6950</b>            <b>Practicum in Early Intervention</b>            <b>1-6<sup>®</sup></b> Supervised student practicum in parent-infant home-based and preschool programs. (F,Sp)</p> <p><b>COMD 6960</b>            <b>Master's Project</b>            <b>1-4<sup>®</sup></b> This experience provides student with opportunity to design and carry out a creative project which is closely related to his or her area of teaching specialty. May require a written report. (F,Sp,Su)</p> <p><b>COMD 6970</b>            <b>Thesis</b>            <b>1-7<sup>®</sup></b> Graded Pass/Fail only. Prerequisite: Permission of instructor. (F,Sp,Su)<sup>DE</sup></p> <p><b>COMD 6990</b>            <b>Continuing Graduate Advisement</b>            <b>1-9<sup>®</sup></b> Graded Pass/Fail only. (F,Sp,Su)</p> <p><b>COMD 7200</b>            <b>Introduction to Clinical Practice</b>            <b>2<sup>®</sup></b> Supervised diagnostic practicum for first-year students in the Audiology Program. Prerequisite: Admission to the Audiology Program. (F,Sp,Su)</p>	<p><b>COMD 7300</b>            <b>Intermediate Clinical Practicum</b>            <b>2<sup>®</sup></b> Supervised diagnostic practicum for second-year students in the Audiology Program. Prerequisite: Admission to the Audiology Program. (F,Sp,Su)</p> <p><b>COMD 7310</b>            <b>Psychoacoustics and Instrumentation</b>            <b>3</b> Covers psychoacoustic aspects of human audition, with emphasis on application in the clinical setting. Explores basic electronics and audio systems. Prerequisite: Admission to the Audiology Program. (F)</p> <p><b>COMD 7320</b>            <b>Amplification I</b>            <b>1-4</b> Hearing aid types and uses, hearing aid components and characteristics, electroacoustic performance, hearing aid candidacy and hearing aid evaluation, and hearing aid fitting and orientation. Prerequisite: Admission to the Audiology Program. (Sp)</p> <p><b>COMD 7330</b>            <b>Supervision Internship</b>            <b>1-7<sup>®</sup></b> Provides extensive supervisory experience for advanced students. Internship is for a period of time to be specified by the department and cooperating agency. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>COMD 7340</b>            <b>Pediatric Audiology</b>            <b>2-3</b> Provides students with understanding of normal auditory development and theoretical, clinical, and practical issues involved in screening, assessment, and management of children with hearing loss. Prerequisite: Admission to the Audiology Program. (F)</p> <p><b>COMD 7380</b>            <b>Advanced Audiology</b>            <b>2</b> Special auditory testing for site of lesion in the conductive, sensory, and neural/central auditory systems with special emphasis on the comprehensive behavioral audiologic test battery. Prerequisite: Admission to the Audiology Clinical Doctoral Program. (F)</p> <p><b>COMD 7400</b>            <b>Advanced Clinical Practicum</b>            <b>2-4<sup>®</sup></b> Supervised clinical practicum for third-year students in the Audiology Program. Prerequisite: Admission to the Audiology Program. (F,Sp,Su)</p> <p><b>COMD 7410</b>            <b>Noise and Hearing Conservation</b>            <b>2</b> Principles of noise hazard evaluation, effects of noise on the auditory mechanism, and development and maintenance of an effective hearing conservation program. Prerequisite: Admission to the Audiology Program. (F)</p> <p><b>COMD 7420</b>            <b>Amplification II</b>            <b>1-4</b> Applications of advanced hearing aid circuitry. Hearing aid troubleshooting, modifications, and repairs, as well as various aspects of measuring hearing aid satisfaction, are included. Tinnitus management and cochlear implants also examined. Prerequisite: Admission to the Audiology Graduate Program. (F)</p> <p><b>COMD 7430</b>            <b>Electrophysiology</b>            <b>3</b> Provides students with extensive working knowledge of early, middle, and late evoked potentials. Assessment of the sensory function of the auditory system with otoacoustic emissions also included. Prerequisite: Admission to the Audiology Clinical Doctorate Program. (F)</p> <p><b>COMD 7460</b>            <b>Adult Aural Rehabilitation</b>            <b>3</b> Focuses on traditional aural rehabilitation models, amplification, counseling, speech reading, and assistive listening devices. Upon course completion, students should be able to effectively use these elements to assist adults in compensating for hearing impairment. Prerequisite: Admission to the Audiology Program. (Sp)</p> <p><b>COMD 7470</b>            <b>Educational Audiological Management and Audiologic Counseling</b>            <b>3</b> Management plans for audiological services, as well as appropriate intervention strategies for children. Students develop plans and present methods for bringing change to schools. Principles of audiologic counseling also discussed. Prerequisite: COMD 6370. (Sp)</p> <p><b>COMD 7490</b>            <b>Medical Aspects of Audiology</b>            <b>3</b> Study of the etiology, symptomatology, audiological manifestations, and medical treatment of various pathological conditions of the auditory system. Prerequisite: Admission to the Audiology Program. (Sp)</p>
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# Course Descriptions

**COMD 7510 Supervision in Communicative Disorders 2**  
Principles and practices of supervision in Communicative Disorders and Deaf Education. Emphasizes clinical and educational supervision as these styles relate to individuals who are deaf and hard of hearing or who have communicative disorders. (Su)

**COMD 7520 Physiological Bases for the Cochlear Implant 2-3**  
Advanced clinical training, working with children who are cochlear implant recipients. Study of physiological bases of cochlear implantation, including anatomy, embryology, cochlear physiology, and the effects and function of a cochlear implant. Prerequisite: Graduate standing in Communicative Disorders and Deaf Education Department.

**COMD 7530 Balance Evaluation and Management 3**  
Explores techniques and technology for vestibular and balance assessment, including electronystagmography, videonystagmography, rotational testing, and posturography. Prerequisite: Admission to the Audiology Program. (Sp)

**COMD 7800 Clinical Externship in Audiology 6<sup>®</sup>**  
Twelve-month full-time clinical practicum experience in one or more off-campus clinical sites. Prerequisite: Admission to the Audiology Program. (F,Sp,Su)

**COMD 7810 Research Seminar in Educational Audiology 1-3<sup>®</sup>**  
Identification of research problem, consideration of research strategies and methods, application of research and statistical concepts in departmental focus, interaction with faculty. (F,Sp,Su)

**COMD 7820 Clinical Research in Audiology 3<sup>®</sup>**  
Facilitates completion of doctoral students' clinical research projects in audiology. Further enables students to incorporate evidence-based practice into the profession of audiology. Prerequisite: Admission to the Audiology Program. (F)

**COMD 7830 Special Topics in Speech-Language Pathology 3<sup>®</sup>**  
Discussion of advanced topics and issues in speech and language disorders, including theories of information processing and learning mechanisms underlying speech and language disorders, the nature of various types of speech and language disorders, current research in speech and language disorders, assessment practices, and/or intervention practices. (F,Sp,Su)

**COMD 7840 Journal Reading Group in Speech-Language Pathology 1<sup>®</sup>**  
Under faculty direction, students read and discuss published research. Students learn to critique empirical and theoretical papers, as well as current research findings in important areas of speech-language pathology. (F,Sp,Su)

**COMD 7850 Externship Seminar 3<sup>®</sup>**  
Internet-based seminar in current clinical-related topics for fourth-year students in the Doctorate of Audiology Program. Prerequisite: Admission to Doctorate of Audiology Program. (F,Sp,Su)

**COMD 7860 Practice Management in Audiology 3**  
Audiology business and practice management. Discussion of business set-up, the business plan, managerial accounting and financial analysis, marketing, pricing, reimbursement, record keeping, and forensics. Prerequisite: Admission to the Audiology Program. (Sp)

**COMD 7870 Audiology Capstone Project 1-6<sup>®</sup>**  
Under the direction of his or her advisory committee, student develops a clinically-related project. This project is a creative work at a doctoral level and worthy of publication or presentation. Prerequisite: Admission to the Audiology Program. (F,Sp,Su)

**COMD 7900 Independent Study 1-2<sup>®</sup>**  
Advanced students, under direction of a faculty member, will study independently; however, departmental permission is necessary. (F,Sp,Su)

**COMD 7910 Independent Research 1-2<sup>®</sup>**  
Advanced students, under direction of a faculty member, will do research in an area of interest to themselves. (F,Sp,Su)

**COMD 7970 Dissertation 1-9<sup>®</sup>**  
Variable credit for dissertation project in connection with the doctoral program emphasis in educational audiology. Graded Pass/Fail *only*. (F,Sp,Su)

**COMD 7990 Continuing Graduate Advisement 1-9<sup>®</sup>**  
Graded Pass/Fail *only*. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>®E</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Computer Science (CS)

See *Department of Computer Science, pages 221-227*

**CS 1020 Campus Computing and Beyond 1**  
Hands-on laboratory for CS 1030. Introduces the campus network and the Internet. Emphasizes general problem-solving strategies and skills associated with computer and application software use. (F,Sp,Su)

**CS 1030 BPS Foundations of Computer Science 3**  
Investigation of computers and computing in today's society, including the basic scientific and mathematical concepts that underlie computer science, computing, and computer systems. No prerequisites. (F)

**CS 1050 Problem Solving with Computers 3**  
Investigates problem-solving using methodologies of computer science. Emphasizes techniques used by computer scientists to solve problems, as well as the scientific method. Develops problem-solving methodology for both new and traditional computer applications. (F,Sp)

**CS 1060 BPS Cyber Security: Threats, Analysis, and Defense 3**  
Investigation of cyber-security threats through an analysis of computer systems and communication methods. Develops skills for identifying potential attacks, analyzing problems, and implementing solutions. Students learn to minimize vulnerabilities and defend against attacks in the cyber world. (Sp)

**CS 1400 Introduction to Computer Science—CS 1 3**  
Introduction to science of problem solving, programming, program development, algorithm analysis, and data structures. Students will learn to develop correct software in a current programming language environment. Computer science majors must enroll in CS 1405 concurrently with CS 1400. Prerequisite: Grade of C- or better in MATH 1050 or Math ACT score of at least 25. (F,Sp,Su)<sup>®E</sup>

**CS 1405 Introduction to Computer Science—CS 1 Lab 1**  
One-hour lab taught in conjunction with CS 1400. Students learn to develop correct software in a hands-on structured environment. Computer science majors are required to pass both the laboratory and the lecture, and are required to enroll in CS 1400 concurrently with CS 1405. For students not majoring in computer science, this laboratory is advised, but not required, for CS 1400. Prerequisite: Grade of C- or better in MATH 1050 or Math ACT score of at least 25. (F,Sp,Su)

**CS 1410 QI Introduction to Computer Science—CS 2 3**  
Introduction to science of problem solving, programming, program development, algorithm analysis, and data structures. Students will learn to develop correct software in a current programming language environment. Prerequisite: Grade of C- or better in CS 1400. (F,Sp,Su)<sup>®E</sup>

**CS 2250 Cooperative Work Experience 1-9<sup>®</sup>**  
Provides credit for students working at a participating firm under faculty supervision. Prerequisites: 2.5 GPA; permission of instructor. (F,Sp,Su)

**CS 2420 QI Algorithms and Data Structures—CS 3 3**  
Introduction to science of problem solving, programming, program development, algorithm analysis, and data structures. Students will learn to develop correct software in a current programming language environment. Prerequisites: 2.0 GPA; grade of C- or better in CS 1410. (F,Sp,Su)

# Course Descriptions

<p><b>CS 2450 CI Introduction to Software Engineering I 3</b> First part of a two-course series in software engineering, covering fundamental principles and practices. Provides hands-on experience in development of complete software application in a group situation. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. (F,Sp)</p> <p><b>CS 2550 Computer Organization 3</b> Fundamental building blocks of digital computers, and the underlying theories upon which these building blocks are assembled. Introduction to information representation, number systems, combinational logic circuits, sequential logic circuits, and instruction sets. Programming such systems at the assembly level. Prerequisites: 2.5 GPA; grade of C- or better in <i>both</i> CS 1400 and MATH 1050 and Math ACT score of at least 23. This course is not currently being taught. For information about when it may be taught, contact the Computer Science Department.</p> <p><b>CS 2810 Computer Systems Organization and Architecture I 3</b> Examines organization and architecture of computer systems. Covers terminology, data representation, Boolean Algebra, and combinational and sequential logic circuits as they apply to computer hardware and software. Prerequisites: 2.0 GPA; grade of C- or better in CS 1410. (F,Sp)</p> <p><b>CS 3000 Undergraduate Seminar 1</b> Serves as a capstone course for the pre-computer science curriculum, as well as an introduction to the advanced standing curriculum. Also includes discussion of computer science as a career and discussion of the advanced standing test. Graded Pass/Fail <i>only</i>. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420; fulfillment of Computer and Information Literacy (CIL) requirement; grade of C- or better in ENGL 2010; or permission of instructor. (F,Sp,Su)<sup>DE</sup></p> <p><b>CS 3010 DSC/QI Information Acquisition, Analysis, and Presentation 3</b> Introduces students to use of scientific method and computer technology in analysis of multi-faceted problem, and presentation of that analysis. Each semester, built around single topic such as global warming. Prerequisites: Completion of University Studies Computer and Information Literacy (CIL) and Quantitative Literacy (QL) requirements. (F,Sp,Su)<sup>DE</sup></p> <p><b>CS 3100 Operating Systems and Concurrency 3</b> Design and implementation of operating systems. UNIX will be used as one example, but all categories of operating systems will be discussed. Presentation of the concept of concurrency as it applies to operating system design and application. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F,Sp)<sup>DE</sup></p> <p><b>CS 3410 DSC/QI Computational Science: JAVA/Internet 3</b> Introduces computational science for algorithm development in JAVA-based applications. Examines information representation, storage, retrieval, and transmission in quantitative Internet-based environments. Prerequisites: CS 1410 and completion of University Studies Quantitative Literacy (QL) requirement. (F,Sp,Su)<sup>DE</sup></p> <p><b>CS 3420 DSC/QI Computational Science: C# and .NET 3</b> Introduces algorithm development for C#/ .NET applications. Examines digital representation, storage, retrieval, and transmission of information, and quantitative applications such as distributed network problems, along with the algorithms for such applications. Prerequisites: CS 1410, completion of University Studies Breadth Physical Sciences (BPS) course, and fulfillment of University Studies Quantitative Literacy (QL) requirement. (F,Sp,Su)</p> <p><b>CS 3430 DSC/QI Computational Science: Python and Perl Programming 3</b> Introduces students to algorithm development and programming in computational science for Python and Perl applications on a Linux platform. Examines computer-based representation, storage, retrieval, and transmission of information, along with the algorithms used to perform such operations. Examines specific applications in bioinformatics and biology. Prerequisites: CS 1400, completion of University Studies Breadth Life Sciences (BLS) course, and fulfillment of University Studies Quantitative Literacy (QL) requirement. (F,Sp,Su)</p>	<p><b>CS 3450 Introduction to Software Engineering II 3</b> Second part of a two-course series in software engineering, covering fundamental principles and practices. Provides hands-on experience in development of complete software application in group situation. Prerequisite: CS 2450. (F)</p> <p><b>CS 3810 Computer Systems Organization and Architecture II 3</b> Examines high-level architecture of computer systems. Covers processor and memory design for optimal performance, I/O subsystems, networking, and computer security. Prerequisites: 2.0 GPA; grade of C- or better in CS 2810. Not available to pre-Computer Science majors. (F,Sp)</p> <p><b>CS 4250 Cooperative Work Experience 1-9<sup>®</sup></b> Provides credit for students working at a participating firm under faculty supervision. Prerequisites: 2.0 GPA; permission of instructor. Not available to pre-Computer Science majors. (F,Sp,Su)</p> <p><b>CS 4700 Programming Languages 3</b> Theories of programming design and implementation. Introduction to variety of programming languages, showing how they represent trade-offs with respect to these theories. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F,Sp)</p> <p><b>CS 4720 Computer Networking I 3</b> Focuses on client/server model, which is the dominant architectural model for today's computer systems. Explores the network underlying this model, specifically examining the topology, protocol(s), user interface(s), and hardware. Emphasizes the general theory and functionalities underlying the client/server model and computer networks in general. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F,Sp,Su)<sup>DE</sup></p> <p><b>CS 4730 Computer Networking II 3</b> Focuses on client/server model, which is the dominant architectural model for today's computer systems. Emphasizes the specifics of the products of today's dominant network companies, which are currently Novell and Microsoft. Completion of this course prepares students for certification under such products. Prerequisites: 2.0 GPA; grade of C- or better in CS 4720. Not available to pre-Computer Science majors. (Sp)</p> <p><b>CS 4890 Topics in Computer Science (Topic) 3</b> Current topics in computer science as determined by advances in the field. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F,Sp,Su)</p> <p><b>CS 4950 Undergraduate Research 1-4<sup>®</sup></b> Participation in research projects, under supervision of a computer science faculty member. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420 and permission of instructor. Not available to pre-Computer Science majors. (F,Sp,Su)</p> <p><b>CS 5000 Theory of Computability 3</b> Theory of computation, including presentation of computability, decidability, and complexity. Includes formal grammars, finite and pushdown automata, and Turing machines. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (Sp)</p> <p><b>CS 5050 Advanced Algorithms 3</b> Study of algorithms and their analysis, including: design by induction, algorithms involving sequences and sets, graph algorithms, geometric algorithms, algebraic algorithms, reductions, NP-completeness, and parallel algorithms. Prerequisites: Grade of C- or better in CS 2420 and admission into Computer Science major. (F,Sp)</p> <p><b>CS 5070 Computer Science Capstone 1</b> Students develop a project that includes the use of a significant portion of the computer science topics presented in the core curriculum. Completion of the project requires an oral presentation and a detailed written report. Graded Pass/Fail <i>only</i>. Prerequisite: 2.0 GPA. Not available to pre-Computer Science majors. (F,Sp,Su)</p> <p><b>CS 5100 Graphical User Interfaces and Windows Programming 4</b> Design principles of GUIs and philosophy, structure, and programming in Windows environments. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (Sp)</p>
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# Course Descriptions

<p><b>CS 5200</b>                    <b>Distributed and Network Programming</b>                    <b>4</b> Introduction to programming concepts and techniques for distributed and networked environments. Explores concurrency, process synchronization, network protocols, connectionless and connection-oriented communications, network architectures and topology, load balancing, and transmission media. Prerequisites: 2.0 GPA; grade of C- or better in CS 3100. Not available to pre-Computer Science majors. (F)</p> <p><b>CS 5300</b>                    <b>Compiler Construction</b>                    <b>4</b> Review of programming language structures, translation, loading, execution, and storage allocation. Compilation of declarations, expressions, statements, and procedures/functions. Organization and design of a compiler. Prerequisites: 2.0 GPA; grade of C- or better in CS 2810 and 4700. Not available to pre-Computer Science majors. (F)</p> <p><b>CS 5370</b>                    <b>Advanced Software Engineering</b>                    <b>3</b> Advanced software engineering concepts, including the improvement process, requirements acquisition, development process models, object-oriented design, and software testing. Student cannot receive credit for both CS 5370 and CS 6370. Prerequisites: 2.0 GPA; grade of C- or better in CS 3450. Not available to pre-Computer Science majors. (Sp)</p> <p><b>CS 5400</b>                    <b>Computer Graphics I</b>                    <b>4</b> Introduction to concepts of graphical techniques. Digital and pictorial representation of information. Prerequisites: 2.0 GPA; grade of C- or better in <i>all</i> of the following: CS 2420; MATH 1220; MATH 2250 or 2270. Not available to pre-Computer Science majors. (F)</p> <p><b>CS 5410</b>                    <b>Game Development</b>                    <b>4</b> Explores technical game development. Emphasizes integration of multiple computer science topics within a single application, including: graphics, AI multi-threading, multi-core, networking, synchronization, optimization, and scripting languages. Includes a team project to develop a computer-based game. Prerequisites: CS 2420 and 3100. (Sp)</p> <p><b>CS 5450</b>                    <b>Multimedia Systems*</b>                    <b>4</b> Introduction to concepts and techniques underlying multimedia-based systems. Deals with both the hardware aspects of multimedia systems (e.g., transfer rates, capacities, resolution, etc.) and the software requirements of such systems. Each student required to develop a multimedia-based system. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (Sp)</p> <p><b>CS 5460</b>                    <b>Computer Security I</b>                    <b>3</b> Introduction of computer security principles, data protection models, and application techniques. Develops basic skills necessary for protecting systems and communication from a variety of computer security threats. Topics include encryption, policies, access control, network security, OS security, and software security. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F)</p> <p><b>CS 5500</b>                    <b>Parallel Programming</b>                    <b>3</b> Examines basic techniques for designing parallel algorithms, such as balanced trees, pointer jumping, partitioning, pipelining, accelerated cascading, list ranking, and tree contraction. Consideration of classic parallel algorithms in graphs, merging, sorting, planar geometry, string matching, and randomized techniques. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (Sp)</p> <p><b>CS 5600</b>                    <b>AI: Problem Solving and Expert Systems</b>                    <b>3</b> Introduction to practical artificial intelligence methods for building problem solving and expert systems. Covers search, knowledge representation, and reasoning. Students will develop projects in LISP and expert system shells. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F)</p> <p><b>CS 5650</b>                    <b>CVPRIP I: Computer Vision, Pattern Recognition, and Image Processing</b>                    <b>3</b> Introduction to theories and techniques of machine intelligence, with emphasis on pattern recognition, computer vision, fuzzy logic, and neural networks. Prerequisites: 2.0 GPA; grade of C- or better in <i>all</i> of the following: CS 2420, MATH 2270, STAT 2000 or 3000. Not available to pre-Computer Science majors. (F)</p>	<p><b>CS 5660</b>                    <b>Bioinformatics I</b>                    <b>3</b> Introduction to tools and techniques used in the study of bioinformatics, genomics, and computational biology. Explores usage of these tools and techniques for storage, retrieval (mining), processing, visualization, and analysis of biological information. Prerequisite: Permission of instructor. (F) <sup>DE</sup></p> <p><b>CS 5670</b>                    <b>Bioinformatics II</b>                    <b>3</b> Builds on material presented in CS 5660, presenting more advanced topics in bioinformatics, such as data mining, machine learning, and evolutionary algorithms. Students <i>cannot</i> receive credit for <i>both</i> CS 5670 and 6670. Prerequisites: 2.0 GPA; grade of C- or better in CS 5660. Not available to pre-Computer Science majors. (Sp)</p> <p><b>CS 5700</b>                    <b>Object-Oriented Software Development</b>                    <b>3</b> Study of fundamental object-oriented principles, e.g., abstraction, encapsulation, classification, and inheritance. Application of these principles in all phases of software development, with emphasis on analysis, design, and testing. Introduction to software design patterns. Prerequisites: 2.0 GPA; grade of C- or better in CS 3450. Not available to pre-Computer Science majors. (F)</p> <p><b>CS 5800</b>                    <b>Introduction to Database Systems</b>                    <b>3</b> Comparison of various database systems. Normal forms, protection, concurrency, security and integrity, and distributed and object-oriented systems. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F) <sup>DE</sup></p> <p><b>CS 5850</b>                    <b>Systems Analysis</b>                    <b>3</b> Theory and practice of analysis, design, and implementation of information systems. Students will construct an information system. Prerequisites: 2.0 GPA; grade of C- or better in CS 5800. Not available to pre-Computer Science majors. (Sp)</p> <p><b>CS 5890</b>                    <b>Topics in Computer Science (Topic)</b>                    <b>1-4*</b> Current topics in computer science as determined by advances in the field. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420 and permission of instructor. Not available to pre-Computer Science majors. (F,Sp,Su)</p> <p><b>CS 5950</b>                    <b>Independent Study</b>                    <b>3*</b> Provides for independent study of selected topics. Prerequisites: 2.0 GPA; grade of C- or better in CS 2420 and permission of instructor. Not available to pre-Computer Science majors. (F,Sp,Su) <sup>DE</sup></p> <p><b>CS 6050</b>                    <b>Computational Geometry: Algorithms and Applications</b>                    <b>3</b> Computational geometry is the study of computation involving geometric objects, such as lines, polygons, and circles. It has application in bioinformatics, graphics, robotics, CAD/CAM, etc. This course presents the algorithms, data structures, and techniques of computational geometry. Prerequisite: Permission of instructor. (Sp)</p> <p><b>CS 6100</b>                    <b>MultiAgent Systems</b>                    <b>3</b> MultiAgent systems are composed of multiple interacting computing elements, known as agents. Agents are software systems with two important capabilities: first, autonomous actions; and second, interacting with other agents by engaging in cooperation, coordination, and negotiation. Prerequisites: 3.0 GPA and enrollment in Computer Science master's or PhD program. (F)</p> <p><b>CS 6200</b>                    <b>Distributed System Design*</b>                    <b>3</b> Examines advanced design concepts related to development of distributed software systems. Students learn how to model and evaluate communication protocols and study techniques for time coordination, distributed process synchronization, object replication and migration, and distributed transaction processing. Students also learn about Common Object Request Broker Architecture (CORBA). Prerequisites: 3.0 GPA; grade of B- or better in CS 5200 and enrollment in Computer Science master's or PhD program. (Sp)</p> <p><b>CS 6220</b>                    <b>Concurrent Systems*</b>                    <b>3</b> Explores concurrency in its various forms, emphasizing debugging techniques, development techniques that guarantee correctness, and performance evaluation and tuning. Prerequisite: CS 5200. (F)</p>
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# Course Descriptions

<p><b>CS 6250</b>                    <b>Cooperative Work Experience, Graduate</b>                    <b>1-9®</b> Provides credit for students working at a participating firm under faculty supervision. Graded Pass/Fail <i>only</i>. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)</p>	<p><b>CS 6660</b>                    <b>Evolutionary Algorithms*</b>                    <b>3</b> Analyzes the major algorithms associated with evolutionary computation. Emphasizes use of such algorithms for the solution of optimization problems. Presents genetic, swarm, and genetic programming algorithms. Prerequisite: CS 2420 or permission of instructor. (Sp)</p>
<p><b>CS 6300</b>                    <b>Supercompilers for Sequential and Parallel Computers*</b>                    <b>3</b> Analysis and optimization for sequential and parallel computers, including loop restructuring, concurrency analysis, vector analysis, and optimizations for shared and distributed memory computers. Prerequisites: 3.0 GPA; grade of B- or better in CS 5300 and enrollment in Computer Science master's or PhD program. (Sp)</p>	<p><b>CS 6670</b>                    <b>Advanced Bioinformatics</b>                    <b>3</b> Focuses on the various advanced algorithms and models used in bioinformatics applications. Opportunities and needs for improvement of such algorithms discussed in the context of current and future problems in bioinformatics. Prerequisite: CS 5670. (F)</p>
<p><b>CS 6370</b>                    <b>Software Engineering with a Project</b>                    <b>3</b> Advanced software engineering concepts, including the improvement process, requirements acquisition, development process models, object-oriented design, and software testing. Students will work in teams, developing significant software products. Student cannot receive credit for both CS 5370 and CS 6370. Prerequisites: 3.0 GPA; grade of B- or better in CS 2450 and enrollment in Computer Science master's or PhD program. (F)</p>	<p><b>CS 6690</b>                    <b>AI: Advanced Topics in Artificial Intelligence (Topic)</b>                    <b>3</b> Advanced course in selected theories and techniques of artificial intelligence. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (Sp)</p>
<p><b>CS 6400</b>                    <b>Computer Graphics II*</b>                    <b>3</b> Study of computer rendering of three-dimensional objects. Object representation, hidden surface removal, and shading. Ray tracing of synthetic scenes using mathematically defined surfaces. Prerequisites: 3.0 GPA; grade of B- or better in CS 5400 and enrollment in Computer Science master's or PhD program. (Sp)</p>	<p><b>CS 6700</b>                    <b>Object-Oriented Models, Methods, and Tools</b>                    <b>3</b> Study of object-oriented concepts, principles, techniques, development processes, and tools across all areas of software engineering, with special emphasis on current research topics. Prerequisites: 3.0 GPA; grade of B- or better in CS 5700 and enrollment in Computer Science master's or PhD program. (F)</p>
<p><b>CS 6460</b>                    <b>Computer Security II</b>                    <b>3</b> Maintaining the integrity and security of computer systems is critical. Course explores aspects of system vulnerabilities and protection, attack categories and methodologies, the development of secure computer systems, etc. Prerequisite: CS 5460 or permission of instructor. (Sp)</p>	<p><b>CS 6800</b>                    <b>Advanced Database Systems</b>                    <b>3</b> Covers advanced topics in database systems, including XML, OODBMS, query optimization, query processing, deductive databases, concurrency, theory of relational databases, normalization, and recovery. Prerequisites: 3.0 GPA; grade of B- or better in CS 5800 and enrollment in Computer Science master's or PhD program. (Sp)<sup>DE</sup></p>
<p><b>CS 6500</b>                    <b>Advances in Parallel Systems</b>                    <b>3</b> Survey of current advances in parallel processing and concurrent systems. Review of current scientific literature to understand current issues, problems, and progress in advanced topics of parallel processing. Students read, summarize, report, and discuss up-to-date scientific papers in the field. Prerequisites: 3.0 GPA; grade of B- or better in CS 5500 and enrollment in Computer Science master's or PhD program. (F)</p>	<p><b>CS 6890</b>                    <b>Topics in Computer Science (Topic)</b>                    <b>1-4®</b> Current topics in computer science as determined by advances in the field. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)</p>
<p><b>CS 6550</b>                    <b>Parallel Computing Systems</b>                    <b>3</b> Design of large-scale parallel systems. Explores machine organizations SIMD and/or MIMD modes of parallelism, emphasizing interconnection patterns among processors. Discussion of low-level parallel processing algorithms. Presents case studies of existing and proposed systems. Prerequisites: 3.0 GPA; grade of B- or better in CS 5500 and enrollment in Computer Science master's or PhD program. (F)</p>	<p><b>CS 6900</b>                    <b>Seminar</b>                    <b>1</b> Series of one-hour seminars on current research topics presented by computer science faculty. Graded Pass/Fail <i>only</i>. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F)<sup>DE</sup></p>
<p><b>CS 6600</b>                    <b>AI: Advanced Intelligent Systems</b>                    <b>3</b> Investigation of advanced techniques for creating intelligent systems. Covers machine learning, reasoning under uncertainty, decision making, natural language understanding, and advanced knowledge representation. Students develop projects in LISP and expert system shells. Prerequisites: 3.0 GPA; grade of B- or better in CS 5600 and enrollment in Computer Science master's or PhD program. (Sp)</p>	<p><b>CS 6950</b>                    <b>Directed Readings in Computer Science</b>                    <b>3®</b> Directed reading on advanced topics in computer science. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)<sup>DE</sup></p>
<p><b>CS 6630</b>                    <b>Fuzzy Logic and its Application</b>                    <b>3</b> Introduces students to machine learning and problem solving techniques based on fuzzy logic. Prerequisites: 3.0 GPA; grade of B- or better in CS 2420 and advanced standing, or instructor's permission; and enrollment in Computer Science master's or PhD program. (F)</p>	<p><b>CS 6970</b>                    <b>Thesis and Research</b>                    <b>1-9®</b> Graduate research in computer science. Graded Pass/Fail <i>only</i>. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)<sup>DE</sup></p>
<p><b>CS 6650</b>                    <b>Neural Networks*</b>                    <b>3</b> Advanced course in theories and techniques of machine intelligence, using neural networks. Emphasizes various neural network paradigms and the types of problems they are best suited to solve. Prerequisite: CS 2420 or permission of instructor. (Sp)<sup>DE</sup></p>	<p><b>CS 6990</b>                    <b>Continuing Graduate Advisement</b>                    <b>1-6®</b> Graded Pass/Fail <i>only</i>. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)<sup>DE</sup></p>
<p><b>CS 6655</b>                    <b>Evolutionary Computation</b>                    <b>3</b> In-depth analysis of the foundations of optimization techniques founded on evolutionary computation. Includes evolutionary algorithms, genetic algorithms, genetic programming, etc. Prerequisite: CS 2420 or permission of instructor. (Sp)</p>	<p><b>CS 7100</b>                    <b>Advanced MultiAgent Systems*</b>                    <b>3</b> Advanced topics in multiAgent systems, including algorithms for finding solutions, social welfare with preferences and utilities, multiAgent learning, and distributed search problems. Prerequisites: 3.0 GPA; grade of B- or better in CS 6100 (or permission of instructor) and enrollment in Computer Science master's or PhD program. (Sp)</p>
	<p><b>CS 7350</b>                    <b>Patterns in Computer Software Systems</b>                    <b>3</b> Investigates patterns in computer software systems and how they can be better cataloged, understood, and reused to improve development productivity and quality. Includes readings of current literature, writing research papers, and participation in group discussions. Prerequisites: 3.0 GPA; grade of B- or better in CS 5700 and enrollment in Computer Science master's or PhD program. (Sp)</p>

# Course Descriptions

<b>CS 7380</b>	<b>Software Testing*</b>	<b>3</b>
Explores current issues, including testing object-oriented software, test data generation and sufficiency, domain-based testing, functional testing, and code-based testing. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F)		
<b>CS 7460</b>	<b>Advances in Computer Security Research</b>	<b>3</b>
Covers recent research directions in computer security. Reviews current state of the field, and explores possible research directions for further work. Prerequisite: CS 6460 or permission of instructor. (F)		
<b>CS 7500</b>	<b>Fault-Tolerant Systems</b>	<b>3</b>
Advanced study of design and implementation of operating systems for fault-tolerant parallel and distributed systems. Topics chosen will provide students with knowledge of current research issues, practices, and techniques for the design and development of such systems. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (Sp)		
<b>CS 7550</b>	<b>Interconnection Networks for Parallel Computer Systems</b>	<b>3</b>
Explores the design of large-scale parallel processing systems generally suited for multi-microprocessor implementation. Emphasizes interconnection patterns among the processing elements in parallel processors. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F)		
<b>CS 7650</b>	<b>Advanced CVPRIP: Computer Vision, Pattern Recognition, and Image Processing</b>	<b>3</b>
Investigates new developments in representation and processing of gray-level and color images, including thresholding, segmentation, curve detection, etc. Also examines visual perception, as well as statistical and syntactical pattern classification. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (Sp)		
<b>CS 7660</b>	<b>Robotics and Autonomous Systems</b>	<b>3</b>
Surveys current advances in robotic and autonomous systems. Reviews current scientific literature in the field, with emphasis on understanding the problems solved and the approaches used. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F)		
<b>CS 7670</b>	<b>Data Mining and Machine Learning</b>	<b>3</b>
Covers cutting-edge research in machine learning, data mining, and intelligent information retrieval. Focuses on how these topics relate to data mining. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (Sp)		
<b>CS 7680</b>	<b>Advanced Computer Vision*</b>	<b>3</b>
Emphasizes current topics and research in the general area of computer vision. Focuses on detection, recognition, tracking, and analysis of human activity by using computer vision. Prerequisites: 3.0 GPA; grade of B- or better in CS 5650 and enrollment in Computer Science master's or PhD program. (Sp)		
<b>CS 7900</b>	<b>Seminar</b>	<b>2</b>
Series of lectures and presentations on current topics in computer science. Students participate by giving presentations. As part of the course, students are expected to prepare their dissertation proposal. Graded Pass/Fail <i>only</i> . Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (Sp)		
<b>CS 7910</b>	<b>Special Topics in Intelligent Systems (Topic)</b>	<b>3<sup>®</sup></b>
Discussion of current topics in intelligent systems, such as parallelism and software systems. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. Taught on demand. (F,Sp,Su)		
<b>CS 7920</b>	<b>Special Topics in Parallelism (Topic)</b>	<b>3<sup>®</sup></b>
Topics of current interest in the area of parallelism. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)		

<b>CS 7930</b>	<b>Special Topics in Software Systems (Topic)</b>	<b>3<sup>®</sup></b>
Topics of current interest in the area of software systems. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)		
<b>CS 7935</b>	<b>Topics in Mobile Systems</b>	<b>3</b>
Mobile computing devices are now ubiquitous. Computations and communications on such devices require a new computing paradigm and raise issues such as power-awareness, location-awareness, security, reliability, etc. This course explores mobile systems and issues pertaining to reliable operation. Prerequisites: CS 3100, 4700, and 5200; or permission of instructor. (F)		
<b>CS 7950</b>	<b>Reading and Reports</b>	<b>3<sup>®</sup></b>
Directed reading on cutting-edge topics in computer science. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)		
<b>CS 7960</b>	<b>Topics in Bioinformatics (Topic)</b>	<b>3</b>
Topics of current interest in bioinformatics. Prerequisite: Permission of instructor. (F,Sp,Su)		
<b>CS 7970</b>	<b>Dissertation Research</b>	<b>1-15<sup>®</sup></b>
PhD dissertation research. Graded Pass/Fail <i>only</i> . Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)		
<b>CS 7990</b>	<b>Continuing Graduate Advisement</b>	<b>1-6<sup>®</sup></b>
Continuing PhD-level advisement. Graded Pass/Fail <i>only</i> . Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>®</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*This course is taught alternating years. Check with department for information about when course will be taught.

## Dance West Summer, Dance Education (DE)

See *Department of Health, Physical Education and Recreation*, pages 296-303

<b>DE 1700</b>	<b>Jazz</b>	<b>1<sup>®</sup></b>
Provides training and experience in the styles of jazz, one of the popular forms of American dance. (Su)		
<b>DE 1800</b>	<b>Dance West Performance</b>	<b>1-3<sup>®</sup></b>
Students will learn dances to be performed in "The West: America's Odyssey." Prerequisite: Audition. (Su)		
<b>DE 1840</b>	<b>Beginning Classical Ballet</b>	<b>2<sup>®</sup></b>
A discipline in recognized classic form. Includes barre exercises, port de bras, and center practice in balance, jumping, and turns. (Su)		
<b>DE 1870</b>	<b>Beginning Classical Modern Dance</b>	<b>2<sup>®</sup></b>
Designed to develop coordination, ease, and poise in handling the body. Focuses on dance as an art using the body as a medium of expression. (Su)		
<b>DE 2850</b>	<b>Intermediate Classical Ballet</b>	<b>2<sup>®</sup></b>
Barre exercises, port de bras, and center practice in balance, jumps, beats, and turns with more emphasis on exactness and precision of line. Prerequisite: One year of ballet or permission of instructor. (Su)		
<b>DE 2880</b>	<b>Intermediate Classical Modern Dance</b>	<b>2<sup>®</sup></b>
Stresses alignment of the skeletal structure, freedom and movement of the torso, and technical work enabling the dancer to secure the natural axis of balance. Prerequisite: One year modern dance or permission of instructor. (Su)		

**DE 3800 Advanced Ballet 3<sup>®</sup>**  
Pointe and Pas de Deux. Intensified center floor work concentrating on longer adagio and allegro combinations. Prerequisite: Five years of ballet or permission of instructor. (Su)

**DE 4500 American Character Ballet 3<sup>®</sup>**  
History through movement from seventeenth century European dance through contemporary styles. (Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

## Electrical and Computer Engineering (ECE)

See Department of Electrical and Computer Engineering, pages 236-242

**ECE 1000 Introduction to Electrical and Computer Engineering 2**  
Basic concepts and techniques for electrical and computer engineering majors. Introduction to analog and digital electronics with fundamental laboratory skills. One lecture and one lab. Prerequisites: MATH 1050 and 1060; or AP Calculus score of at least 3 on the AB test; or Math ACT score of at least 27. Enrollment limited to electrical engineering and computer engineering majors *only*. (F)

**ECE 2250 Electrical Circuits 4**  
Introduction to electrical circuits and basic circuit elements. Circuit theory, analysis techniques, and introduction to design. DC analysis. First-order inductive and capacitive circuits. Operational amplifiers. AC steady-state analysis. Introduction to computer-aided design and analysis. Three lectures, one lab. Prerequisites: MATH 2270, 2280. (F,Sp)

**ECE 2700 Digital Circuits 4**  
Design of combinational and sequential logic circuits with discrete and programmable logic devices. Simulations and timing analysis. Use of CAD tools. Design of digital systems. Three lectures, one lab. Prerequisite: Minimum grade of C- in CS 1400. (F,Sp)

**ECE 3260 DSC/QI Science of Sound 3**  
Applications of principles of acoustics (study of sound) to everyday life. Explores physical acoustics, psychoacoustics, musical acoustics, and architectural acoustics. Uses algebra and reasoning to solve problems in acoustics. Prerequisite: Grade of C- or better in MATH 1050 or Math ACT score of at least 23. This course is *not currently being taught*. For information about when it may be taught, contact the Electrical and Computer Engineering Department.

**ECE 3410 Microelectronics I 4**  
Fundamentals of transistors, operational amplifiers, and other integrated circuits, along with their utilization in amplifiers, switches, and other applications. Laboratory work required. Prerequisite: ECE 2250. Prerequisite or corequisite: ECE 3620. (Sp)<sup>DE</sup>

**ECE 3620 Circuits and Signals 3**  
Continuation of basic circuit concepts. Second-order response, time-domain analysis of higher-order systems. Impulse response and convolution. Transform domain analysis of circuits and other systems. Some lab and computational work required. Prerequisites: MATH 2270, 2280, ECE 2250, CS 1410, PHYS 2220 (may be taken concurrently). (F)<sup>DE</sup>

**ECE 3640 Signals and Systems 3**  
Systems realizations. Time and transform domain analysis of discrete-time systems. Vector-space concepts and Fourier series. Fourier transforms in continuous and discrete time. Some lab and computational work required. Prerequisite: ECE 3620. (Sp)<sup>DE</sup>

**ECE 3710 Microcomputer Hardware and Software 4**  
Synthesis of microcomputer systems, including interfacing, component analysis, signaling requirements, and programming. Covers architecture basics, including instruction sets, assembly language programming, loading, timing, and interrupts. Includes hands-on implementation. Three lectures, one lab. Prerequisites: ECE 2250, 2700, CS 1410. (F,Sp)<sup>DE</sup>

**ECE 3720 Microcomputer Systems Programming 3**  
Advanced assembly language and systems programming concerned with performance and I/O. Study of modern computer architecture issues, such as caching, pipelining, concurrent instruction execution, memory access time, and role and structure of device drivers. Prerequisite: ECE 3710. (Sp)<sup>DE</sup>

**ECE 3810 Engineering Professionalism 1**  
Introduces students to life as an engineer, including: the design process, working in teams, understanding professional and ethical responsibility, the impact of engineering on society, and the need for continued professional development. Also includes discussion of how engineering meets the contemporary needs of society. (F,Sp)

**ECE 3860 Transmission Lines 1**  
Covers transmission line analysis and high frequency effects, including reflections, standing waves and interference, VSWR, crosstalk, and coupling. Intended to be taken by computer engineers. Meets simultaneously with ECE 3870 during the first five weeks of the semester. Prerequisites: ECE 2250, PHYS 2220, MATH 2250. This course is not currently being offered. For information about when it may be offered, contact the department.

**ECE 3870 Electromagnetics I 4**  
Discussion of Maxwell's equations, electromagnetic waves, power and energy, reflection and refraction processes, transmission lines, waveguides, and antennas. Explores electrostatic and magnetostatic fields produced by charge and current distributions, as well as electromagnetic forces and materials. Prerequisites: ECE 2250, MATH 2210, 2270, 2280, PHYS 2220. (Sp)<sup>DE</sup>

**ECE 4250 Internship/Co-op 3<sup>®</sup>**  
Planned, career-related work experience in industry. Students must register with USU Co-op Office and have program approved by the ECE co-op advisor. Written report required. Graded Pass/Fail *only*. Prerequisite: Professional standing. (F,Sp,Su)

**ECE 4650 Optics I 3**  
**(dual listing 6650)**  
Topics include mathematics of wave motion, electromagnetic theory of light, light propagation, geometrical optics, and superposition of waves. For graduate (6000-level) credit, additional reading, recitation, use of optical-design software, and/or writing will be required. Also taught as PHYS 4650/6650. Prerequisite: ECE 3870. (F)

**ECE 4680 Optics II 3**  
**(dual listing 6680)**  
Topics include polarization, interference, diffraction, Fourier optics, coherence theory, and the quantum nature of light. For graduate (6000-level) credit, additional reading, recitation, use of optical-design software, and/or writing will be required. Prerequisite: PHYS/ECE 4650 or PHYS/ECE 6650. Also taught as PHYS 4680/6680. (Sp)

**ECE 4740 Computer and Data Communications 3**  
Systems approach to computer and data communications. Includes transmission lines, hardware controllers, computer interfaces, and protocols relating to local and wide area networks. (F)

**ECE 4840 CI Engineering Design 3**  
Individual or team engineering project, including design, development, and testing. Interdisciplinary projects strongly encouraged. Design reviews and written progress reports required. Prerequisite: ECE 3810. (F,Sp)

**ECE 4850 CI Engineering Communications 2**  
Includes a written proposal and project report, oral design reviews, presentation graphics, and project presentation. Must be taken concurrently with a senior-level capstone design course. Prerequisite: ECE 3810. (F,Sp)

**ECE 4930 Special Studies for Undergraduates 1-3<sup>®</sup>**  
Independent or group study of engineering problems not covered in regular course offerings. (F,Sp,Su)<sup>DE</sup>

**ECE 5230 Spacecraft Systems Engineering 3**  
Spacecraft communications, telemetry systems, and command and data handling. Introduction to astrodynamics and orbit design. Electrical power generation and storage. Spacecraft subsystems (e.g., guidance, navigation, and control). Prerequisites: MATH 2270, 2280. (F)

# Course Descriptions

<p><b>ECE 5240</b>                    <b>Space System Design</b>                    <b>3</b> Students in teams perform a space system design involving all aspects, including technical, cost, and schedule. Class is linked to national design competitions and/or current USU spacecraft design projects. Prerequisite: ECE 5230 or MAE 5520. Also taught as MAE 5530. (Sp)</p> <p><b>ECE 5310</b>                    <b>Control Systems</b>                    <b>3</b> Study of analog and computer controlled systems, classical and modern control system design methods, s-domain and z-domain transfer function models, state space, dynamics of linear systems, and frequency domain analysis and design techniques. Introduction to controllability and observability, and full-state pole placement controller design. Laboratory work required. Prerequisite: ECE 3640. (F)</p> <p><b>ECE 5320</b>                    <b>Mechatronics</b>                    <b>4</b> Principles, modeling, interfacing, and signal conditioning of motion sensors and actuators. Hardware-in-the-loop simulation and rapid prototyping of real-time closed-loop computer control of electromechanical systems. Modeling, analysis, and identification of discrete-time or sampled-data dynamic systems. Commonly used digital controller design methods. Introduction to nonlinear effects and their compensation in mechatronic systems. Laboratory work and a design project required. Three lectures and one lab. Prerequisite: ECE 5310. (Sp)</p> <p><b>ECE 5340</b>                    <b>Mobile Robots</b>                    <b>4</b> Hardware, including embedded processors, sensors, DC motors, interface electronics, wheeled platforms, and battery power. Software, including low-level device drivers and mobile robot simulation. Algorithms, including reactive and planning approaches. Advanced sensors. Mobile robot kinematics, dynamics, and control. A project is required. Prerequisite: ECE 3640. (F)</p> <p><b>ECE 5410</b>                    <b>Semiconductor Devices</b>                    <b>3</b> Introduction to semiconductor physics and devices. Students receive an introduction to the operation of the most important devices used in integrated circuit technology. Emphasis placed on understanding device operation. (F) <sup>DE</sup></p> <p><b>ECE 5420</b>                    <b>Microelectronics II</b>                    <b>3</b> Design of electronic circuits for applications in instrumentation, communication, control, and power systems. Prerequisite: ECE 3410. (F)</p> <p><b>ECE 5430</b>                    <b>Applied CMOS Electronics</b>                    <b>3</b> <b>(dual listing 6430)</b> Analysis, design, and application of digital and analog MOS integrated circuits in electronic systems. Includes device-level VLSI, fabrication technology, and semiconductor device physics. Prerequisites: ECE 3410 and 5530. (Sp) <sup>DE</sup></p> <p><b>ECE 5440</b>                    <b>Analog VLSI I</b>                    <b>3</b> Introduces design principles and techniques for fully-integrated CMOS analog circuits. Topics include advanced MOSFET device modeling, design and verification of operational amplifiers, and switched-capacitor circuits. Prerequisite: ECE 5420. (Sp)</p> <p><b>ECE 5460</b>                    <b>Digital VLSI System Design I</b>                    <b>3</b> <b>(dual listing 6460)</b> Team-oriented design of large digital systems using hardware description languages. Schematic capture and standard-cell libraries. Behavioral system modeling and simulation. Preparation of behavioral models for floor-planning, testability, and design synthesis. Extensive use of CAD tools. Design project. Prerequisite: ECE 5530. (Sp) <sup>DE</sup></p> <p><b>ECE 5470</b>                    <b>Digital VLSI System Design II</b>                    <b>3</b> <b>(dual listing 6470)</b> Continuation of ECE 5460/6460. Logic synthesis, timing analysis, and structural simulation and back annotation. Design refinement to the point of final mask artwork production. Design validation through LVS, DRC, and gate-level or device-level simulation. Formal methods of circuit verification. Extensive use of CAD tools. Design project. Prerequisite: ECE 5460/6460. (F)</p> <p><b>ECE 5480</b>                    <b>Electromagnetic Compatibility*</b>                    <b>3</b> Introduces concepts and techniques of electromagnetic compatibility to students who will be designing and working with high-speed electronic systems. Prerequisites: ECE 3640, 3870. (Sp)</p> <p><b>ECE 5530</b>                    <b>Digital System Design</b>                    <b>3</b> Presents modern top-down, bottom-up approach to design of digital systems, emphasizing programmable devices. Extensive use of CAD tools. Designing with</p>	<p>ABEL, and introduction to designing with Verilog HDL. Laboratory work required. Prerequisite: ECE 2700. (F,Sp) <sup>DE</sup></p> <p><b>ECE 5630</b>                    <b>Introduction to Digital Signal Processing</b>                    <b>3</b> Theory and principles of digital signal processing, including discrete-time signals and systems, Z-Transforms, Fourier analysis, FIR and IIR digital filter design, discrete Fourier transforms, and multi-rate processing. Laboratory work required. Prerequisite: ECE 3640. (F) <sup>DE</sup></p> <p><b>ECE 5640</b>                    <b>Real-Time Processors*</b>                    <b>4</b> Real-time processor architectures and methods used for digital signal processing. Includes C and assembly language programming, modern DSP architectures, tools for real-time system development, and finite word-length effects. Laboratory includes implementation of hardware-based real-time systems. Three lectures, one lab. Prerequisites: ECE 3640 and 3710. (Sp)</p> <p><b>ECE 5660</b>                    <b>Communication Systems I</b>                    <b>3</b> Explores fundamentals of analog and digital communication systems. Focuses on modulation, demodulation, detection, and synchronization. Prerequisites: ECE 3640 and MATH 5710; or graduate standing. (Sp) <sup>DE</sup></p> <p><b>ECE 5740</b>                    <b>Concurrent Programming</b>                    <b>3</b> Analysis of problems associated with the use of multiple threads and processes (e.g., deadlock, livelock, and starvation) and methods for avoiding them. Proper usage of synchronization operations (mutual exclusion, critical sections, semaphores, and monitors) and communication operations (message passing, remote procedure calls, remote method invocation, and rendezvous). Extensive programming exercises in C and JAVA. Taught on demand.</p> <p><b>ECE 5750</b>                    <b>High-Performance Microprocessor Architecture</b>                    <b>3</b> Modern architecture fundamentals, instruction set analysis and design, pipelined and superscalar architectures, software-hardware interaction, memory hierarchy, and virtual memory stresses processor-specific low-level code optimization. Prerequisite: ECE 3710 or equivalent. (Sp) <sup>DE</sup></p> <p><b>ECE 5770</b>                    <b>Microcomputer Interfacing</b>                    <b>4</b> Design of hardware and software interfaces to microcomputers for instrumentation and control applications. Three lectures, one lab. Prerequisite: ECE 3710. (Sp)</p> <p><b>ECE 5780</b>                    <b>Real-Time Systems</b>                    <b>4</b> Real-time system design and implementation of basic concepts, including interrupts and controllers, context switch, concurrent processes, semaphores, message passing, rate monotonic and deadline scheduling, hardware system design and test issues, and typical engineering practice. Includes hands-on implementation. Three lectures, one lab. (F) <sup>DE</sup></p> <p><b>ECE 5800</b>                    <b>Electromagnetics II</b>                    <b>3</b> General plane wave solution of Maxwell's equations, potential functions, radiation, 2-D solution to Laplace's equation, and fundamental electromagnetic theory. Prerequisite: ECE 3870. (F)</p> <p><b>ECE 5810</b>                    <b>Microwaves I</b>                    <b>3</b> Impedance matching, microwave network analysis, waveguides, nonlinear elements, analysis and design of power dividers, filters, and ferromagnetic circuits. Laboratory work required. Prerequisite: ECE 3870. (Sp)</p> <p><b>ECE 5820</b>                    <b>Electromagnetics Laboratory*</b>                    <b>3</b> Measurement theory, practice, and safety. Design and characterization of microwave filters, amplifiers, and antennas. Also includes practical considerations. Prerequisites: ECE 3870 and 5420; or equivalent. (F)</p> <p><b>ECE 5850</b>                    <b>Antennas I</b>                    <b>3</b> Theory and application of electromagnetic radiation and radiating structures. Emphasis on antenna designs for modern wireless communications and radar systems. Prerequisite: ECE 3870. (F)</p> <p><b>ECE 5870</b>                    <b>Wireless Communication and Laboratory*</b>                    <b>3</b> Characteristics of the physical channel, fading and multipath, frequency reuse, interference, and system capacity. Equalization, diversity, and channel coding. Laboratory experiments focus on design issues and tradeoffs in a wireless communication system. Prerequisite: ECE 3710 or 3870. (F)</p>
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# Course Descriptions

<b>ECE 5930</b>	<b>Special Topics in Electrical and Computer Engineering</b>	<b>1-4<sup>®</sup></b>	Independent or group study of engineering problems not covered in regular course offerings. (F,Sp,Su)
<b>ECE 6010</b>	<b>Stochastic Processes in Electronic Systems</b>	<b>3</b>	Introduction to stochastic processes in communications, signal processing, digital and computer systems, and control. Topics include continuous and discrete random processes, correlation and power spectral density, optimal filtering, Markov chains, and queuing theory. Prerequisite: Graduate status. (F) <sup>DE</sup>
<b>ECE 6030</b>	<b>Mathematical Methods for Signals and Systems</b>	<b>3</b>	Signal representation using vector spaces. Linear algebraic techniques for signal modeling and estimation. Optimal detection and estimation algorithms, with applications. Prerequisite: Graduate status. (Sp) <sup>DE</sup>
<b>ECE 6240</b>	<b>Space Environment and Engineering</b>	<b>3</b>	Study of space environment and models used for engineering analysis. Topics include considerations for engineering in the space environment, such as plasma interactions, debris, chemical reactions, radiation effects, and thermal issues. Prerequisites: MATH 2270, 2280. Corequisite: ECE 5230. Also taught as PHYS 6240. (F)
<b>ECE 6250</b>	<b>Graduate Internship/Co-op</b>	<b>1-3</b>	Planned work experience in industry. Detailed program; must have prior approval. Written report required. Graded Pass/Fail <i>only</i> . Prerequisite: Permission of instructor. (F,Sp,Su)
<b>ECE 6320</b>	<b>Linear Multivariable Control</b>	<b>3</b>	Modeling, analysis, and design of multi-input, multi-output control systems, including both state space and transfer matrix approaches, with an emphasis on stability. Prerequisite: ECE 5310 or MAE 5310. Also taught as MAE 6320. (F) <sup>DE</sup>
<b>ECE 6340</b>	<b>Spacecraft Attitude Control</b>	<b>3</b>	Spacecraft attitude dynamics and controls. Spin stabilized, three axis, and dual spin modes. Attitude determination techniques. Prerequisite: ECE 5310 or MAE 5310. Also taught as MAE 6340. (Sp)
<b>ECE 6350</b>	<b>Robotics</b>	<b>3</b>	Fundamentals of robotic systems, including kinetics, kinematics, sensors, actuators, control algorithms, motion planning, and computer systems. Integration of critical design components to develop complete systems. Robotic manipulator analysis and design. Applications in manufacturing. Mobile robots, including wheeled, legged, and alternative locomotion robots. Prerequisite: ECE/MAE 6320 or instructor approval. Also taught as MAE 6350. (Sp) <sup>DE</sup>
<b>ECE 6430</b> <b>(dual listing 5430)</b>	<b>Applied CMOS Electronics</b>	<b>3</b>	Analysis, design, and application of digital and analog MOS integrated circuits in electronic systems. Includes device-level VLSI, fabrication technology, and semiconductor device physics. Prerequisites: ECE 3410 and 5530. (Sp) <sup>DE</sup>
<b>ECE 6440</b>	<b>Analog VLSI II</b>	<b>3</b>	Project-oriented course, focusing on design and verification of manufacturable analog integrated circuits. Whenever possible, student projects developed for fabrication and testing. Advanced lecture topics include voltage references, ESD protection circuits, oscillators, and phase-locked loop design. Prerequisite: ECE 5440. (F)
<b>ECE 6460</b> <b>(dual listing 5460)</b>	<b>Digital VLSI System Design I</b>	<b>3</b>	Team-oriented design of large digital systems using hardware description languages. Schematic capture and standard-cell libraries. Behavioral system modeling and simulation. Preparation of behavioral models for floor-planning, testability, and design synthesis. Extensive use of CAD tools. Design project. Prerequisite: ECE 5530. (Sp) <sup>DE</sup>
<b>ECE 6470</b> <b>(dual listing 5470)</b>	<b>Digital VLSI System Design II</b>	<b>3</b>	Continuation of ECE 6460/5460. Logic synthesis, timing analysis, and structural simulation and back annotation. Design refinement to the point of final mask artwork production. Design validation through LVS, DRC, and gate-level or device-level simulation. Formal methods of circuit verification. Extensive use of CAD tools. Design project. Prerequisite: ECE 6460/5460. (F)
<b>ECE 6490</b>	<b>Radar I</b>	<b>3</b>	Emphasizes the system aspects of radar. After introducing the basic concepts of radar, methods for the prediction of radar performance are developed and the principles of CW, FM, MTI, and tracking radars are presented. Prerequisites: ECE 3640 and 5800 or equivalent knowledge. Taught on demand.
<b>ECE 6560</b>	<b>Spacecraft Navigation</b>	<b>3</b>	Fundamentals of aircraft and spacecraft navigation systems. Techniques in celestial and inertial navigation. Global Positioning System (GPS) principles. Least squares estimation and Kalman filtering for optimal estimation of stochastic systems. Prerequisite: MAE 5310 or ECE 5310 or equivalent. Also taught as MAE 6560. (Sp)
<b>ECE 6600</b>	<b>Computer Networking I</b>	<b>3</b>	Topics include network topology, flow, capacity and queuing analysis, detailed description of the standard layers, and specific networking systems, including local area networks. Some lab work included. (F) <sup>DE</sup>
<b>ECE 6620</b>	<b>Introduction to Digital Image Processing*</b>	<b>3</b>	Digital processing theory and techniques for two-dimensional signals. Topics include two-dimensional transforms, image perception, sampling, modeling, enhancement, and data compression. Prerequisite: ECE 5630. (Sp)
<b>ECE 6650</b> <b>(dual listing 4650)</b>	<b>Optics I</b>	<b>3</b>	Topics include mathematics of wave motion, electromagnetic theory of light, light propagation, geometrical optics, and superposition of waves. For graduate (6000-level) credit, additional reading, recitation, use of optical-design software, and/or writing will be required. Also taught as PHYS 6650/4650. Prerequisite: ECE 3870. (F)
<b>ECE 6670</b>	<b>Communication Systems II</b>	<b>3</b>	Communication over bandlimited channels, equalization, multiple antenna systems, space-time codes, spread spectrum, CDMA, OFDM. Prerequisites: ECE 5660, 6010, 6030. (F)
<b>ECE 6680</b> <b>(dual listing 4680)</b>	<b>Optics II</b>	<b>3</b>	Topics include polarization, interference, diffraction, Fourier optics, coherence theory, and the quantum nature of light. For graduate (6000-level) credit, additional reading, recitation, use of optical-design software, and/or writing will be required. Prerequisite: PHYS/ECE 4650 or PHYS/ECE 6650. Also taught as PHYS 6680/4680. (Sp)
<b>ECE 6750</b>	<b>Concurrent Systems Engineering I*</b>	<b>3</b>	Reliable and efficient software design for multiprocessor and multithreaded applications on real-time or embedded systems. Use of CASE tools to develop substantial concurrent programs for single and multiprocessor systems. Prerequisite: BS degree in Electrical and Computer Engineering or Computer Science. Taught on demand.
<b>ECE 6760</b>	<b>Fault-tolerant Systems*</b>	<b>3</b>	Methods for design and implementation of fault-tolerant computer systems, emphasizing small real-time and embedded applications. Detection, assessment, confinement, and treatment of faults. Checkpointing, rollback, and secure protocols. Fault-tolerance on distributed systems. Prerequisite: BS degree in Electrical and Computer Engineering or Computer Science. Taught on demand.
<b>ECE 6780</b>	<b>Device Drivers</b>	<b>3</b>	Design and implementation of UNIX and Windows device drivers. Includes hardware/software design tradeoffs in light of modern operating systems. Students implement working device drivers. Prerequisite: ECE 5780. Taught on demand.
<b>ECE 6800</b>	<b>Electrical Engineering Colloquium</b>	<b>0.5<sup>®</sup></b>	Weekly seminars or colloquia. Students are normally required to enroll for two semesters. Graded Pass/Fail <i>only</i> . (F,Sp) <sup>DE</sup>
<b>ECE 6830</b>	<b>Microwaves II*</b>	<b>3</b>	Microwave amplifier design for noise, gain, and power match; microwave semiconductor and vacuum-tube devices; microwave oscillators; and microwave system performance characterization. Laboratory work required. Prerequisite: ECE 5810 or equivalent. (F)



# Course Descriptions

<b>ECE 6930</b>	<b>Special Topics in Electrical Engineering 1-6<sup>®</sup></b>	
Independent or group study in electrical engineering topics, such as automated systems, optics and laser engineering, electro-acoustics, solid-state materials, devices, and intelligent systems engineering. (F,Sp,Su)		
<b>ECE 6950</b>	<b>Design Project</b>	<b>3<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>ECE 6970</b>	<b>Thesis Research, MS</b>	<b>1-6<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>ECE 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-6<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . Prerequisite: Permission of Electrical and Computer Engineering Department. (F,Sp,Su)		
<b>ECE 7030</b>	<b>Detection and Estimation Theory*</b>	<b>3</b>
Foundations of detection theory, including Neyman-Pearson, Bayes, and Minimax Bayes detection. Maximum likelihood and Bayes estimation theory. Recursive estimation and Kalman filtering and smoothing. Expectation maximization and hidden Markov models. Prerequisites: ECE 6010, 6030. (F)		
<b>ECE 7210</b>	<b>Spacecraft Instrumentation*</b>	<b>3</b>
Theory, engineering, and data reduction techniques of spacecraft instrumentation for space science and spacecraft systems. Prerequisite: ECE/PHYS 6240. Also taught as PHYS 7210. (Sp)		
<b>ECE 7330</b>	<b>Nonlinear and Adaptive Control</b>	<b>3</b>
Methods of nonlinear and adaptive control system design and analysis. Includes qualitative and quantitative theories, graphical methods, frequency domain methods, sliding surface design, linear parameter estimation methods, and direct and indirect adaptive control techniques. Prerequisite: ECE/MAE 6320. Also taught as MAE 7330. (Sp)		
<b>ECE 7350</b>	<b>Intelligent Control Systems*</b>	<b>3</b>
Intelligent control strategies, including neural network, fuzzy logic, associated memory networks, and rule-based control systems. Prerequisite: ECE/MAE 6320 or instructor approval. Also taught as MAE 7350. (Sp)		
<b>ECE 7360</b>	<b>Optimal and Robust Control*</b>	<b>3</b>
Advanced methods of control system analysis and design. Operator approaches to optimal control, including LQR, LQG, and L1 optimization techniques. Robust control theory, including QFT, H-infinity, and interval polynomial approaches. Prerequisite: ECE/MAE 6320 or instructor approval. Also taught as MAE 7360. (F)		
<b>ECE 7390</b>	<b>Topics in Controls</b>	<b>3</b>
Topics selected from advanced control theory. Taught on demand.		
<b>ECE 7440</b>	<b>Mixed-Signal VLSI Systems</b>	<b>3</b>
Covers specification, design, and verification of integrated systems with both analog and digital components. Particular emphasis given to data converter circuits (ADC and DAC), focusing on current research problems in the field. Prerequisite: ECE 5440. (F)		
<b>ECE 7610</b>	<b>Computer Networking II</b>	<b>4</b>
Advanced TCP/IP protocols, routing strategies, major applications. Details of Unix systems for advanced use of BSD sockets and TLI/Streams. Prerequisite: ECE 6600. (Sp)		
<b>ECE 7620</b>	<b>Advanced Digital Image Processing*</b>	<b>3</b>
Advanced digital processing theory and techniques. Topics include image restoration, image reconstruction from projections (computed tomography), and data compression. Prerequisites: ECE 6010, 6620. (F)		
<b>ECE 7630</b>	<b>Advanced Digital Signal Processing*</b>	<b>3</b>
Advanced digital signal processing theory and methods. Topics include optimal filter design (Wiener and Kalman filters), adaptive filtering, spectral estimation, and beamforming. Prerequisites: ECE 5630, 6010. (F)		
<b>ECE 7640</b>	<b>Topics in Signal Processing</b>	<b>3</b>
Topics in advanced signal or image processing. Taught on demand.		
<b>ECE 7670</b>	<b>Coding Theory and Practice in Communication*</b>	<b>3</b>
Examination of codes employed in digital communications, including discussion of error correction codes over finite fields. Reed-Solomon, convolutional, and		
trellis coding. Advanced coding techniques. Prerequisite: ECE 6010 or 6030. Prerequisite or corequisite: ECE 5660. (F)		
<b>ECE 7690</b>	<b>Topics in Communication Theory</b>	<b>3</b>
Topics selected from advanced communication theory. Taught on demand.		
<b>ECE 7710</b>	<b>Concurrent Systems Engineering II*</b>	<b>3</b>
Advanced work on the development of reliable and correct concurrent systems, including those with time constraints. Substantial experience with CASE tools and application development. Prerequisite: ECE 6750. (F)		
<b>ECE 7730</b>	<b>Reconfigurable Computing</b>	<b>3</b>
Advanced study of reconfigurable computing fabrics, design automation algorithms related to FPGAs, and embedded hardware-software co-designed on FPGAs. Topics discussed and project implementations teach students state-of-the-art skills in digital, embedded hybrid processor design. Prerequisite: ECE 5530. (F)		
<b>ECE 7750</b>	<b>Distributed Control Systems*</b>	<b>3</b>
Design and implementation issues concerning distributed control systems. Real-time processing, distributed stability methods, network techniques and standards, system development and management, smart sensors, and control actuators. Survey of current literature. Prerequisite: ECE/MAE 6320. Also taught as MAE 7750. (Sp)		
<b>ECE 7760</b>	<b>Advanced Topics in Distributed Systems</b>	<b>3</b>
Advanced topics in parallel and distributed computing, emphasizing small-scale real-time and embedded systems. Prerequisite: ECE 6750. Taught on demand.		
<b>ECE 7770</b>	<b>Advanced Topics in Real-Time Systems</b>	<b>3</b>
Topics in real-time systems, such as scheduling analysis, adaptive scheduling, multiprocessor systems, fault tolerance, etc. Also design and implementation of real-time operating systems. Prerequisite: ECE 5780. Taught on demand.		
<b>ECE 7780</b>	<b>Model-Based Embedded Software</b>	<b>3</b>
Topics include: Modeling, model-based tool development, examination of current embedded systems design tools, real-time operating systems, and formal methods for embedded system analysis. Surveys current literature in embedded systems. Prerequisite: ECE 5780 or permission of instructor. (Sp) <sup>DE</sup>		
<b>ECE 7850</b>	<b>Antennas II*</b>	<b>3</b>
Topics include: apertures, reflectors and lens, finite and infinite arrays, broadband antennas, Fresnel Fraunhofer regions, and Huygens' principle. Concepts for synthetic aperture radar and radar cross section. Prerequisites: ECE 5800 and 5850. (Sp)		
<b>ECE 7860</b>	<b>Computational Electromagnetics*</b>	<b>3</b>
Topics selected from advanced numerical methods including: finite element, finite difference, and moment method for solving differential and integral equations of electromagnetic radiation and scattering problems. Programming in C/C++ or MatLab required. Prerequisite: ECE 5800. (Sp)		
<b>ECE 7890</b>	<b>Topics in Electromagnetics</b>	<b>3</b>
Topics selected from advanced electromagnetics, microwave, and radar fields. Taught on demand.		
<b>ECE 7930</b>	<b>Special Topics in Electrical Engineering</b>	<b>1-6<sup>®</sup></b>
Independent or group study in electrical engineering topics, such as automated systems, laser engineering, electroacoustics, solid-state materials, devices, and intelligent systems engineering. (F,Sp,Su)		
<b>ECE 7970</b>	<b>Dissertation Research</b>	<b>1-12<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>ECE 7990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Prerequisite: Permission of Electrical and Computer Engineering Department. Graded Pass/Fail <i>only</i> . (F,Sp,Su)		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*This course is taught alternating years. Check with department for information about when course will be taught.

## Economics (ECN)

See *Department of Economics and Finance*, pages 230-233

**Note:** Effective Fall Semester 2009, courses previously listed under the ECON prefix will be taught under *either* the ECN prefix *or* the Applied Economics (APEC) prefix. (APEC courses are shown on pages 499-501.) Students registering for Summer Semester 2009 Economics courses can find them under the ECON prefix by logging into Access at: <http://www.usu.edu/myusu/>

### **ECN 1500 BAI Introduction to Economic Institutions, History, and Principles 3**

Designed to build an understanding of economic institutions, history, and principles. Relationship between private and public sectors of U.S. economy. Analysis of major economic institutions, such as property rights, markets, business organizations, labor unions, money and banking, trade, and taxation. No prerequisites. (F,Sp,Su) <sup>DE</sup>

### **ECN 2010 BSS Introduction to Microeconomics 3**

Designed to build an understanding of the economics of the marketplace from the perspectives of individual consumer and producer or business. Development and application of microeconomic principles to demonstrate the role and limitations of competitive markets in motivating socially efficient consumer, business, and public sector choices. Prerequisite: ECN 1500. Also taught as APEC 2010. (F,Sp,Su) <sup>DE</sup>

### **ECN 3010 DSS Managerial Economics 3**

Microeconomic principles applied to economic decision-making and policy formulation, with emphasis at the level of business firm and the individual consumer. Designed for undergraduate business and accounting majors. Credit will not be given for both ECN 3010 and ECN/APEC 4010. Prerequisites: ECN/APEC 2010, MATH 1100, STAT 2300. (F,Sp) <sup>DE</sup>

### **ECN 3170 Law and Economics 3**

Explains legal and political rules, the organization of government, and other institutional processes. Uses standard microeconomic tools and concepts, such as scarcity, choice, preferences, incentives, and supply and demand. Prerequisite: POLS 1100. Also taught as POLS 3170. (Sp)

### **ECN 3300 Contemporary Issues in International Trade 3**

Examines interrelated economic, political, and social issues faced by institutions and individuals at various points in the trade process. Prerequisite: Admission to Huntsman Scholars Junior Year Program. Also taught as MGT 3300. (F)

### **ECN 3400 DSS International Economics for Business 3**

Primary issues in international economics as applied to contemporary business problems. Topics include trade patterns and policies, capital markets, and technology transfer. Prerequisite: ECN/APEC 2010. (F,Sp,Su) <sup>DE</sup>

### **ECN 4010 Intermediate Microeconomics 3**

Analysis of behavior of consumers and business firms. Application of theory to the solution of real world problems. Credit will not be given for both ECN 3010 and ECN/APEC 4010. Prerequisites: ECN/APEC 2010, MATH 1100, and STAT 2300. Also taught as APEC 4010. (Sp)

### **ECN 4020 Intermediate Macroeconomics 3**

Analysis of underlying causes of unemployment, economic instability, inflation, and economic growth. Prerequisite: ECN 1500. (F,Sp) <sup>DE</sup>

### **ECN 4310 QI Mathematical Methods in Economics and Finance I 3**

Covers single-variable and multi-variable calculus, exponents and logarithms, linear algebra, and implicit functions. These concepts find economics applications in the theory of the firm, time value of money, IS-LM macro modeling, and more. Prerequisites: ECN/APEC 2010 and MATH 1100. (F)

### **ECN 4900 Independent Reading and Research 1-3<sup>®</sup>** (F,Sp,Su)

**ECN 4950 Senior Honors Thesis/Project 3**  
Creative project that will then be written up, and presented, as a Senior Thesis as required for an Honors Plan. (Sp)

### **ECN 4990 Senior Seminar 1-3<sup>®</sup>**

Introduces students to current research and special topics in economics. (F,Sp)

### **ECN 5000 Advanced Macroeconomic Topics 3**

Covers advanced topics in macroeconomics. Exact topics depend on recent developments in the macroeconomic discipline, the research and teaching expertise of the faculty, and the current state of the macroeconomy, both inside and outside of the U.S. Focuses on studying the most recent developments in macroeconomic theory and applying the theory to the pressing problems in the contemporary macroeconomy. Prerequisite: ECN 4020. (F)

### **ECN 5100 History of Economic Thought 3**

Origin and development of economic theories of leading thinkers in western civilization. Prerequisite: ECN/APEC 2010. (Sp)

### **ECN 5110 DSS Economic History of the United States 3**

Development of agriculture, industry, transportation, and finance from colonial times. Prerequisite: ECN/APEC 2010. (F)

### **ECN 5150 DSS Comparative Economic Systems 3**

History, economic theories, and comparative policies of communist, socialist, and capitalistic economies. Problems facing transition economies. Prerequisite: ECN/APEC 2010. (F) <sup>DE</sup>

### **ECN 5200 Money and Banking 3**

Covers financial markets and the determination of interest rates and asset prices; the money supply process; the structure of the Federal Reserve System and the goals of the Federal Open Market Committee; other topical central banking issues; and the effects of monetary policy on output, interest rates, inflation, unemployment, financial markets, and exchange rates. Prerequisite: ECN 4020. (F)

### **ECN 5300 Industrial Organization—Game Theory 3**

Emphasizes market structure, firm conduct, and economic efficiency. Topics include competition, game theory, monopoly, oligopoly, monopolistic competition, firm strategies, and anti-trust policy in the United States. Prerequisites: ECN/APEC 4010 and ECN 4020. (F)

### **ECN 5310 QI Mathematical Methods in Economics and Finance II 3**

Covers constrained optimization, unconstrained optimization, integral calculus, differential equations, probability theory, and other related topics. These concepts find application in the theory of the firm, the theory of the consumer, game theory, least squares regression analysis, portfolio theory, asset pricing, insurance contracts, choice under uncertainty, and more. Prerequisite: ECN 4310. (Sp) <sup>DE</sup>

### **ECN 5330 QI Applied Econometrics 3**

Introduction to basic statistics, simple linear regression, multiple regression, and simultaneous equation models for economics. Prerequisites: STAT 2000 or 2300 or 3000. Also taught as APEC 5330. (Sp)

### **ECN 5400 International Trade Theory 3**

Intermediate-level issues in international trade theory and commercial policy. Topics include competitive and noncompetitive trade models, trade policy, balance of payments accounting, exchange rates, international lending and investment, and economic growth. Prerequisites: ECN 4020; ECN 3010 or ECN/APEC 4010. (F) <sup>DE</sup>

### **ECN 5500 Public Finance 3**

One of the most important questions in economics is when or if we should abandon the personal decisions of markets and substitute choosing with and for others through government. By examining the economic activities of government, including taxation, spending, and regulation, this course attempts to answer that question. Prerequisite: ECN 1500. (F)

### **ECN 5600 Financial Economics 3**

Introduction to development of our present system of money, banking, and financial institutions. Analysis of central bank policy, capital markets, speculative markets, and portfolio theory. Prerequisites: ECN 4020; ECN 3010 or ECN/APEC 4010. (Sp) <sup>DE</sup>

### **ECN 5950 CI Senior Project 3**

A current economic problem is identified and analyzed, bringing together other agricultural economics and economics course concepts and methods. (Sp) <sup>DE</sup>

# Course Descriptions

<b>ECN 6000</b> <b>(dual listing 7230)</b>	<b>Macroeconomic Theory I</b>	<b>3</b>
Lays a foundation of advanced macroeconomic analysis, integrating theory, data, and computational methods. Special attention given to real-world issues, with an emphasis on how economists use macro models and data to improve business and public policy decisions. Topics covered include neoclassical and endogenous growth theories, real business cycle and new Keynesian theories of economic fluctuations, monetary theory, macroeconomic policy, and open-economy macroeconomics. Also taught as APEC 6000/7230. (F)		
<b>ECN 6050</b>	<b>Fundamentals of Economics</b>	<b>3</b>
Introduction of economic principles for students entering a master's degree in the Huntsman School of Business. Prerequisite: Acceptance into a Huntsman School of Business master's degree program. (Su)		
<b>ECN 6250</b> (F,Sp,Su)	<b>Graduate Internship</b>	<b>1-3<sup>®</sup></b>
<b>ECN 6310</b>	<b>Managerial Economics</b>	<b>3</b>
Application of concepts and theories, based on managerial economics, to business problems. Addresses cost theory, pricing, market structures, and forecasting. (Sp)		
<b>ECN 6330</b>	<b>Applied Econometrics</b>	<b>3</b>
Provides graduate-level introduction to applied regression tools, including: simple and multivariate regression analysis; linear, nonlinear, and qualitative dependent variable models; distributed lags; seemingly unrelated regression; and model specification and validation tests. Prerequisite: Background in statistics and calculus. Also taught as APEC 6330. (F) <sup>DE</sup>		
<b>ECN 6910</b>	<b>Independent Research</b>	<b>1-3<sup>®</sup></b>
Directed readings. Credits from this course toward any economics graduate degree require approval of the student's advisory committee, the department graduate committee, and the department head. Prerequisites: ECN/APEC 4010 and ECN 5000. Also taught as APEC 6910. (F,Sp,Su)		
<b>ECN 6970</b>	<b>Thesis Research</b>	<b>1-9<sup>®</sup></b>
Master's level research. Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>ECN 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Master's level advisement. Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>ECN 7130</b>	<b>Microeconomic Theory I</b>	<b>3</b>
Provides a rigorous introduction to graduate-level microeconomic theory. While the specific focus is on the theoretical construct of graduate-level microeconomic models, the broad objective of the class is to lay the foundation for empirical applications in microeconomics. To meet this broad objective, the course covers theory of the firm, consumer theory, market structure, theory of public goods and externalities, and welfare economics. Also taught as APEC 7130. (F)		
<b>ECN 7140</b>	<b>Microeconomic Theory II</b>	<b>3</b>
Extends the theoretical foundations of microeconomics with an emphasis on model building in economics. Topics include static games of complete and incomplete information, dynamic games of complete and incomplete information, imperfectly competitive markets, risk and uncertainty, public goods, general equilibrium, and information economics. Prerequisites: ECN/APEC 7130, ECN/APEC 7360. (Sp)		
<b>ECN 7230</b> <b>(dual listing 6000)</b>	<b>Macroeconomic Theory I</b>	<b>3</b>
Lays a foundation of advanced macroeconomic analysis, integrating theory, data, and computational methods. Special attention given to real-world issues, with an emphasis on how economists use macro models and data to improve business and public policy decisions. Topics covered include neoclassical and endogenous growth theories, real business cycle and new Keynesian theories of economic fluctuations, monetary theory, macroeconomic policy, and open-economy macroeconomics. Also taught as APEC 7230/6000. (F)		
<b>ECN 7240</b>	<b>Macroeconomic Theory II</b>	<b>3</b>
Extends the foundations of ECN 7230 with a more in-depth look at the theory and computational aspects of various models of economic growth and business cycles. Prerequisites: ECN/APEC 7230 and ECN/APEC 7360. Also taught as APEC 7240. (Sp)		

<b>ECN 7310</b>	<b>Econometrics I</b>	<b>3</b>
Begins with a review of probability and statistics. Remainder of course is spent discussing the Classical linear regression model, least squares and maximum likelihood estimation, finite and asymptotic sample properties, inference, prediction, and nonlinear optimization. Prerequisite: ECN/APEC 7360. Also taught as APEC 7310. (F)		
<b>ECN 7320</b>	<b>Econometrics II</b>	<b>3</b>
Extension of ECN 7310, covering topics such as nonspherical disturbances, panel data, simultaneous equations, time series and distributed lag models, and limited and qualitative dependent variable models. Prerequisite: ECN/APEC 7310. Also taught as APEC 7320. (Sp)		
<b>ECN 7350</b>	<b>Mathematical Economics I</b>	<b>3</b>
Includes linear equations, matrix algebra, multivariate calculus, static optimization, comparative static analysis, constrained optimization, and Kuhn-Tucker conditions. Also taught as APEC 7350. (F)		
<b>ECN 7360</b>	<b>Mathematical Economics II</b>	<b>3</b>
Extends the presentation of ECN 7350 by covering applications of constrained optimization, the envelope theorem and applications, differential equations, dynamic economics, and optimal control. Prerequisite: ECN/APEC 7350. (Sp)		
<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.		
<sup>DE</sup> This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <a href="http://distance.usu.edu/">http://distance.usu.edu/</a>		

## Education and Human Services (EDUC)

See *Emma Eccles Jones College of Education and Human Services*, pages 128-129

**Note:** Effective Fall Semester 2009, many of the courses previously listed under the EDUC prefix will be taught under the Teacher Education and Leadership (TEAL) prefix. (TEAL courses are shown on pages 667-671.) Students registering or Summer Semester 2009 Education and Human Services courses can find them under the EDUC prefix by logging into Access at: <http://www.usu.edu/myusu/>

<b>EDUC 5000</b>	<b>Senior Honors Seminar</b>	<b>2</b>
For students in the Emma Eccles Jones College of Education and Human Services to explore an honors interdisciplinary theme selected by the Honors Committee as a culmination of an honors experience. (Sp)		
<b>EDUC 5560</b> <b>(dual listing 6560)</b>	<b>Special Topics</b>	<b>0.5-4<sup>®</sup></b>
Field-based program focusing upon characteristics of effective teaching methodologies, teaching performance, curriculum decision making, value guidelines, and the characteristics of the learner. May be graded with a letter grade or graded as Pass/Fail, as determined by the instructor. Also taught as TEAL 5560/6560. (F,Sp,Su) <sup>DE</sup>		
<b>EDUC 6010</b>	<b>Introduction to Program Evaluation: Evaluation Models and Practical Guidelines</b>	<b>3</b>
Alternative approaches and practical guidelines for conducting evaluation studies. Through case studies and simulations, addresses impact of social, political, and ethical issues on evaluation. Also taught as PSY 6010. (F,Sp) <sup>DE</sup>		
<b>EDUC 6540</b>	<b>Data-Based Decision Making for School Leaders</b>	<b>3</b>
Prepares prospective school leaders to conduct research, as well as to collect and analyze data for decision making and program evaluation in schools. (F)		
<b>EDUC 6550</b>	<b>Research for Classroom Teachers</b>	<b>3</b>
Assists teachers in applying measurement issues and research methods to classroom problems; in locating, interpreting, and using research reports; and in writing research-related papers on teaching. (F,Sp,Su) <sup>DE</sup>		

# Course Descriptions

**EDUC 6560 Special Topics 0.5-4<sup>®</sup>**  
**(dual listing 5560)**  
 Field-based program focusing upon characteristics of effective teaching methodologies, teaching performance, curriculum decision making, value guidelines, and the characteristics of the learner. May be graded with a letter grade or graded as Pass/Fail, as determined by the instructor. Also taught as TEAL 6560/5560. (F,Sp,Su)

**EDUC 6570 Introduction to Educational and Psychological Research 3**  
 Provides introduction to research methods, including identification of research problem, review and evaluation of research literature, and design and implementation of research project. Also taught as PSY 6570. (F,Sp,Su)

**EDUC 6600 Research Design and Analysis I 3**  
 Research design and statistical concepts for research in education, human services, and psychology, with emphasis on the selection and interpretation of statistical analyses. Prerequisites: EDUC/PSY 6570, passing score on 6600 Pretest via WebCT, and permission of instructor. Also taught as PSY 6600. (F,Sp,Su)

**EDUC 6700 Single-Subject Research (dual listing 7700) Methods and Designs 3**  
 Examines single-subject research methodology for applied research in schools, including measurement, design, and analysis issues. Also taught as SPED 6700/7700. (F)

**EDUC 6770 Qualitative Methods I\* 3**  
 Introduction to qualitative research, including foundations; research designs and strategies of inquiry (case studies, ethnography, phenomenology, grounded theory, biographical, historical, participative inquiry); sampling; fieldwork and data collection; and analysis. Prerequisite: EDUC/PSY 6570. (Sp)<sup>DE</sup>

**EDUC 6780 Qualitative Methods II (dual listing 7780) 3**  
 Builds on and applies concepts covered in EDUC 6770, emphasizing analysis of data, critique of qualitative research, and design and implementation of qualitative research. Students registered for 6780 conduct a qualitative research project. Prerequisite: EDUC 6770. (Sp)

**EDUC 7610 Research Design and Analysis II 3**  
 Advanced treatment of research design and statistical concepts and issues in educational, human services, and psychological research. Prerequisite: EDUC/PSY 6600. Also taught as PSY 7610. (F,Sp,Su)<sup>DE</sup>

**EDUC 7650 Longitudinal Research Design and Analysis\* 3**  
 Applied longitudinal study design and analysis for research in behavioral and educational sciences. Explores case-control, cohort, cross-over, complex sample, and randomized controlled trial designs. Examines analytical methods for observed outcomes of various distributions (e.g., Gaussian, Binomial, Poisson). Prerequisite: EDUC/PSY 7610. Also taught as PSY 7650. (Sp)

**EDUC 7670 Literature Reviews in Education and Psychology 2**  
 Advanced concepts in designing, writing, and critiquing literature reviews. Prerequisites: EDUC/PSY 6600 or consent of instructor. Also taught as PSY 7670. (Sp,Su)

**EDUC 7700 Single-Subject Research (dual listing 6700) Methods and Designs 3**  
 Examines single-subject research methodology for applied research in schools, including measurement, design, and analysis issues. Also taught as SPED 7700/6700. (F)

**EDUC 7780 Qualitative Methods II (dual listing 6780) 3**  
 Builds on and applies concepts covered in EDUC 6770, emphasizing analysis of data, critique of qualitative research, and design and implementation of qualitative research. Students registered for 6780 conduct a qualitative research project. Prerequisite: EDUC 6770. (Sp)

**EDUC 7970 Dissertation Research 1-18<sup>®</sup>**  
 Dissertation research for students in the Research and Evaluation specialization. Graded Pass/Fail only. (F,Sp,Su)<sup>DE</sup>

**EDUC 7990 Continuing Graduate Advisement 1-9<sup>®</sup>**  
 Graded Pass/Fail only. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*This course is taught during alternate years. For information about when it will be taught, contact the Emma Eccles Jones College of Education and Human Services.

## Elementary Education (ELED)

See *Elementary Education Program, School of Teacher Education and Leadership (TEAL)*, pages 243-252

**Note:** Effective Fall Semester 2009, many of the courses previously listed under the ELED prefix will be taught under the TEAL prefix. (TEAL courses are shown on pages 667-671.) Students registering for Summer Semester 2009 Elementary Education courses can find them under the ELED prefix by logging into Access at: <http://www.usu.edu/myusu/>

**ELED 1010 Orientation to Elementary Education 3**  
 Level I. Students assess themselves as prospective teachers. Students will also have an opportunity to do observations in the public schools (grades K-8) and complete volunteer service in other community educational settings. (F,Sp,Su)<sup>DE</sup>

**ELED 3000 CI Historical, Social, and Cultural Foundations of Education and School Practicum 4-6<sup>®</sup>**  
 Introduction to the historical, social, and cultural foundations of education. Students examine the interdependence of school and society, along with the influence of that interdependence on curricular and instructional practices in early childhood, elementary, and middle-level classrooms. (F,Sp)<sup>DE</sup>

**ELED 3005 Beginning Classroom Management 1**  
 Explores essential principles of classroom motivation and management. Focuses on understanding a learning environment where children work well independently and collaboratively. Prerequisite: Admission to Level II of the SODIA teacher education program. (F,Sp)<sup>DE</sup>

**ELED 3010 Practicum Remediation Level II 2-4**  
 Students work to develop defensible teaching ideas and to translate these ideas into practical experiences in elementary classroom settings. Specific arrangements for scheduling, placement with a cooperating teacher, and course requirements are handled by professors from the program level recommending remediation and the Elementary Education Advising Office. Graded Pass/Fail only. (F,Sp)

**ELED 3100 Classroom Reading Instruction 3**  
 Introduction to classroom reading instruction. Initial topics include the components of reading and organizing for reading instruction. Focuses heavily on how to teach the core components of phonemic awareness, phonics, fluency, vocabulary, and comprehension as identified in the Utah Language Arts Core Curriculum (2003) and the National Reading Panel (2000). Students will teach these components in hands-on practicum experiences. Prerequisite: Admission to teacher education. (F,Sp,Su)<sup>DE</sup>

**ELED 4000 Teaching Science and Practicum Level III 3**  
 Investigation and practical application of science programs, materials, and techniques of instruction for the teaching of science. Prerequisites: Admission to teacher education; completion of Level II and BIOL 1010 with a lab, or USU 1350; PHYX 1200 and GEOL 1100 or their equivalents. (F,Sp,Su)<sup>DE</sup>

**ELED 4005 Intermediate Classroom Management 1**  
 Explores essential principles of classroom motivation and management. Focuses on facilitating a learning environment where children work well independently and collaboratively, are self-governing, and make socially appropriate decisions. Prerequisite: Admission to Level III of the SODIA teacher education program. (F,Sp,Su)<sup>DE</sup>

# Course Descriptions

**ELED 4010 Practicum Remediation Level III 2-4**  
Students work to develop defensible teaching ideas and to translate these ideas into practical experiences in elementary classroom settings. Specific arrangements for scheduling, placement with a cooperating teacher, and course requirements are handled by professors from the program level recommending remediation and the Elementary Education Advising Office. Graded Pass/Fail only. (F,Sp)

**ELED 4030 CI Teaching Language Arts and Practicum Level III 3**  
Study of language development in children and its implications and application in a practicum setting. Curriculum development, instructional methods, and assessment in the areas of writing and spelling. Prerequisite: Admission to teacher education. (F,Sp,Su)<sup>DE</sup>

**ELED 4040 CI Assessment and Instruction for Struggling Readers 3**  
Prepares undergraduate students to use data from a variety of reading assessments to identify elementary students' reading strengths and weaknesses and plan instruction. Special attention given to providing explicit differentiated reading instruction to meet the needs of students who struggle with learning to read. Prerequisite: Admission to teacher education, ELED 3100. (F,Sp,Su)<sup>DE</sup>

**ELED 4050 Teaching Social Studies and Practicum Level III 3**  
Students develop necessary knowledge and skills to plan and implement an appropriate social studies program consistent with the nature of the child and our democratic society. Includes practicum work. Prerequisite: Admission to teacher education. (F,Sp,Su)<sup>DE</sup>

**ELED 4060 Teaching Mathematics and Practicum Level III 3**  
Relevant mathematics instruction in the elementary and middle-level curriculum; methods of instruction, evaluation, remediation, and enrichment. Prerequisite: Admission to teacher education. (F,Sp,Su)<sup>DE</sup>

**ELED 4250 Advanced Cooperative Work Experience 1-8<sup>®</sup>**  
Advanced or middle level career-related experience designed to integrate classroom study with practical work experience. Students must work a minimum of 50 hours per credit hour. Graded Pass/Fail only. (F,Sp,Su)<sup>DE</sup>

**ELED 4410 Gifted Education in the Regular Classroom 3**  
Introduction to characteristics of gifted learners. Exploration of strategies for challenging gifted learners in regular classroom settings. (F,Sp)

**ELED 4420 Multiple Talent Approach to Thinking 2**  
Explores one model for the teaching of creative and critical thinking embedded in regular curricula. Includes practical application requirements. Also taught as SCED 4420. (Su)

**ELED 4480 Early Childhood Education Kindergarten through Grade 3 3**  
Study of early childhood (K-3) curriculum, methodology, and learning environments. (F,Sp)<sup>DE</sup>

**ELED 4710 Diversity in Education 3**  
Provides educators with background and techniques for more effectively addressing the needs of students in a culturally and linguistically diverse society. Diversity topics also include religion, socioeconomic class, ability differences, race, gender, and sexual orientation. Prerequisite: Admission into a teacher education program. Also taught as SCED 4710. (F,Sp)<sup>DE</sup>

**ELED 4900 Senior Project 1-5<sup>®</sup>**  
All honors students are required to submit a senior project for graduation from the Honors Program. Students work with a departmental advisor on a topic of their choice. (F,Sp)

**ELED 4970 Senior Thesis 1-5<sup>®</sup>**  
An in-depth paper or project culminating in a formal presentation. Required of all students for graduation from the Honors Program in Elementary Education. (F,Sp)

**ELED 5050 Student Teaching—Kindergarten 3-6**  
Constitutes 6 semester credit hours of student teaching in a kindergarten classroom. Student teachers need to demonstrate competency and professionalism in teaching. An understanding of developmentally appropriate curriculum is necessary. Graded Pass/Fail only. (F,Sp)<sup>DE</sup>

**ELED 5100 Student Teaching—Primary Grades (1-3) 6**  
Constitutes 6 semester credit hours of student teaching in a primary grade (1-3). Student teachers will demonstrate competency in designing and implementing a developmentally appropriate learning environment. Graded Pass/Fail only. (F,Sp)<sup>DE</sup>

**ELED 5150 Student Teaching—Elementary (Grades 4-6) 6**  
Constitutes 6 semester credit hours of student teaching at the upper elementary grade level. Student teachers need to demonstrate competency and professionalism in teaching. Students begin their transition from university student to professional teacher. Graded Pass/Fail only. (F,Sp)<sup>DE</sup>

**ELED 5200 Student Teaching—Middle Level (Grades 7-8) 6**  
Constitutes 6 semester credits of student teaching at the middle school level. Student teachers need to demonstrate competency and professionalism in teaching. Students begin their transition from university student to professional teacher. Graded Pass/Fail only. (F,Sp)<sup>DE</sup>

**ELED 5250 Advanced Classroom Management and Student Teaching Seminar 3**  
Provides opportunities for student teachers/interns to learn about and practice skills in classroom management, curriculum development, instructional strategies, and lesson design and implementation in classroom contexts. Mentor teachers and University supervisors support context appropriate, effective teaching. Accompanies one of ELED 5050, 5100, 5150, or 5200. Graded Pass/Fail only. (F,Sp)<sup>DE</sup>

**ELED 5300 Associate Teaching—Level V 3-6<sup>®</sup>**  
Designed to allow students who have completed student teaching to extend their teaching time in a classroom. In order to better prepare for their own classroom, students continue to develop individual teaching skills and competencies. Graded Pass/Fail only. (F,Sp)

**ELED 5900 Independent Study 0.5-2<sup>®</sup>**  
(F,Sp,Su)

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## English (ENGL)

See Department of English, pages 259-270

**ENGL 0010 Writing Tutorial 3**  
Provides additional instruction for students whose score on the ACT is 16 or less, or who are advised into the course on the basis of writing diagnosis given the first day of class in ENGL 1010. Graded Pass/Fail only. Remedial class not carrying USU or transfer credit. (F,Sp,Su)

**ENGL 1010 CL1 Introduction to Writing: Academic Prose 3**  
Students learn skills and strategies for becoming successful academic readers, writers, and speakers: how to read and write critically, generate and develop ideas, work through multiple drafts, collaborate with peers, present ideas orally, and use computers as writing tools. (F,Sp,Su)<sup>DE</sup>

**ENGL 1020 Individualized Writing Instruction 1-3<sup>®</sup>**  
For students in Distance Education international programs who need further practice in specific areas of writing. (F,Sp,Su)

**ENGL 1110 English Orientation 1**  
Introduction to English as a profession. Reviews career opportunities for English majors. (F,Sp)<sup>DE</sup>

# Course Descriptions

<p><b>ENGL 1120 Elements of Grammar</b> 3 Introduction to the study of the English sentence. Discussion of punctuation and usage to facilitate editing, as well as clarity and precision in writing. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 1600 American Cultures in Film</b> 3 Introduction to major ethnic groups in America and their treatment in recent feature films. Also taught as HIST 1600. (F)</p> <p><b>ENGL 2010 CL2 Intermediate Writing: Research Writing in a Persuasive Mode</b> 3 Writing of reasoned academic argument supported with appropriately documented sources. Focuses on library and Internet research, evaluating and citing sources, oral presentations based on research, and collaboration. Prerequisites: Completion of 30 credits; fulfillment of Communications Literacy CL1 requirement through coursework (C- or better in ENGL 1010) or examination; and completion of Computer and Information Literacy (CIL) requirement. (F,Sp,Su)<sup>DE</sup></p> <p><b>ENGL 2140 British Literary History: Anglo-Saxon to 18th Century</b> 3 Survey of British literature from the Anglo-Saxon period through the 18th century. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 2150 British Literary History: Romanticism to Present</b> 3 Survey of British literature from Romanticism to the present. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 2160 American Literary History: Colonialism to 1865</b> 3 Survey of American literature from the colonial period to 1865. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 2170 American Literary History: 1865 to Present</b> 3 Survey of American literary history from 1865 to the present. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 2200 BHU Understanding Literature</b> 3 Introduction to fiction, drama, and poetry of different periods and cultures. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 2210 BHU Introduction to Folklore</b> 3 Introduction to major genres of folklore (folk narrative, custom, folk music and song, vernacular architecture and arts), folk groups (regional, ethnic, occupational, familial), and basic folklore research methods (collecting and archiving). Also taught as ANTH 2210 and HIST 2210. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 2300 BHU Introduction to Shakespeare</b> 3 Introduction to comedies, histories, tragedies, and nondramatic poetry for nonmajors. (F)</p> <p><b>ENGL 2600 Literary Analysis</b> 3 Writing-intensive course in literary analysis and research. Introduces English majors to techniques and problems of critical interpretation. Enrollment limited to English majors <i>only</i>. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 2630 BHU Survey of American Culture</b> 3 Introduces students to American Studies methodology through a broad selection of American literary, historical, artistic, and cultural works, allowing them to examine the roots of American culture. Focuses on interdisciplinary research. (F,Sp)</p> <p><b>ENGL 2720 Survey of American Folklore*</b> 3 Principal ethnic, regional, and occupational folk groups in America. Relations between folklore and American history, literature, and society. Key genres in American folklore (narrative, art, song, etc.) and their role in American culture. Also taught as ANTH 2720 and HIST 2720. (F,Sp)</p> <p><b>ENGL 3020 DHA Perspectives in Linguistics*</b> 3 In-depth study of linguistics for nonmajors. Topics vary according to faculty expertise. (Sp)</p> <p><b>ENGL 3030 DHA Perspectives in Literature</b> 3 In-depth study of literature for nonmajors. Topics vary according to faculty expertise. (F,Sp,Su)<sup>DE</sup></p>	<p><b>ENGL 3040 DHA Perspectives in Writing and Rhetoric**</b> 3 In-depth study of rhetoric and writing for nonmajors. Topics vary according to faculty expertise. (F,Sp)</p> <p><b>ENGL 3050 DHA Masterpieces of World Literature</b> 3 In-depth study of masterpieces of world literature from the earliest times to the present. For nonmajors. (F,Sp)</p> <p><b>ENGL 3060 DHA British and Commonwealth Cultures</b> 3 In-depth study of literatures and cultures from the British Isles and the Commonwealth nations. Topics vary according to faculty expertise. Taught alternate years.</p> <p><b>ENGL 3070 DHA Perspectives in Folklore**</b> 3<sup>®</sup> In-depth study of folklore for nonmajors. Topics vary according to faculty expertise. Also taught as HIST 3070. (F,Su)</p> <p><b>ENGL 3080 CI Introduction to Technical Communication</b> 3 Introduces students to a variety of technical documents and improves their written and oral communication skills. Available to nonmajors as a technical communication service course. Prerequisite: Fulfillment of Communications Literacy CL2 requirement. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 3300 Period Studies in American Literature</b> 3<sup>®</sup> Exploration of single period or movement in literary history of the United States, or a comparative study of a topic during various periods. Periods and topics will vary. (F,Sp)</p> <p><b>ENGL 3310 Period Studies in British Literature</b> 3<sup>®</sup> Exploration of single period or movement in British literary history, or a comparative study of a topic during various periods. Periods and topics will vary. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 3320 Period Studies in World Literature</b> 3<sup>®</sup> Exploration of single period or movement in literary history outside the United States and Great Britain, or a comparative study of a topic during various periods. Periods and topics will vary. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 3330 Literary Theory**</b> 3 Covers a range of different critical approaches to literature, helping students to analyze literature from a variety of theoretical perspectives and preparing them for upper-division English major coursework. Prerequisite: ENGL 2600. (F,Sp)</p> <p><b>ENGL 3400 CI Professional Writing</b> 3 Introduces students to workplace writing as a profession, emphasizing transition from writing for academic audiences to writing for readers of workplace documents. Students learn to design and write professional documents for science, industry, business, and/or government, including print portfolios and other job search materials. Enrollment limited to English majors <i>only</i>. (F,Sp)</p> <p><b>ENGL 3410 Professional Writing Technology</b> 3 Introduces students to technologies of professional writing. Surveys software used in the Professional and Technical Writing emphasis curriculum. Students learn to design and implement electronic portfolios documenting their work in the program. Enrollment limited to English majors <i>only</i>. (F,Sp)</p> <p><b>ENGL 3420 Fiction Writing</b> 3 Covers basic elements of writing fiction: form, structure, plot, theme, characterization, dialogue, point of view, and imagery. (F,Sp)</p> <p><b>ENGL 3430 Poetry Writing</b> 3 Covers basic elements of writing poetry: language, detail, voice, tone, literal and figurative imagery, rhythm, open and closed form, structure, and theme. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 3440 Creative Nonfiction Writing</b> 3 Focuses on the essay as creative nonfiction, emphasizing persona, audience, purpose, tone, and style. Students study difference between fiction and nonfiction. Goal is to write publishable nonfiction. (F,Sp)</p> <p><b>ENGL 3450 Methods and Research in Professional and Technical Communication</b> 3 Teaches students to conduct research using methods employed by professional and technical communicators in the workplace. Students learn to work with Subject Matter Experts, gather data in organizational contexts, and design user-centered documents. (Sp)</p>
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# Course Descriptions

<p><b>ENGL 3460</b>            <b>Modern Rhetorical Theory</b>            <b>3</b> Teaches students to analyze rhetoric as it is enacted in a variety of texts and contexts. Students learn to define and understand rhetorical situations and to evaluate rhetorical strategies chosen by other writers. (F)</p> <p><b>ENGL 3510</b>            <b>Young Adult Literature</b>            <b>3</b> Study of a variety of genres written specifically for adolescent audience. Intended for those interested in teaching secondary school English. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 3520</b>            <b>Multicultural American Literature</b>            <b>3</b> Introduction to study of diverse literatures of the United States, including Native American, Asian American, Hispanic/Latino, and African American. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 3530</b>            <b>Children's Literature*</b>            <b>3</b> Study of aesthetic merit of poetry and prose available for children, ages 1-12. Intended for those interested in teaching or writing for children. (Sp)<sup>DE</sup></p> <p><b>ENGL 3620</b>            <b>Native American Studies*</b>            <b>3</b> Multidisciplinary introduction to study of Native Americans, emphasizing folklore, history, anthropology, literature, traditions, and contemporary issues such as the environment. (F,Sp)</p> <p><b>ENGL 3700 CI</b>        <b>Regional Folklore*</b>            <b>3</b> Study of folklore and folklife as they relate to regional cultures. Also taught as HIST 3700. (F,Sp)</p> <p><b>ENGL 3710 CI</b>        <b>Folklore Colloquium</b>            <b>3<sup>®</sup></b> Issues, problems, and methodologies in folklore study. Focus and instructor variable. Also taught as HIST 3710 and RELS 3710. (Sp)</p> <p><b>ENGL 4200</b>            <b>Linguistic Structures</b>            <b>3</b> Introduction to linguistic science: phonetics, phonology, morphology, and syntax, especially as relating to English. Exposure to other aspects of linguistic analysis, including language origins and linguistic diversity. (F,Sp,Su)<sup>DE</sup></p> <p><b>ENGL 4210</b>            <b>History of the English Language</b>            <b>3</b> Introduction to linguistic history of English, beginning with its Indo-European roots and continuing through Old English and Middle English to Modern English. Covers sociolinguistic aspects of English use, as well as strict grammatical history. (Sp)<sup>DE</sup></p> <p><b>ENGL 4220</b>            <b>Ethnic Literacy</b>            <b>3</b> Examines the diversity of literacy skills in American ethnic groups and explores appropriate teaching methods. Topics include effects of socio-economic status, child-rearing practices, first and second language acquisition, American dialects, etc. (F,Sp)</p> <p><b>ENGL 4230</b>            <b>Language and Society**</b>            <b>3</b> Covers sciences of sociolinguistics and anthropological linguistics. Introduces concepts dealing with relationship of language to society and culture, and interaction of language with society and culture. (F)</p> <p><b>ENGL 4250</b>            <b>Playwriting</b>            <b>3</b> Study of dramatic theory and sample plays, combined with practice in writing short plays. Students must write a minimum of three plays. Prerequisite: THEA 1713. Also taught as THEA 4250. (F)</p> <p><b>ENGL 4300</b>            <b>Shakespeare</b>            <b>3<sup>®</sup></b> Selected works of William Shakespeare, with attention to biographical and cultural contexts. (F,Sp)</p> <p><b>ENGL 4310</b>            <b>American Writers**</b>            <b>3<sup>®</sup></b> Selected works of either a single author or a closely related group of authors based in the United States, with attention to biographical and cultural contexts. (F,Sp)</p> <p><b>ENGL 4320</b>            <b>British Writers*</b>            <b>3<sup>®</sup></b> Selected works of either a single author or a closely related group of authors based in Great Britain, with attention to biographical and cultural contexts. (F,Sp)</p> <p><b>ENGL 4330</b>            <b>World Writers*</b>            <b>3<sup>®</sup></b> Selected works of either a single author or a closely related group of authors based outside the United States, with attention to biographical and cultural contexts. (F)</p>	<p><b>ENGL 4340</b>            <b>Studies in Prose**</b>            <b>3<sup>®</sup></b> Analysis of the genre of prose fiction and/or prose nonfiction, emphasizing nature and evolution of specific forms. (Sp)</p> <p><b>ENGL 4350</b>            <b>Studies in Poetry*</b>            <b>3<sup>®</sup></b> Analysis of the genre of poetry, emphasizing nature and evolution of specific forms. (F)<sup>DE</sup></p> <p><b>ENGL 4360</b>            <b>Studies in Drama/Film*</b>            <b>3<sup>®</sup></b> Analysis of dramatic and cinematic genres, emphasizing nature and evolution of specific forms. (Sp)</p> <p><b>ENGL 4370</b>            <b>Studies in Nonfiction Prose**</b>            <b>3<sup>®</sup></b> Analysis of the genre of nonfiction prose, emphasizing nature and evolution of specific forms. (F)</p> <p><b>ENGL 4400 CI</b>        <b>Professional Editing</b>            <b>3</b> Editing of technical and scientific documents; working with deadlines, different levels of editing, and editing marks; working with groups of editors and clients; and revising document design. Prerequisites: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better. (Sp)</p> <p><b>ENGL 4410</b>            <b>Document Design and Graphics</b>            <b>3<sup>®</sup></b> Explores elements of page layout, graphic design, type fonts, and design of documents to suit client's needs for print (F) or digital (Sp) media. Prerequisites: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better. (F,Sp)</p> <p><b>ENGL 4420 CI</b>        <b>Advanced Fiction Writing</b>            <b>3<sup>®</sup></b> Offers advanced study in art and skill of writing publishable fiction. Relies on workshop method. Prerequisite: ENGL 3420 or equivalent. (Sp)</p> <p><b>ENGL 4430 CI</b>        <b>Advanced Poetry Writing</b>            <b>3<sup>®</sup></b> Provides course for undergraduate students desiring to write publishable poetry. Relies on workshop method. Prerequisite: ENGL 3430 or equivalent. (Sp)</p> <p><b>ENGL 4440 CI</b>        <b>Advanced Nonfiction Writing</b>            <b>3<sup>®</sup></b> Offers advanced study in the art and skill of writing publishable literary or creative nonfiction. Prerequisite: ENGL 3440. (F,Sp)</p> <p><b>ENGL 4500 CI</b>        <b>Teaching Writing</b>            <b>3</b> Prepares students to teach writing at secondary level. Teaches appropriate pedagogical techniques for teaching writing for a variety of purposes and contexts to diverse students. Techniques taught include designing effective writing assignments, responding constructively to student writing, assessing student writing, and incorporating technology into writing courses. (F,Sp)</p> <p><b>ENGL 4510 CI</b>        <b>Teaching Literature</b>            <b>3</b> Prepares students to teach literature through a variety of texts. Explores multiple pedagogical strategies for teaching diverse literary traditions to students of various backgrounds and developmental levels. (F,Sp)</p> <p><b>ENGL 4610</b>            <b>Western American Literature**</b>            <b>3</b> Examines major themes and important writers (both "popular" and "literary") in western regional writing. Investigation of significance of environment, history, gender, and ethnicity in a variety of genres. Appropriate for American Studies majors and minors. (F,Sp)</p> <p><b>ENGL 4620 CI</b>        <b>Advanced Seminar in American Studies</b>            <b>3</b> Practical introduction to theories and methods of American Studies, utilizing interdisciplinary research around a central theme, subject, or text(s). Strongly recommended for American Studies majors and American Studies minors. Open to students who have taken three courses in literature and/or history. Also taught as HIST 4620. (F,Sp)</p> <p><b>ENGL 4630</b>            <b>American Nature Writers*</b>            <b>3</b> Interdisciplinary study of historical, social, literary, and environmental contexts of nature writing. Examines key authors, major theories, enduring concerns (e.g., conservation, preservation, and management), and current issues (including gender and ethnicity). Appropriate for American Studies majors and minors. (F,Sp)</p>
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# Course Descriptions

**ENGL 4640 CI Studies in the American West 3**  
Interdisciplinary course in American Studies, exploring the region of the West through the analysis of literary texts, historical sources, and socio-cultural materials. Also taught as HIST 4640. (F,Sp) <sup>DE</sup>

**ENGL 4700 Folk Material Culture\*\* 3**  
Study of folk objects and their connections with culture and history. Also taught as HIST 4700. (Sp)

**ENGL 4750 Advanced Folklore Workshop: Fife Conference 3<sup>®</sup>**  
Focuses on a theme or topic in folklore, and offers lectures from nationally prominent scholars in the area. Taught during one week, every day and all day. Also taught as HIST 4750. (Su)

**ENGL 4900 Internship/Cooperative Work Experience 1-15<sup>®</sup>**  
Offers credit for professional experience obtained outside the classroom, prior to graduation. Requires statement of professional goals and summary report following the experience. Graded Pass/Fail *only*. Prerequisite: Departmental approval. (F,Sp,Su)

**ENGL 4910 Tutoring Practicum 1<sup>®</sup>**  
Inservice training class for first-semester Writing Center staff members. Repeatable for up to 2 credits. (F,Sp)

**ENGL 5210 Topics in Linguistics\* 3<sup>®</sup>**  
Provides students with opportunity to study topics which are not regularly taught, but which are designed to enrich understanding of linguistics. Typical topics include Old English, roots of English in Germanic, discourse analysis, and English as a world language. (F) <sup>DE</sup>

**ENGL 5300 CI Literature and Gender 3<sup>®</sup>**  
Exploration of cultural relations between literature and gender. Topics vary. (F,Sp)

**ENGL 5320 CI Literature and Cultural Difference 3<sup>®</sup>**  
Exploration of relations between literature and cultural difference. Topics vary. (Sp)

**ENGL 5340 CI Studies in Literary and Cultural Theory 3<sup>®</sup>**  
Applications in literary and cultural studies. Topics vary. (F) <sup>DE</sup>

**ENGL 5400 Specialized Documents 3<sup>®</sup>**  
Students in the Professional and Technical Writing emphasis prepare documents frequently encountered in business and government, including proposals, environmental impact statements, brochures, and newsletters. Prerequisites: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better. (F,Sp)

**ENGL 5410 Studies in Writing for Digital Media Production 3<sup>®</sup>**  
Students in the Professional and Technical Writing emphasis examine process of publishing online documents, studying digital media and genres. Topics vary and include building complex CD-ROM environments, help files, websites, interactive animations, and games. Prerequisites: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better. (F)

**ENGL 5420 Publications Production 3**  
Students in the Professional and Technical Writing emphasis examine process of publishing printed documents, beginning with idea and ending with hard copy, printed and bound. Prerequisites: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better. (F)

**ENGL 5430 CI Professional Writing Capstone 3**  
Capstone course for students in Professional and Technical Writing emphasis, in which students develop a professional portfolio of their own writing. Should be taken during the senior year. Prerequisites: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better. (F,Sp)

**ENGL 5490 Topics in Professional and Technical Writing 3<sup>®</sup>**  
Provides students with opportunity to study topics designed to enrich understanding of professional and technical writing. Typical topics include usability studies, career investigation, game theory, medical writing, and writing for magazines and journals. Prerequisites: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better. (Sp)

**ENGL 5550 English Teaching Capstone 3**  
Students synthesize and assess their knowledge of the field and their teaching, reading, and writing strengths; and evaluate the program through formal reflection on their own professional growth. Enrollment limited to English majors *only*. This course is not currently being taught. For information about when it may be taught, contact the department.

**ENGL 5690 CI American Studies Capstone Seminar 3**  
Required for students majoring in American Studies. Enables students to synthesize American Studies theory and methods with interdisciplinary cognate courses. Supports senior thesis design and writing, allowing topics to reflect individual programs of study. Also taught as HIST 5690. (Sp)

**ENGL 5700 Folk Narrative 3**  
Forms and functions of folk narrative genres: myth, legend, folktale, memorate, and ballad. Also taught as ANTH 5700 and HIST 5700. (Sp)

**ENGL 5900 Senior Honors Seminar 1-3<sup>®</sup>**  
Capstone course for students enrolled in English Honors Program. Prerequisite: Enrollment in English Honors Program. (F,Sp,Su)

**ENGL 5910 CI Senior Honors Thesis 1-6<sup>®</sup>**  
Students work in conjunction with English faculty member to write a thesis. Prerequisite: Enrollment in English Honors Program. (F,Sp,Su)

**ENGL 5920 Directed Study 1-3<sup>®</sup>**  
Provides students with opportunity to work individually with faculty member. Contract for work to be completed must be signed by faculty member and student, then filed with English Department. (F,Sp,Su) <sup>DE</sup>

**ENGL 6320 Literary Theory 3<sup>®</sup>**  
Introduces students to advanced literary theories and provides training in sophisticated critical methods. (F,Sp)

**ENGL 6330 Topics in Literary Studies 3<sup>®</sup>**  
Allows in-depth study of specific literary topics and theoretical questions. (F,Sp)

**ENGL 6340 British Literature and Culture 3<sup>®</sup>**  
Explores British literature and provides training in literary and cultural criticism. Promotes research and writing skills. (F,Sp)

**ENGL 6350 American Literature and Culture 3<sup>®</sup>**  
Explores American literature and provides training in literary and cultural criticism. Promotes research and writing skills. (F,Sp)

**ENGL 6360 World Literature and Culture 3<sup>®</sup>**  
Explores world literature and provides training in literary and cultural criticism. Promotes research and writing skills. (F,Sp)

**ENGL 6400 Advanced Editing 3 (dual listing 7400)**  
Examines complex roles editors assume in creating technical and nontechnical documents. Principal components include working with substance of documents, mediating the writer-reader relationship, and exemplifying the application of rhetorical theory in editing. (F,Sp) <sup>DE</sup>

**ENGL 6410 Theory and Research in Professional Communication 3 (dual listing 7410)**  
Introduction to contemporary theories of written discourse. Emphasizes the implications of these theories for research in professional communication. (F,Sp) <sup>DE</sup>

**ENGL 6420 Usability Studies and Human Factors in Professional Communication 3<sup>®</sup> (dual listing 7420)**  
Examines concepts and practices of usability studies and human factors in the design and production of print and online documents. Emphasizes developing objectives, criteria, and measures for conducting tests in the lab and field. (F,Sp)



# Course Descriptions

<p><b>ENGL 6430</b>                      <b>Publications Management</b>                      <b>3</b>  <b>(dual listing 7430)</b>  Covers processes for developing and producing publications, including information development cycles, supervision, and budgets. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 6440</b>                      <b>Studies in Culture and</b>  <b>(dual listing 7440)</b>                      <b>Professional Communication</b>                      <b>3<sup>®</sup></b>  Covers topics in rhetorical, critical, and cultural theory, emphasizing their application to contemporary practices in professional communication. (F,Sp)</p> <p><b>ENGL 6450</b>                      <b>Reading Theory and Document Design</b>                      <b>3</b>  <b>(dual listing 7450)</b>  Examines how reading theory interacts with rhetoric of graphics, layout, and type to influence the way documents are designed for maximum information and readability. (F,Sp)</p> <p><b>ENGL 6460</b>                      <b>Studies in Digital Media</b>                      <b>3<sup>®</sup></b>  <b>(dual listing 7460)</b>  Focuses on the production of advanced digital media documents. Examination of theories underlying such publications, plus the related hardware and software. Topics vary. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 6470</b>                      <b>Studies in Specialized Documents</b>                      <b>3<sup>®</sup></b>  <b>(dual listing 7470)</b>  Focuses on writing and design of specific genres in professional communication. Genres include environmental impact statements, software documentation, proposals, manuals, annual reports, newsletters, and fact sheets. Topics vary. (F,Sp)</p> <p><b>ENGL 6480</b>                      <b>Studies in Technology and Writing</b>                      <b>3<sup>®</sup></b>  <b>(dual listing 7480)</b>  Study of theoretical aspects of technologies affecting writing in professional contexts. Course topics may include an examination of the history of computing, rhetorics of hypertext, or theories of communication in virtual space. Topics vary. (F,Sp)</p> <p><b>ENGL 6490</b>                      <b>Portfolio</b>                      <b>3</b>  Design and preparation of a portfolio containing at least five documents, each accompanied by a justification and discussion.</p> <p><b>ENGL 6600</b>                      <b>American Studies Theory and Method</b>                      <b>3</b>  Provides students with theory and method of graduate-level research in American Studies. Also taught as HIST 6600. (F)</p> <p><b>ENGL 6610</b>                      <b>Seminar on the American West</b>                      <b>3-4<sup>®</sup></b>  Readings and research on topics in the American West. Interdisciplinary focus suitable for graduate students in History and American Studies. Also taught as HIST 6610. (F)</p> <p><b>ENGL 6620</b>                      <b>Seminar in Native American Studies</b>                      <b>3-4<sup>®</sup></b>  Readings and research on topics in Native American history and culture. Interdisciplinary focus suitable for graduate students in History and American Studies. Also taught as HIST 6620. (F)</p> <p><b>ENGL 6630</b>                      <b>Studies in Film and Popular Culture</b>                      <b>3<sup>®</sup></b>  Offered annually on a rotating basis by professors in folklore and English (Cultural Studies, Literature, British and Commonwealth). Topics and theoretical approaches vary, but the primary focus is on feature films. Also taught as HIST 6630. (Sp)</p> <p><b>ENGL 6700</b>                      <b>Folklore Theory and Method</b>                      <b>3</b>  Serves as orientation for new graduate students in folklore. Introduces students to comparative annotation, folklore indices, oral-formulaic theory, performance theory, contextual analysis, and other approaches. Also taught as HIST 6700. (F)</p> <p><b>ENGL 6710</b>                      <b>Space, Place, and Folklore</b>                      <b>3</b>  Study of expressive culture in relation to space and place in social theory. Perspectives range from ideas about landscape and region to globalization. Also taught as HIST 6710. (Sp)</p> <p><b>ENGL 6720</b>                      <b>Folklore Fieldwork</b>                      <b>3</b>  Basic methodology class for folklorists and oral historians. Students learn interviewing techniques and other methods for observing and recording the performance of tradition and traditional history. Also taught as HIST 6720. (Sp)</p>	<p><b>ENGL 6730</b>                      <b>Public Folklore</b>                      <b>3</b>  Provides history and analysis of governmental involvement in protecting, promoting, and otherwise manipulating and utilizing cultural heritage. Also taught as HIST 6730. (F)</p> <p><b>ENGL 6740</b>                      <b>Folk Narrative</b>                      <b>3</b>  Covers principal narrative genres in folk tradition (myth, tale, legend, ballad) and the basic theories for their analysis and discussion. Also taught as HIST 6740. (Sp)</p> <p><b>ENGL 6750</b>                      <b>Advanced Folklore Workshop</b>  <b>(the Fife Conference)</b>                      <b>3</b>  Intensive workshop focusing on a topic in folklore. Brings in nationally known experts as lecturers and discussants. Taught during one week, every day and all day. Also taught as HIST 6750. (Su)</p> <p><b>ENGL 6760</b>                      <b>Cultural and Historical Museums</b>                      <b>3</b>  Examines outdoor cultural and historical museums, examining their function in modern multi-cultural societies. Also taught as HIST 6760. (Sp)</p> <p><b>ENGL 6770</b>                      <b>Seminar in Folklore and Folklife</b>                      <b>3<sup>®</sup></b>  Conducts close, professional-level study of major areas of folklore and folklife research. Also taught as HIST 6770. (F)</p> <p><b>ENGL 6800</b>                      <b>Theory and Practice of Online</b>  <b>(dual listing 7800)</b>                      <b>Education in Writing</b>                      <b>3<sup>®</sup></b>  Examination of principles and their implementation in online writing instruction. Emphasis placed on writing instruction within English departments. (Sp)</p> <p><b>ENGL 6810</b>                      <b>Introduction to Composition Studies</b>                      <b>3</b>  Introduces students to scholarship in the field of composition studies. Students become acquainted with scholars, forums, themes, and methods of the field. (F,Sp)</p> <p><b>ENGL 6820</b>                      <b>Practicum in Teaching English</b>                      <b>3</b>  Introduction to teaching writing, designed specifically for graduate instructors teaching in the English Department writing program. Focuses on theory and practice of teaching writing, specifically ENGL 1010, but also prepares graduate instructors for further teaching responsibilities. Not offered online. (F)</p> <p><b>ENGL 6830</b>                      <b>Rhetorical Theory</b>                      <b>3</b>  <b>(dual listing 7830)</b>  Covers intellectual traditions of rhetoric from classical times to the present. As students study major theories, theoreticians, and controversies in the field, they come to understand rhetoric as the study of relations between discourse, knowledge, and power. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 6850</b>                      <b>Advanced Studies in the</b>  <b>Teaching of English</b>                      <b>3<sup>®</sup></b>  Provides a critical approach to English pedagogy. Prepares students to teach English classes such as literature, composition, and creative writing. (F,Sp)</p> <p><b>ENGL 6860</b>                      <b>Teaching Technical Writing</b>                      <b>3</b>  <b>(dual listing 7860)</b>  Prepares students to teach general purpose technical writing courses at the undergraduate level. Students read and discuss articles on technical writing and practice writing a series of technical documents. (F,Sp)</p> <p><b>ENGL 6880</b>                      <b>Topics in Creative Writing</b>                      <b>3<sup>®</sup></b>  Examines field of creative writing as an art, concentrating on issues of craft and creation. May study the fundamentals of a particular genre, the history of a genre, theories of form, how writers work, how they approach their genre, etc., all with an eye toward craft and examined from a writer's perspective. Enrollment limited to graduate students <i>only</i>. (F,Sp,Su)</p> <p><b>ENGL 6882</b>                      <b>Fiction Writing Workshop</b>                      <b>3<sup>®</sup></b>  Students write fiction and participate in writing workshops, where their work is critiqued by the class. Course also involves study of the art and craft of fiction, its history, form, and content, especially that of contemporary fiction examined from a writer's perspective. Enrollment limited to graduate students <i>only</i>. (F,Sp,Su)</p>
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# Course Descriptions

<p><b>ENGL 6883 Poetry Writing Workshop 3<sup>®</sup></b> Students write poetry and participate in writing workshops, where their work is critiqued by the class. Course also involves study of the art and craft of poetry, its history, form, and content, especially that of contemporary poetry examined from a writer's perspective. Enrollment limited to graduate students <i>only</i>. (F,Sp,Su)</p> <p><b>ENGL 6884 Creative Nonfiction Writing Workshop 3<sup>®</sup></b> Students write creative nonfiction and participate in writing workshops, where their work is critiqued by the class. Course also involves study of the art and craft of creative nonfiction, its history, form, and content, especially that of contemporary creative nonfiction examined from a writer's perspective. Enrollment limited to graduate students <i>only</i>. (F,Sp,Su)</p> <p><b>ENGL 6890 Studies in Writing and Rhetoric (dual listing 7890) 3<sup>®</sup></b> Allows in-depth study of specific rhetorical topics and theoretical questions. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 6900 Graduate Internship 1-15<sup>®</sup></b> Format and credit limit vary for different programs in the department. See program advisor for details and approval to enroll in this course. (F,Sp,Su)</p> <p><b>ENGL 6920 Directed Study 1-6<sup>®</sup></b> (F,Sp,Su)</p> <p><b>ENGL 6970 Thesis 1-6<sup>®</sup></b> Taught Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>ENGL 6990 Continuing Graduate Registration 1-6<sup>®</sup></b> Taught Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>ENGL 7000 Advanced Research Methods in Professional Communication 3</b> Survey of major research methods (qualitative and quantitative) for conducting professional communication research in academic and nonacademic settings. Coursework will culminate in a formal proposal to conduct a discipline-appropriate study in the workplace. (Sp)</p> <p><b>ENGL 7400 Advanced Editing (dual listing 6400) 3</b> Examines complex roles editors assume in creating technical and nontechnical documents. Principal components include working with substance of documents, mediating the writer-reader relationship, and exemplifying the application of rhetorical theory in editing. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 7410 Theory and Research in (dual listing 6410) Professional Communication 3</b> Introduction to contemporary theories of written discourse. Emphasizes the implications of these theories for research in professional communication. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 7420 Usability Studies and Human Factors (dual listing 6420) in Professional Communication 3<sup>®</sup></b> Examines concepts and practices of usability studies and human factors in the design and production of print and online documents. Emphasizes developing objectives, criteria, and measures for conducting tests in the lab and field. (F,Sp)</p> <p><b>ENGL 7430 Publications Management (dual listing 6430) 3</b> Covers processes for developing and producing publications, including information development cycles, supervision, and budgets. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 7440 Studies in Culture and (dual listing 6440) Professional Communication 3<sup>®</sup></b> Covers topics in rhetorical, critical, and cultural theory, emphasizing their application to contemporary practices in professional communication. (F,Sp)</p>	<p><b>ENGL 7450 Reading Theory and Document Design (dual listing 6450) 3</b> Examines how reading theory interacts with rhetoric of graphics, layout, and type to influence the way documents are designed for maximum information and readability. (F,Sp)</p> <p><b>ENGL 7460 Studies in Digital Media (dual listing 6460) 3<sup>®</sup></b> Focuses on the production of advanced digital media documents. Examination of theories underlying such publications, plus the related hardware and software. Topics vary. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 7470 Studies in Specialized Documents (dual listing 6470) 3<sup>®</sup></b> Focuses on writing and design of specific genres in professional communication. Genres include environmental impact statements, software documentation, proposals, manuals, annual reports, newsletters, and fact sheets. Topics vary. (F,Sp)</p> <p><b>ENGL 7480 Studies in Technology and Writing (dual listing 6480) 3<sup>®</sup></b> Study of theoretical aspects of technologies affecting writing in professional contexts. Course topics may include an examination of the history of computing, rhetorics of hypertext, or theories of communication in virtual space. Topics vary. (F,Sp)</p> <p><b>ENGL 7800 Theory and Practice of Online (dual listing 6800) Education in Writing 3<sup>®</sup></b> Examination of principles and their implementation in online writing instruction. Emphasis placed on writing instruction within English departments. (Sp)</p> <p><b>ENGL 7830 Rhetorical Theory 3</b> <b>(dual listing 6830)</b> Covers intellectual traditions of rhetoric from classical times to the present. As students study major theories, theoreticians, and controversies in the field, they come to understand rhetoric as the study of relations between discourse, knowledge, and power. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 7860 Teaching Technical Writing 3</b> <b>(dual listing 6860)</b> Prepares students to teach general purpose technical writing courses at the undergraduate level. Students read and discuss articles on technical writing and practice writing a series of technical documents. (F,Sp)</p> <p><b>ENGL 7890 Studies in Writing and Rhetoric (dual listing 6890) 3<sup>®</sup></b> Allows in-depth study of specific rhetorical topics and theoretical questions. (F,Sp)<sup>DE</sup></p> <p><b>ENGL 7900 Research Internship 6</b> Application of workplace field research and methods in an actual workplace setting. Prerequisite: ENGL 7000. (F)<sup>DE</sup></p> <p><b>ENGL 7920 Directed Study 3<sup>®</sup></b> (F,Sp,Su)</p> <p><b>ENGL 7970 Dissertation Research 1-12<sup>®</sup></b> Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>ENGL 7990 Continuing Graduate Advisement 1-9<sup>®</sup></b> Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>
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<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

# Course Descriptions

## Engineering (ENGR)

See *College of Engineering*, pages 130-134

### **ENGR 1000 Introduction to Engineering Design 2** (formerly ENGR 1010)

Introduction to engineering design, problem solving, and computer application skills. Orients students to college programs, academic advising, student services, professional societies, ethics, and engineering careers. A background in trigonometry is strongly recommended. (F) <sup>DE</sup>

### **ENGR 1940 Women in Engineering Seminar 1**

Designed for incoming female freshman engineering students. Speakers selected from practice share their knowledge and experience about the many career options available in engineering. Discussions center on ways in which women balance their professional and personal lives. Provides information and strategies for the academic and interpersonal skills needed for women to succeed in engineering. (F)

### **ENGR 2010 Engineering Mechanics Statics 2** (formerly ENGR 2000)

Force and position vectors; equilibrium of particles; rigid bodies; equivalent system of forces; equilibrium; free body diagrams; static analysis of trusses, frames, and machines; centroids and centers of gravity; friction; and moments of inertia. Prerequisites: MATH 1210, 1220. (F,Sp) <sup>DE</sup>

### **ENGR 2030 Engineering Mechanics Dynamics 3** (formerly ENGR 2020)

Equations of motion, kinetics of particles, kinetics of rigid bodies, work and energy, impulse and momentum, three-dimensional kinematics, and vibrations. Prerequisites: ENGR 2010, MATH 1210, 1220. (F,Sp,Su) <sup>DE</sup>

### **ENGR 2140 Strength of Materials 2** (formerly ENGR 2040)

Stress, strain, and deflection due to axial loads; moment and torsion; shear and moment diagrams; and equations of equilibrium and compatibility. Prerequisite: ENGR 2010. (F,Sp,Su) <sup>DE</sup>

### **ENGR 2450 Engineering Numerical Methods 2** (formerly ENGR 2210)

Programming and numerical solution techniques for solving ordinary and partial differential equations. Prerequisite: MATH 1220 or 2250. (Sp)

### **ENGR 2930 Special Problems 1-18**

Independent or group student study of engineering problems not covered in regular course offerings. (F,Sp,Su)

### **ENGR 5500 High Performance Computing for Engineers 3**

Introduction to high performance computing on Beowulf clusters with distributed memory paradigm. Hands-on design and profiling of algorithms and software to solve large scale problems in engineering. Topics in scientific visualization. Prerequisites: MAE 2450 or CS 1410. (F) <sup>DE</sup>

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Environment and Society (ENVS)

See *Department of Environment and Society*, pages 271-278

### **ENVS 1990 Professional Orientation for Environment and Society 2**

Introduces new students to university scholarship and citizenship, careers in environmental and natural resources science and management, development of leadership and team skills, and analysis of issues relating to the diverse relationships between society and the natural environment. (F)

### **ENVS 2250 Introductory Internship/Co-op 1-3<sup>®</sup>**

Introductory-level educational experience in internship/cooperative education position approved by department. Prerequisite: Permission of department. (F,Sp,Su)

### **ENVS 2340 BSS Natural Resources and Society 3**

Examines human values, uses, and management of natural settings at the individual, community, and societal levels. Topics include: psychological responses to nature, history of U.S. park and natural resource management, environmental sociology and politics, and nature in non-Western cultures. (F,Sp) <sup>DE</sup>

### **ENVS 3000 Natural Resources Policy and Economics 4**

Introduction to natural resource policy and economics. Policy components include models, processes, participants, laws, and tools for decision-making and policy implementation. Economics components include theory, interest calculations, financial analysis, nonmarket valuation, and regional impact analysis. (F)

### **ENVS 3300 Fundamentals of Recreation Resources Management 3**

Principles of wildland recreation management including: characteristics of recreation use and users, introduction to planning concepts, management of wildland recreation facilities and infrastructure, and integration with other natural resource uses. (F) <sup>DE</sup>

### **ENVS 3330 Environment and Society 3**

Emphasizes how human actions modify the physical environment and how physical systems affect human systems and the changes occurring in the meaning, use, and importance of resources at a global and regional scale. (Sp)

### **ENVS 3500 QI Quantitative Assessment of Environmental and Natural Resource Problems 3**

Overview of analytical and sampling methods used for collecting, organizing, and interpreting numeric data to evaluate problems and monitor conditions relating to relationships between environment and society. Prerequisites: STAT 2000 or 3000; MATH 1050; and passing score on the Computer and Information Literacy (CIL) Exam. (F)

### **ENVS 3600 DSC Living With Wildlife 3**

Reviews history and development of wildlife management programs in the United States. Explores diversity of attitudes toward wildlife, which affect development and evolution of wildlife management programs. Development and analysis of case histories of contemporary and controversial wildlife management decisions. (Sp) <sup>DE</sup>

### **ENVS 4000 DSS Human Dimensions of Natural Resource Management 3**

Focuses on balancing science and social values in ecosystem management and decision-making. Topics include environmental justice, communication and behavior change strategies, landscape perception and attitudes, resource-dependent communities, public involvement, and conflict management. (F) <sup>DE</sup>

### **ENVS 4110 Fisheries and Wildlife Policy and Administration\* 3** (dual listing 6110)

Examination of policy issues and administrative approaches in fish and wildlife management, with particular emphasis on nonbiological issues facing wildlife managers and administrators. (F)

### **ENVS 4130 Recreation Policy and Planning 3**

Examines the historical, legal, and political context of outdoor recreation policy on public lands; government agency culture, regulation, and partnering; relationship of outdoor recreation to tourism; and theory and application of principal planning tools for outdoor recreation settings. (Sp) <sup>DE</sup>

### **ENVS 4250 Advanced Internship/Co-op 1-9<sup>®</sup>**

Directed and evaluated cooperative education or work experience for undergraduates in public and private organizations. Prerequisite: Permission of department. (F,Sp,Su)

### **ENVS 4400 Economic Applications in Natural Resource Management 4**

Applied economics course exposing students to tools used in natural resource decision-making. Includes principles and techniques of nonmarket valuation, linear programming, budgeting, benefit-cost analysis, and regional economic analysis as encountered by natural resource managers. Prerequisites: ENVS 3000, MATH 1050 or higher, and passing score on Computer and Information Literacy (CIL) exam. (Sp)

# Course Descriptions

<p><b>ENVS 4440 Stegner Center Annual Symposium</b> 1<sup>®</sup> (dual listing 6440) Offered through the University of Utah College of Law. Topics vary each year, but always focus on natural resource policy-related issues. (Sp)</p> <p><b>ENVS 4500 CI Wildland Recreation Behavior</b> 3 Social, psychological, and geographic influences on human behaviors in wildland recreation settings. Emphasis on critical problems affecting public land recreation management. (F)</p> <p><b>ENVS 4600 Natural Resource Interpretation</b> 3 Planning processes and techniques for providing interpretive programs developed for wildland recreation areas and visitor centers. Evaluation and planning of visitor information efforts. (F)</p> <p><b>ENVS 4920 Special Projects in Recreation Management</b> 1-3<sup>®</sup> Participation in special projects to assist public recreation agencies or nonprofit organizations, while gaining hands-on experience in recreation management, planning, and monitoring. Many experiences entail intensive, short-duration efforts away from campus. Prerequisite: Permission of department. (F,Sp,Su)</p> <p><b>ENVS 4950 Special Topics</b> 1-3<sup>®</sup> Individual study and research upon selected environmental and societal problems. Prerequisite: Permission of department. (F,Sp,Su) <sup>DE</sup></p> <p><b>ENVS 4960 Directed Readings</b> 1-3<sup>®</sup> Individual reading research on selected environmental and societal readings. Prerequisite: Permission of department. (F,Sp,Su)</p> <p><b>ENVS 4970 Undergraduate Research</b> 1-3<sup>®</sup> Individual or team research. Prerequisite: Permission of department. (F,Sp,Su)</p> <p><b>ENVS 4980 Undergraduate Seminar</b> 1 Intended to bring upperclassmen up-to-date on environmental and societal topics. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>ENVS 4990 Environmental and Natural Resource Professionalism Seminar</b> 2 Introduces concepts of professionalism in natural resources, including ethical issues in science and management, organizational culture, and workplace expectations. Analyzes current issues with practicing professionals. Reinforces leadership and team-building skills. Prerequisites: ENVS 1990, 3000. (F)</p> <p><b>ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources</b> 3 Project-based capstone course for environmental studies majors. Students work in teams to develop plans and alternative solutions relevant to actual issues or land areas, integrating knowledge from a range of environmental and natural resource disciplines. Prerequisites: Senior standing; ENVS 3000, 4000. (Sp)</p> <p><b>ENVS 5110 Environmental Education</b> 3 Covers teaching about the environment, and using the environment and the natural world to teach other subjects, with a strong emphasis on participation and on practicing teaching techniques. (Sp)</p> <p><b>ENVS 5300 Natural Resources Law and Policy*</b> 2 Legal and administrative regulation of forests and associated resources (water, air, fish, wildlife, and scenery). Emphasis on agency organizational culture, federal legislation, court cases, administrative procedures, and federal natural resources agencies' interactions with tribal, state, and local governments. (Sp)</p> <p><b>ENVS 5320 Water Law and Policy in the United States</b> 3 Introduction to policies, laws, institutions, and practices guiding western water allocation, emphasizing how to efficiently and equitably allocate increasingly scarce supplies. Explores reserved water rights, water markets, stream adjudication, public trust doctrine, basinwide management, and riparian management. (Sp)</p>	<p><b>ENVS 5550 Sustainable Development*</b> 3 (dual listing 6550) Examines the challenges and opportunities humanity faces in sustainably managing human resources. Provides a global perspective on the status of both renewable and nonrenewable resources, as well as the impact of globalization and policies designed to meet long-term human needs. (Sp)</p> <p><b>ENVS 5570 Sustainable Living</b> 3 Theories and techniques for decision-making about environmental impacts of consumer decision-making, and about alternatives for a sustainable future. Incorporates meanings of sustainable living, relationships between lifestyle choices and the environment, and feasible steps toward ecological sustainability. (Sp) <sup>DE</sup></p> <p><b>ENVS 5640 Conflict Management in Natural Resources</b> 3 (dual listing 6640) Introduction to conflict management techniques for those involved in natural resource management. Also taught as SOC 5640/6640. (Sp)</p> <p><b>ENVS 5800 Field Studies in Collaborative Natural Resource Stewardship</b> 3 Two-week field course introduces students to methods and philosophical approaches incorporated in Tehabi, a summer-long internship program focusing on collaborative stewardship of natural resources. Enrollment limited to students accepted into the Tehabi program. (Su)</p> <p><b>ENVS 5810 Internship in Collaborative Natural Resource Stewardship</b> 3 Mentored internship involving participation in the Tehabi program, which teaches collaborative stewardship of natural resources within a federal, state, or nonprofit agency. Enrollment limited to students accepted into the Tehabi program. (Su)</p> <p><b>ENVS 6000 Theoretical Foundations in Human Dimensions of Ecosystem Science and Management</b> 3 (dual listing 7000) Overview of interdisciplinary theories and frameworks concerning how human societies affect, and are affected by, ecosystem processes at local, regional, and global scales. Focuses on systems theory, social and environmental sustainability, and scientific integration for ecosystem planning, policy, and management. (F)</p> <p><b>ENVS 6050 Best Research Practices in the Natural Resources and Environmental Sciences*</b> 3 Explores best research practices from top scientific articles for planning and carrying out reliable experiments in the natural resources and environmental sciences, conceiving and testing research hypotheses, establishing cause and effect, deducing new knowledge from existing knowledge, and more. (Sp)</p> <p><b>ENVS 6110 Fisheries and Wildlife Policy and Administration*</b> 3 (dual listing 4110) Examination of policy issues and administrative approaches in fish and wildlife management, with particular emphasis on nonbiological issues facing wildlife managers and administrators. (F)</p> <p><b>ENVS 6130 Policy Aspects of Wildland Recreation</b> 3 Political, legal, and economic bases for wildland recreation management. Relationship between outdoor recreation and tourism. Lectures concurrent with ENVS 4130. Also includes weekly discussion session focusing on relevant scientific research and policy analyses. (Sp)</p> <p><b>ENVS 6200 Bioregional Analysis and Planning</b> 5 Compilation and analysis of data for assessing biophysical and socio-economic features of landscapes, and for evaluating impacts of land-use policies across both landscapes and time. Provides real-world learning experience in working with stakeholders and agency decision-makers. (F)</p> <p><b>ENVS 6210 Bioregional Management and Policy</b> 5 Continuation of ENVS 6200. Assessment of land-use policies across landscapes and time, with an emphasis on evaluating consequences of community growth via the generation and analysis of future development and management alternatives. Prerequisite: ENVS 6200. (Sp)</p>
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# Course Descriptions

<p><b>ENVS 6240</b>                    <b>Graduate Internship/Co-op</b>                    <b>1-9<sup>®</sup></b> Graduate-level educational experience in internship/cooperative education position approved by department. (F,Sp,Su)</p> <p><b>ENVS 6300</b>                    <b>Social and Environmental</b> <b>(dual listing 7300)</b>                    <b>Psychology of Natural Resources**</b>                    <b>3</b> Examines how people respond as individuals to nature and environmental phenomena, drawing on theory and research from social psychology, environmental psychology, and behavior analysis. Emphasizes applications to knowledge, attitude, and behavior change strategies for improving environmental sustainability. (Sp)</p> <p><b>ENVS 6400</b>                    <b>Ecological Aspects of</b> <b>Wildland Recreation*</b>                    <b>3</b> Assessment of current knowledge and knowledge gaps concerning impacts of wildland recreation on wildlife, plants, soil and water resources, and processes. Strategies for coexistence of recreation visitors and nonhuman ecosystem elements. (Sp)</p> <p><b>ENVS 6440</b>                    <b>Stegner Center Annual Symposium</b>                    <b>1<sup>®</sup></b> <b>(dual listing 4440)</b> Offered through the University of Utah College of Law. Topics vary each year, but always focus on natural resource policy-related issues. (Sp)</p> <p><b>ENVS 6500</b>                    <b>Behavioral Aspects of Wildland Recreation</b> <b>3</b> Social and psychological analysis of visitor behavior in outdoor recreation settings. Sources of recreation management problems and practical and theoretical basis for management practices. Lectures concurrent with ENVS 4500. Separate discussion sessions focus on research concerning recreation behavior. (F)</p> <p><b>ENVS 6530</b>                    <b>Natural Resources Administration**</b>                    <b>2</b> Organizational structures and processes common in natural resources administration on federal and state levels, and how they impact career development and land management. (Sp) <sup>DE</sup></p> <p><b>ENVS 6550</b>                    <b>Sustainable Development*</b>                    <b>3</b> <b>(dual listing 5550)</b> Examines the challenges and opportunities humanity faces in sustainably managing human resources. Provides a global perspective on the status of both renewable and nonrenewable resources, as well as the impact of globalization and policies designed to meet long-term human needs. (Sp)</p> <p><b>ENVS 6600</b>                    <b>Advanced Natural Resource</b> <b>Interpretation</b>                    <b>3</b> Planning processes, techniques, and evaluation procedures for using information and education to influence human behavior and increase benefits to visitors in natural settings. Leadership of teams involved in producing interpretive plans and materials. (F)</p> <p><b>ENVS 6640</b>                    <b>Conflict Management in</b> <b>(dual listing 5640)</b>                    <b>Natural Resources</b>                    <b>3</b> Introduction to conflict management techniques for those involved in natural resource management. Also taught as SOC 6640/5640. (Sp)</p> <p><b>ENVS 6700</b>                    <b>Research Approaches in Human Dimensions</b> <b>(dual listing 7700)</b>                    <b>of Ecosystem Science and Management</b>                    <b>3</b> Experience conceptualizing and prioritizing research problems involving human societies and ecosystems. Reviews approaches for creating and testing interdisciplinary hypotheses pertaining to human-ecosystem interactions. Explores methods for integrating social and biophysical data. (Sp)</p> <p><b>ENVS 6800</b>                    <b>Environment and Society</b> <b>(dual listing 7800)</b>                    <b>Departmental Seminar</b>                    <b>1<sup>®</sup></b> Graded Pass/Fail only. (F,Sp)</p> <p><b>ENVS 6810</b>                    <b>Research Techniques in Human Dimensions</b> <b>(dual listing 7810)</b>                    <b>of Ecosystem Science and Management*</b>                    <b>3</b> Experience using various quantitative and qualitative techniques and tools to collect and analyze data in research projects focused on human-ecosystem interactions. Topics range from survey sampling to use of simulation models and spatial statistics involving Geographic Information Systems (GIS). (F)</p>	<p><b>ENVS 6840</b>                    <b>Graduate Introductory Seminar for</b> <b>(dual listing 7840)</b>                    <b>Environment and Society</b>                    <b>1</b> Each faculty member meets with first-year graduate students in a seminar format to review and discuss in depth the faculty member's area of academic specialization. Graded Pass/Fail only. (F)</p> <p><b>ENVS 6870</b>                    <b>Ecology Seminar</b>                    <b>1<sup>®</sup></b> The Ecology Center schedules regular seminars throughout the school year with ecological scientists from other institutions participating. Ecology majors are required to attend a minimum of 10 such lectures. Graded Pass/Fail only. Students should register for fall semester, but attend through spring semester. Also taught as BIOL 6870, PSC 6870, WATS 6870, and WILD 6870. (F)</p> <p><b>ENVS 6900</b>                    <b>Graduate Special Topics</b>                    <b>1-6<sup>®</sup></b> Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su) <sup>DE</sup></p> <p><b>ENVS 6910</b>                    <b>Directed Study</b>                    <b>1-6<sup>®</sup></b> (F,Sp,Su) <sup>DE</sup></p> <p><b>ENVS 6960</b>                    <b>Graduate General Ecology</b>                    <b>4</b> General concepts, history, and issues in all major areas of the science of ecology including: environmental biophysics; and physiological, behavioral, evolutionary, community, ecosystem, and applied ecology in both terrestrial and aquatic environments. Also taught as BIOL 6960, PSC 6960, WATS 6960, and WILD 6960. (F)</p> <p><b>ENVS 6970</b>                    <b>Thesis Research</b>                    <b>1-12<sup>®</sup></b> Graded Pass/Fail only. (F,Sp,Su)</p> <p><b>ENVS 6990</b>                    <b>Continuing Graduate Advisement</b>                    <b>1-9<sup>®</sup></b> Graded Pass/Fail only. (F,Sp,Su)</p> <p><b>ENVS 7000</b>                    <b>Theoretical Foundations in</b> <b>(dual listing 6000)</b>                    <b>Human Dimensions of Ecosystem</b> <b>Science and Management</b>                    <b>3</b> Overview of interdisciplinary theories and frameworks concerning how human societies affect, and are affected by, ecosystem processes at local, regional, and global scales. Focuses on systems theory, social and environmental sustainability, and scientific integration for ecosystem planning, policy, and management. (F)</p> <p><b>ENVS 7300</b>                    <b>Social and Environmental</b> <b>(dual listing 6300)</b>                    <b>Psychology of Natural Resources**</b>                    <b>3</b> Examines how people respond as individuals to nature and environmental phenomena, drawing on theory and research from social psychology, environmental psychology, and behavior analysis. Emphasizes applications to knowledge, attitude, and behavior change strategies for improving environmental sustainability. (Sp)</p> <p><b>ENVS 7700</b>                    <b>Research Approaches in Human Dimensions</b> <b>(dual listing 6700)</b>                    <b>of Ecosystem Science and Management</b>                    <b>3</b> Experience conceptualizing and prioritizing research problems involving human societies and ecosystems. Reviews approaches for creating and testing interdisciplinary hypotheses pertaining to human-ecosystem interactions. Explores methods for integrating social and biophysical data. (Sp)</p> <p><b>ENVS 7800</b>                    <b>Environment and Society</b> <b>(dual listing 6800)</b>                    <b>Departmental Seminar</b>                    <b>1<sup>®</sup></b> Graded Pass/Fail only. (F,Sp)</p> <p><b>ENVS 7810</b>                    <b>Research Techniques in Human Dimensions</b> <b>(dual listing 6810)</b>                    <b>of Ecosystem Science and Management**</b>                    <b>3</b> Experience using various quantitative and qualitative techniques and tools to collect and analyze data in research projects focused on human-ecosystem interactions. Topics range from survey sampling to use of simulation models and spatial statistics involving Geographic Information Systems (GIS). (F)</p> <p><b>ENVS 7840</b>                    <b>Graduate Introductory Seminar</b> <b>(dual listing 6840)</b>                    <b>for Environment and Society</b>                    <b>1</b> Each faculty member meets with first-year graduate students in a seminar format to review and discuss in depth the faculty member's area of academic specialization. Graded Pass/Fail only. (F)</p>
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**ENVS 7900 Graduate Special Topics 1-6<sup>®</sup>**  
Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)

**ENVS 7910 Directed Study 1-6<sup>®</sup>**  
Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)

**ENVS 7970 Dissertation Research 1-12<sup>®</sup>**  
Graded Pass/Fail *only*. (F,Sp,Su)

**ENVS 7990 Continuing Graduate Advisement 1-9<sup>®</sup>**  
Graded Pass/Fail *only*. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010

## Engineering and Technology Education (ETE)

See Department of Engineering and Technology Education, pages 253-258

**ETE 1000 Orientation to Engineering and Technology Education 1**  
Introduction to the technology education teaching profession, including programs, facilities, goals, and opportunities. (F)

**ETE 1010 Communications Technology 3**  
Introduction to tools, materials, equipment, and processes used to transmit and receive messages. Major emphasis on hardware, software, communications, and the digital age. (F)

**ETE 1020 Energy, Power, Transportation Systems Control Technology 3**  
Exploration of the concepts and processes relating to the control and automation (both hard and programmable) of technical systems in the areas of energy and power, transportation, and agricultural and related biotechnologies. (Sp)

**ETE 1030 Material Processing Systems 3**  
Introduction to properties of industrial materials (metallic, polymeric, ceramic, and composite), processes used to produce standard stock and finished products, and the use of precision measuring instruments in manufacturing. (F,Sp)

**ETE 1040 Construction and Estimating 3**  
Overview of construction industry and its practices. Reviews four major parts of construction industry, including: (1) Inputs: materials; (2) Process: design and building of structures; (3) Outputs: sites, buildings, etc.; and (4) Feedback: effects of building systems. Provides prospective technology education teachers with opportunity to study and perform activities related to the field of construction and estimating. At completion of course, students should be able to demonstrate knowledge and skills required to implement a construction technology program. (Sp)

**ETE 1200 Computer-Aided Drafting and Design 3**  
Provides students with ability to accurately produce basic engineering, 2-D, and pictorial drawings using traditional and computer-aided drafting techniques. Introduction to drafting fundamentals and equipment associated with the drafting industry, including drawings, reproductions, and computer-aided techniques. (F,Sp)<sup>DE</sup>

**ETE 1640 Introduction to Welding 3**  
Theory of Oxy-Acetylene Welding, Shielded-Metal Arc Welding, and Gas Metal Arc Welding. (F)

**ETE 2020 Computer-Integrated Manufacturing Systems 3**  
Introduction to principles, operations, and applications of automated manufacturing systems, including: data acquisition and controls, CNC, CAD/CAM, and robotics. Prerequisites: ETE 1030, 1200. (Sp)

**ETE 2030 Wood-Based Manufacturing Systems 3**  
Focuses on the instructional strategy of establishing a manufacturing enterprise utilizing woodworking equipment and techniques. Topics include management; finance and marketing strategies; and the design of product, tooling, and production systems. Prerequisite: ETE 1030. (F)

**ETE 2210 Electrical Engineering for Nonmajors 4**  
Study and application of DC and AC concepts. Includes circuit fundamentals, theorems, laws, analysis, components, equipment, and measuring devices. Laboratory will include circuit design, construction and analysis of AC/DC circuits, and the use of measuring instruments, power supplies, and signal generators. *Not available* to students majoring in Electrical Engineering or Computer Engineering. Prerequisites: MATH 1210 and 1220. (F,Sp,Su)<sup>DE</sup>

**ETE 2220 Civil Engineering and Architecture 3**  
Introduction to fields of civil engineering and architecture. Software applications used to solve problems and communicate solutions. Topics include: project planning, site planning, building design, and project documentation and presentation. Prerequisites: ETE 1200, MATH 1050. (F)

**ETE 2240 Analog Devices and Circuits 3**  
Study of differential amplifiers; operational amplifiers; regulators; and generator instrumentation amplifier, multiplier, and active filters. Prerequisites: ETE 2310; ETE 2400 (must be taken concurrently). (F)

**ETE 2270 Computer Engineering Drafting 2**  
Provides engineering students with introduction to computer-aided drafting environment. Explores AutoCAD and gives background in drafting theory and applications through use of hand CAD techniques. Students gain ability to contribute in the workplace using creative thinking skills and team environments. Enrollment limited to *only* students having majors within the College of Engineering. (F,Sp)

**ETE 2300 QI Electronic Fundamentals 4**  
Study and application of DC and AC concepts, semiconductors, digital electronics, and microcomputers. Prerequisite: MATH 1050. (Sp)

**ETE 2310 AC/DC Circuits 2**  
Study of AC/DC principles beyond those taught in ETE 2300. Includes network theorems, capacitance, inductance, impedance, reactance, resonance, and transformers. Prerequisite: ETE 2300. (Sp)

**ETE 2320 Electronic Drafting 2**  
Study of electronic drafting practices. Students exposed to various areas of electronic drafting and fabrication. Prerequisite: ETE 2300. (F)

**ETE 2360 Digital Circuits 3**  
Logic circuits, combinational and repeated circuits, counters, shifts registers, state tables, PLD's, and digital computer simulations. Prerequisite: ETE 2300 or equivalent. (Sp)

**ETE 2370 Computer and Microprocessor Programming 3**  
Introduction to microprocessors and computers. Study of machine language programming, assemblies and cross assemblies, emulators, and input and output devices. Prerequisite: ETE 2300. (Sp)

**ETE 2400 Active Devices and Circuits 3**  
Study of diodes; transistor principles, including semiconductor theory, bipolar, and field effect device characteristics; and modern thyristor devices. Prerequisite: ETE 2310. (F)

**ETE 2660 Principles of Engineering Education 3**  
Prepares students to teach pre-engineering in the high school environment. Topics include the engineering design process and reliability, engineering systems, statics and dynamics, and materials. Prerequisites: MATH 1060 (or equivalent), ETE 1200 (or equivalent). (Sp)

**ETE 2850 Statics and Strength of Materials 3**  
Engineering technology course covering resultants and equilibrium of force systems; moments of inertia; method of work; stress, strain, and deflection due to tension, compression, and torsion; and Mohr's circle for stress and strain. Prerequisites: MATH 1050, 1060. (F)

# Course Descriptions

<p><b>ETE 3040                    Engineering Systems                    3</b> Prepares students to teach engineering at the secondary level. Includes basic overview of math concepts needed to successfully teach engineering, problem solving, teamwork, design, technical communication, and engineering fundamentals. Through use of open-ended problem solving methodologies, students receive hands-on experience while teaching concepts of statics, dynamics, thermodynamics, electrical circuits, and engineering economics. (F,Sp)</p> <p><b>ETE 3050                    Computer Systems and Networking                    3</b> Introduction to modern graphic and electronic communication systems. Emphasizes design, development, production, and dissemination of both electronic and graphic messages. Covers major concepts, including desktop publishing, and audio and video production techniques. (Sp)</p> <p><b>ETE 3070                    K-8 Engineering and Technology Education                    3</b> Introduction to technology education and to science, technology, and society (STS) curricula for elementary schools, emphasizing teaching, developing, and managing technology-based activities. (F)</p> <p><b>ETE 3200                    Methods of Teaching Engineering and Technology Education I                    3</b> Classroom laboratory practicum for design, practice, and performance of technology education demonstrations and lab activities. Prerequisites: ETE 1000; ETE 3300 (must be taken concurrently). (F)</p> <p><b>ETE 3230                    Machine and Production Drafting                    3</b> Teaches students to accurately produce both design drawings and working drawings. Explores techniques, symbols, and conventions used to represent gears, cams, jigs, and fixtures. Also includes advanced techniques of production drawing, emphasizing Geometric Dimensioning and Tolerancing. Prerequisites: ETE 1200, MATH 1050, or equivalent. (F)</p> <p><b>ETE 3240                    Technical Illustration                    3</b> In-depth study of technical illustration. Includes preparation of pictorial drawings with rendering added. Explores industrial and architectural environments. Introduces rendering and animation software, emphasizing three-dimensional modeling. Prerequisite: ETE 1200. (Sp)</p> <p><b>ETE 3270                    Advanced Computer-Aided Drafting                    3</b> Designed to enhance CADD productivity, encourage customization, and introduce students to advanced CADD techniques, including programming and introduction to parametric design. Prerequisite: ETE 1200. (Sp)</p> <p><b>ETE 3300                    Clinical Experience I                    1</b> Field-based experiences in secondary schools. Students complete 30 hours of tutoring students and assist teachers with managerial, clerical, and other professional tasks. Graded Pass/Fail <i>only</i>. Prerequisites: ETE 1000; ETE 3200 (must be taken concurrently). (F)</p> <p><b>ETE 3380                    Microprocessor and Computer Interfacing                    3</b> Microcomputer interface applications, including digital system interface, serial and parallel interfacing, and D/A and A/D converters. Prerequisites: ETE 2240, 2370. (Sp)</p> <p><b>ETE 3390                    Microcontrollers                    3</b> Study of microcontrollers and applications. Includes programming and building circuits. Prerequisite: ETE 3380. (F)</p> <p><b>ETE 3400                    Communication Circuits                    3</b> Introduction to radio frequency communication circuits. Includes oscillators, modulation, transmitters, receivers, transmission lines, antennas, RF propagation, digital signal processing, GPS, and spread spectrum. Prerequisites: ETE 2300 and 2400. (Sp)</p> <p><b>ETE 3440                    DSC Science, Technology, and Modern Society                    3</b> Designed to challenge students from all academic majors to develop an understanding of the dynamic interaction between science, technology, and society. Explores responsibility of humans for directing the utilization of technology as a creative enterprise. Also taught as ASTE 3440. (F,Sp)</p> <p><b>ETE 3510                    Introduction to Networking                    3</b> Study of hardware and software required to build, install, maintain, and support a local area network. Emphasizes laboratory applications. (F)</p>	<p><b>ETE 3710                    Electronics/Computer Design I                    1</b> Students select and plan a senior project. Requires written proposal, including technical description of the project and management plans. Prerequisite: ETE 2320 (may be taken concurrently). (F)</p> <p><b>ETE 3740                    Facility and Equipment Maintenance                    3</b> Systems approach to facility, equipment, and tool maintenance, including principles of woodworking, machine construction, adjustment, and sharpening.</p> <p><b>ETE 3900                    Principles and Objectives of Career and Technical Education                    3</b> Comprehensive study of philosophy and purposes of career and technical education programs and their place in the total program of modern education.</p> <p><b>ETE 3930                    Evaluation of Career and Technical Education                    2</b> Factors for evaluation of attitudes, skills, work habits, technical information, and instrument construction.</p> <p><b>ETE 4300                    Clinical Experience II                    1</b> Field-based experience, in which students complete 30 hours of teaching-related experiences in the classroom. Graded Pass/Fail <i>only</i>. Prerequisites: ETE 3200, 3300; ETE 4400 (must be taken concurrently). (Sp)</p> <p><b>ETE 4310                    Corrosion and Corrosion Control (dual listing 6310)                    2</b> Analysis of corrosion mechanisms for ferrous metals, nonferrous metals, and nonmetallic materials, as well as the control of corrosion. Prerequisites: CHEM 1110 and MATH 1060. (Sp)</p> <p><b>ETE 4400                    Methods of Teaching Engineering and Technology Education II                    3</b> Techniques of teaching as applied to individual and group instruction. Students apply various methods in presenting lessons. Prerequisites: ETE 3200, 3300; ETE 4300 (must be taken concurrently). (Sp)</p> <p><b>ETE 4440                    Technology and Society (dual listing 6440)                    3</b> Challenges students to develop an understanding of the dynamic interaction between science, technology, and society. Explores the responsibility of humans to direct the utilization of technology as a creative enterprise. Students critically investigate technological innovations, issues, and impacts on society from a global perspective. (F,Sp)</p> <p><b>ETE 4700                    Student Teaching in Postsecondary Schools                    4</b> Planning, presenting, and evaluating instruction for students in postsecondary industrial and technical programs under the supervision of an experienced teacher. Enrollment by permission only.</p> <p><b>ETE 4710                    CI Electronics/Computer Design II                    3</b> Execution and completion of a team or individual project. Requires design reviews and written reports. Prerequisite: ETE 3710. (Sp)</p> <p><b>ETE 4930                    Independent Study                    1-4<sup>®</sup></b> Upon application, students may propose and complete work above and beyond regular coursework to support or supplement their major. (F,Sp,Su)</p> <p><b>ETE 4940                    Related Industrial Experience                    1-12<sup>®</sup></b> Provision for enrollment in industry schools conducted on university level. Approved by department upon application for trade competency examination and work experience in industry. (F,Sp,Su)</p> <p><b>ETE 5040                    Manufacturing Enterprise                    3</b> Focuses on management technology used to establish a manufacturing enterprise, engineer a product and production system, finance the operation, and market the product. Prerequisite: ETE 1030.</p> <p><b>ETE 5220                    CI Program and Course Development                    3</b> Review of basic principles and practices of curriculum and course development used in applied technology and technology education. Emphasizes components needed to develop a curriculum guide. Prerequisites: ETE 3200, 3300. (Sp)</p>
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# Course Descriptions

## **ETE 5230      Technical Training Innovative Program      1-4<sup>®</sup>**

Prepares prospective and incumbent teachers to implement and conduct contemporary programs. Includes skill development and the philosophy needed for curriculum innovation.

## **ETE 5240      Principles of Technology      2-3**

Introduction to applied technology principles forming the basis for today's society.

## **ETE 5500      Student Teaching Seminar      2**

Focuses on observations and problems arising during student teaching. Includes review of teaching plans, procedures, adaptive classroom practices, and evaluation. Graded Pass/Fail *only*. Prerequisite: ETE 5630 (must be taken concurrently). (F)

## **ETE 5630      Student Teaching in Secondary Schools      10**

Candidates assigned to cooperating teachers in public secondary schools within their major and minor subjects. Students have professional responsibilities with teaching. Graded Pass/Fail *only*. Prerequisite: ETE 5500 (must be taken concurrently). (F)

## **ETE 5800      Seminar—Technology Education      1-3<sup>®</sup>**

Provides opportunity for students to participate in variety of enriching experiences, such as guest speakers, field trips, demonstrations, and conferences.

## **ETE 5900      Workshop in Engineering and Technology Education      1-4<sup>®</sup>**

Special workshops for education or industry. May be repeated providing content varies. <sup>DE</sup>

## **ETE 5910      Special Problems in Engineering and Technology Education      1-4<sup>®</sup>**

## **ETE 5920      Related Technical Training      1-12<sup>®</sup>**

## **ETE 6090      Program Design      3**

Study of contemporary program design and development in technology and industrial education. Reviews complete curriculum developmental process. (F,Sp,Su)

## **ETE 6100      Contemporary Issues      3**

Study of present and future foundational professional developments in technology and industrial education. Students identify and investigate contemporary trends and issues affecting and facing technology and industrial education. (F,Sp,Su)

## **ETE 6150      Evaluation and Assessment      3**

Study of various methods used to measure and evaluate student achievement, including cognitive, affective, and psychomatic. Reviews principles of learning and teaching, and of evaluation of instruction. (F,Sp,Su)

## **ETE 6200      Composite Manufacturing Processes and Repair      3**

Composite manufacturing processes, composite materials survey, tooling design and fabrication, autoclave processes, vacuum bag techniques, filament winding processes, equipment requirements, materials cutting and storage, and composite materials testing. (Sp)

## **ETE 6250      Internship      1-6**

Advanced instruction through supervised work experience in teaching, supervising, or administering educational or industrial program. (F,Sp,Su)

## **ETE 6310      Corrosion and Corrosion Control      2** **(dual listing 4310)**

Analysis of corrosion mechanisms for ferrous metals, nonferrous metals, and nonmetallic materials, as well as the control of corrosion. Prerequisites: CHEM 1110 and MATH 1060. (Sp)

## **ETE 6440      Technology and Society      3** **(dual listing 4440)**

Challenges students to develop an understanding of the dynamic interaction between science, technology, and society. Explores the responsibility of humans to direct the utilization of technology as a creative enterprise. Students critically investigate technological innovations, issues, and impacts on society from a global perspective. (F,Sp)

## **ETE 6450      Administration and Organization      3**

Administrative and supervisory techniques for successful operation of technology education and applied technology education programs. (F,Sp,Su)

## **ETE 6520      Explorations of Industry      3**

Study of contemporary industry, business, and service through a series of site visits. Includes various management and finance methods and techniques. (F,Sp,Su)

## **ETE 6750      Research Methods and Design      3**

Introduction to practical research planning and design. Guides students from proposal selection to completed proposal to final research report. (F,Sp,Su)

## **ETE 6800      Seminar      1-2**

(F,Sp,Su)

## **ETE 6900      Readings and Conference      1-3**

Advanced individualized study on selected topics in technology and industrial education. Scheduled consultation with faculty member. (F,Sp,Su)

## **ETE 6910      Experimental Laboratory      3**

Introduction to elements of a research report through selection and development of experimental study utilizing tools, equipment, materials, and processes for improving programs and teaching techniques. (F,Sp,Su)

## **ETE 6930      Independent Study      1-6**

Advanced educational experience through individual investigation. (F,Sp,Su)

## **ETE 6960      Master's Project      3-6<sup>®</sup>**

Development of creative project emphasizing a thoroughly developed plan of action. Includes proposal, project paper, and final presentation. (F,Sp,Su)

## **ETE 6970      Thesis Research      1-9**

Graded Pass/Fail *only*. (F,Sp,Su)

## **ETE 6990      Continuing Graduate Advisement      1-3<sup>®</sup>**

Graded Pass/Fail *only*. (F,Sp,Su)

## **ETE 7010      The Role of Cognition in Engineering and Technology Education      3**

Study of cognitive science and research relating to engineering and technology education. (F)

## **ETE 7020      Design Thinking in Engineering and Technology      3**

Engineering design as applied to technology education. (Sp)

## **ETE 7030      Engineering Design and Analysis for Technology Education      3**

Engineering design methodology for technology education teacher educators. Focuses on science principles and predictive mathematics comprising the engineering sciences needed to solve problems in a design framework that is analytical, predictive, and repeatable. (F)

## **ETE 7040      Dynamic and Network Engineering Processes for Technology Education      3**

Examines dynamic and network processes in engineering through the use of simulation software. Students use these techniques to develop standards-based engineering curricular modules for use in grades 6 through 12. (Sp)

## **ETE 7230      Foundations of Technology      3**

Study of the objectives, legislative foundations, principles, philosophy, impact, and organization of technology and industrial education. (F,Sp,Su)

## **ETE 7400      Occupational Analysis and Curriculum Development\*      3**

Students learn techniques for conducting an occupational analysis (both job and task analysis) and for developing performance-based or competency-based curriculum. Explores industrial and educational applications for this style of curriculum development.

## **ETE 7460      Finance and Grant Writing      3**

Procedures in financial administration of industrial education monies. Budget preparation, budget operation and control, and school accounting. In-depth review of steps and techniques needed for grant writing. (F,Sp,Su)



# Course Descriptions

**ETE 7500 Internationalizing Institutions of Higher Education 3**  
Explores the need and methodology of internationalizing higher education institutions, with the purpose of understanding the global society and delivering education worldwide. (F,Sp,Su)

**ETE 7600 Academic Issues and Politics in Higher Education 3**  
Study of higher education in Utah, the social political impacts, and the role of faculty members in higher education institutions. (F,Sp,Su)

**ETE 7810 Research Seminar 1<sup>®</sup>**  
Identification of research problems, consideration of research strategies and methods, application of research and statistical concepts in departmental focus, and interaction with faculty. Graded Pass/Fail *only*. (F,Sp,Su)

**ETE 7900 Independent Study\* 1-3**  
Individually directed reading and conference. Departmental approval required before registration. (F,Su)

**ETE 7970 Dissertation Research 1-15<sup>®</sup>**  
Graded Pass/Fail *only*. (F,Sp,Su)

**ETE 7990 Continuing Graduate Advisement 1-3<sup>®</sup>**  
Graded Pass/Fail *only*.

\*This course is taught alternating years. Check with department for information about when course will be taught.  
<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.  
<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Family, Consumer, and Human Development (FCHD)

See Department of Family, Consumer, and Human Development, pages 279-289

**FCHD 1010 BSS Balancing Work and Family 3**  
Introduces students to issues facing families trying to balance work with family responsibilities. Examines integration of work and family across areas of marriage and family relationships, financial management, and child development and parenting. (F,Sp) <sup>DE</sup>

**FCHD 1100 Critical Issues in Family, Consumer, and Human Development 1**  
Introduction to the majors, minors, emphases, and disciplines in family, consumer, and human development. Emphasizes career opportunities and how scholars in this field address critical social issues. Available online *only*. (F,Sp,Su) <sup>DE</sup>

**FCHD 1500 BSS Human Development Across the Lifespan 3**  
Overview of human development across the lifespan, from conception to death. (F,Sp) <sup>DE</sup>

**FCHD 2100 Family Resource Management 3**  
Explores the significance of values, goals, planning, and decision-making strategies in the development, management, and allocation of human, economic, and environmental resources. (F,Sp) <sup>DE</sup>

**FCHD 2200 Introductory Workshop in Family, Consumer, and Human Development 1-12<sup>®</sup>**  
Introductory workshop. Topics of discussion vary each semester. (F,Sp,Su) <sup>DE</sup>

**FCHD 2400 BSS Marriage and Family Relationships 3**  
Overview of couple and family relationships, including marriage, child bearing and rearing, intergenerational relationships, and alternative family forms. (F,Sp) <sup>DE</sup>

**FCHD 2450 BSS The Consumer and the Market 3**  
Explores how the marketplace operates, including factors influencing consumer purchases, current consumer problems, and assistance provided to consumers by federal and state agencies, businesses, and other organizations. (F,Sp) <sup>DE</sup>

**FCHD 2500 Child Development Associate Workshop 3<sup>®</sup>**  
Training provided by an approved instructor and following an approved curriculum that leads to the fulfillment of requirements for the National Child Development Associate (CDA) credential. Elective credits granted for this course. This course is not currently being taught. For information about when it may be taught, contact the department.

**FCHD 2550 Child Development Associate Training and Practicum 6**  
During and after the coursework associated with FCHD 2500, students fulfill a practicum. At the conclusion of FCHD 2500, the CDA advisor/trainer conducts a comprehensive observation of the CDA candidate and the CDA observation instrument is completed and included as part of application materials submitted for the final assessment by the CDA granting organization (Council for Early Childhood Professional Recognition). When the CDA candidate receives the CDA credential, then he or she receives credit for FCHD 2550. Prerequisite: FCHD 2500. This course is not currently being taught. For information about when it may be taught, contact the department.

**FCHD 2600 Seminar in Early Childhood Education 2**  
Orientation to the profession of early childhood education, current philosophies, teaching techniques, and approaches to curricula found in programs for young children. Must be taken concurrently with FCHD 2630. Prerequisite: Admission to teacher education or instructor's permission. (F,Sp) <sup>DE</sup>

**FCHD 2610 Child Guidance 3**  
Review of parenting styles and child guidance philosophies with emphasis on principles and techniques. (F,Sp) <sup>DE</sup>

**FCHD 2630 Practicum in Early Childhood Education 2**  
Students participate in developmentally appropriate preschool programs as classroom aides. Must be taken concurrently with FCHD 2600. Prerequisite: Admission to teacher education or instructor's permission. (F,Sp) <sup>DE</sup>

**FCHD 3100 Abuse and Neglect in Family Context 3**  
Causes, treatment, and laws regarding family violence, including child abuse and neglect, partner abuse, and elder abuse. Prerequisites: Sophomore standing, FCHD 1500, 2400. (F,Sp) <sup>DE</sup>

**FCHD 3110 Human Sexuality 3**  
Development and expression of human sexual values, attitudes, and behaviors in family and cultural contexts. Prerequisites: FCHD 1500, 2400. (F) <sup>DE</sup>

**FCHD 3130 QI Research Methods 3**  
Common methodologies used in current family and human development research. Emphasis on becoming a knowledgeable and informed consumer of research. Enrollment limited to FCS and FCHD majors *only*. Prerequisite: STAT 1040. (F,Sp) <sup>DE</sup>

**FCHD 3210 CI Families and Cultural Diversity 3**  
Similarities and differences in family patterns and functions in terms of race and ethnicity, gender, social class, and international development. Prerequisites: FCHD 1500, 2400, and fulfillment of Communications Literacy CL2 requirement. Enrollment limited to FCHD majors *only*. (F,Sp) <sup>DE</sup>

**FCHD 3280 Economic Issues for Individuals and Families 3**  
Focuses on issues related to economic well-being of individuals and families, with special emphasis on income and wealth, poverty, consumption and saving, work and leisure, human capital investment, and aging. (Sp) <sup>DE</sup>

**FCHD 3310 Consumer Policy 3**  
Examines different tools for policy analysis. Provides conceptual and analytical framework for understanding the role of consumer sciences professionals as political actors and the potential to influence the shaping of public policy, particularly consumer and government policies. (Sp)

# Course Descriptions

<p><b>FCHD 3340</b>            <b>Housing: Societal and Environmental Issues</b>            <b>3</b> Studies housing in the contemporary U.S., including affordability, access, expectations, aesthetic considerations, and effects of public and private policies on housing choices. (F) <sup>DE</sup></p> <p><b>FCHD 3350 DSS</b>    <b>Family Finance</b>            <b>3</b> Achieving personal and family financial goals, including financial planning and record keeping, different types of insurance, taxes, use of credit, investments, retirement, and estate planning. (F,Sp,Su) <sup>DE</sup></p> <p><b>FCHD 3450</b>            <b>Consumer Credit Problems</b>            <b>3</b> Consumer credit problems, debt reduction strategies, credit collection policies and practices, bankruptcy, and government assistance programs. Prerequisite: FCHD 3350. (F) <sup>DE</sup></p> <p><b>FCHD 3510</b>            <b>Infancy and Early Childhood</b>            <b>3</b> Development and growth of the child from conception to five years. Physical, social, and emotional growth; and parenting skills. Prerequisites: Junior standing and FCHD 1500, 2610. (F,Sp) <sup>DE</sup></p> <p><b>FCHD 3520</b>            <b>Children in the Middle Years</b>            <b>3</b> Growth and development of normal children. Guidance principles related to behavior of children at these age levels. Prerequisites: Junior standing and FCHD 1500, 2610. (F,Sp) <sup>DE</sup></p> <p><b>FCHD 3530</b>            <b>Adolescence</b>            <b>3</b> Social, psychological, and physical aspects of adolescence in modern societies. Social and cultural expectations and influences on adolescents stemming from the family, peers, school, and the community. Prerequisites: Junior standing and FCHD 1500. (F,Sp) <sup>DE</sup></p> <p><b>FCHD 3540</b>            <b>Adult Development and Aging</b>            <b>3</b> Interdisciplinary perspective on developmental issues in adulthood and old age. Biosocial, cognitive, and psychosocial changes in older adults in family, community, cultural, and socio-political contexts. Prerequisites: Junior standing and FCHD 1500. (F,Sp) <sup>DE</sup></p> <p><b>FCHD 3550</b>            <b>Infant Lab</b>            <b>1</b> Practical experience in laboratory setting with children birth through two years of age. Lab supplements/complements course content of FCHD 3510. Prerequisites: Junior standing, FCHD 1500, 2610. Corequisite: FCHD 3510. (F,Sp) <sup>DE</sup></p> <p><b>FCHD 3560</b>            <b>Middle Childhood Lab</b>            <b>1</b> Practical experience in laboratory setting with children in the middle years. Lab supplements/complements course content of FCHD 3520. Prerequisites: Junior standing, FCHD 1500, 2610. Corequisite: FCHD 3520. (F,Sp) <sup>DE</sup></p> <p><b>FCHD 4220</b>            <b>Family Crises and Interventions</b>            <b>3</b> Normative and nonnormative stressors provoking individual and family crises. Principles and techniques for family interventions. Prerequisites: Junior standing, FCHD 2400. (F,Su) <sup>DE</sup></p> <p><b>FCHD 4230</b>            <b>Families and Social Policy</b>            <b>3</b> Local, state, and federal policies with implications for individuals and families across the lifespan. Prerequisites: Junior standing and FCHD 2400. (F,Sp) <sup>DE</sup></p> <p><b>FCHD 4240</b>            <b>Social and Family Gerontology</b>            <b>3</b> Social, cultural, and family contexts of aging. Intergenerational family relations in later life. Social policies and services affecting older adults and their families. Prerequisites: Junior standing and FCHD 2400, 3540. (F,Sp) <sup>DE</sup></p> <p><b>FCHD 4330</b>            <b>Family Finance Career Seminar</b>            <b>1</b> Exploration of career options through readings, guest lecturers, interviews of practitioners, and development of an internship and career plan. Prerequisite: FCHD 3350. (F)</p> <p><b>FCHD 4350</b>            <b>Advanced Family Finance</b>            <b>3</b> Managing personal and family financial resources to achieve goals relating to investments, retirement, and estate planning. Prerequisite: FCHD 3350. (Sp)</p> <p><b>FCHD 4400</b>            <b>Research Practicum in FCHD</b>            <b>1-12<sup>®</sup></b> Provides placement experience in applying skills and knowledge in a research setting. (F,Sp,Su)</p>	<p><b>FCHD 4460</b>            <b>Financial Counseling</b>            <b>3</b> Development and application of financial counseling and presentation skills. Analysis of various financial problems and development of appropriate solutions and resources. Prerequisites: FCHD 3350, 3450. Enrollment limited to FCHD majors with a Family Finance Emphasis. (Sp)</p> <p><b>FCHD 4550</b>            <b>Preschool Methods and Curriculum</b>            <b>3</b> Use of materials, equipment, and activities in planning and implementing curricula for preschool children. Prerequisites: Junior standing and FCHD 1500. (F,Sp) <sup>DE</sup></p> <p><b>FCHD 4800</b>            <b>Senior Project</b>            <b>3</b> Project in area of student's choice, selected and prepared in conjunction with an advisor from the FCHD faculty. Prerequisites: Senior standing and enrollment in FCHD major. (F,Sp,Su)</p> <p><b>FCHD 4820</b>            <b>Current Issues in Family Life Studies</b>            <b>3</b> Explores history, purpose, impact, and contemporary status of family life studies. Discussion of current issues, policies, ethics, and approaches to family life studies. Development of empirically-informed and methodologically-sound plans and strategies. Prerequisite: Advisor approval. Enrollment limited to Family Life Studies majors. Available online <i>only</i>. (F,Sp,Su) <sup>DE</sup></p> <p><b>FCHD 4830</b>            <b>Senior Capstone Project</b>            <b>3</b> Capstone course for the family life studies format. Prepares students as professionals, while providing professional development through research, teaching, and outreach. Development documented in portfolio, which is submitted and graded as the final senior project. Prerequisite: Advisor approval. Enrollment limited to Family Life Studies majors. Background check required. Available online <i>only</i>. (F,Sp,Su) <sup>DE</sup></p> <p><b>FCHD 4900 CI</b>        <b>Pre-Practicum Skills</b>            <b>3</b> Acquisition and integration of interpersonal skills, conflict resolution, and ethical decision-making for active participation in FCHD practica. Enrollment limited to FCHD majors <i>only</i>. Prerequisites: Junior standing, FCHD 2610, 3100, and fulfillment of Communications Literacy CL2 requirement. (F,Sp) <sup>DE</sup></p> <p><b>FCHD 4940</b>            <b>Gerontology Integration</b>            <b>1</b> Integration of gerontology coursework and practicum. Written paper requires approval by FCHD Gerontology Coordinator. (F,Sp,Su)</p> <p><b>FCHD 4950</b>            <b>Practicum: Consumer Science</b>            <b>1-12<sup>®</sup></b> Placement experience in applying skills and knowledge in community agencies. Prerequisites: Junior standing, completion of 24 credits in major. Enrollment limited to Family and Consumer Sciences majors who have at least junior standing, or to FCHD majors with a Family Finance Emphasis, who have completed at least 30 credits in the major. The application deadlines are: February 15 for fall semester, June 15 for spring semester, and October 15 for summer semester. (F,Sp,Su)</p> <p><b>FCHD 4960</b>            <b>Practice Teaching in Child Development Laboratories</b>            <b>3 or 6</b> Intensive teaching practicum in the Child Development Lab program. Students must sign up at least three full semesters in advance in FL 205. Prerequisites: Junior standing, FCHD 4550, and departmental permission. (F,Sp,Su) <sup>DE</sup></p> <p><b>FCHD 4970</b>            <b>Gerontology Practicum</b>            <b>1-3<sup>®</sup></b> Placement experience in gerontology settings. Practical opportunities to apply theory, knowledge, and skills. Prerequisites: Senior standing and FCHD 3540, 4240. Apply one semester in advance. The application deadlines are: February 15 for fall semester, June 15 for spring semester, and October 15 for summer semester. (F,Sp,Su)</p> <p><b>FCHD 4980</b>            <b>Practicum</b>            <b>1-12<sup>®</sup></b> Placement experience in applying skills and knowledge in community agencies. Enrollment limited to FCHD majors <i>only</i>. Prerequisites: Junior standing and FCHD 4900; must have completed a total of 30 FCHD credits and the practicum application. The application deadlines are: February 15 for fall semester, June 15 for spring semester, and October 15 for summer semester. (F,Sp,Su) <sup>DE</sup></p> <p><b>FCHD 4990</b>            <b>Readings and Conference</b>            <b>1-6<sup>®</sup></b> Directed independent study of topics preselected by faculty and student. Instructor permission required before registration. (F,Sp,Su)</p>
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# Course Descriptions

<p><b>FCHD 5340</b>                    <b>Housing Finance and Regulations</b>                    <b>3</b> Exploration of mortgage loan industry, with in-depth examination of various lending products and procedures. Study of regulations affecting housing, including Fair Housing, predatory lending, and mortgage default. Prerequisites: FCHD 3340, 3350. Enrollment limited to students in the Family Finance emphasis and FCS majors. (Sp)</p>	<p><b>FCHD 6220</b>                    <b>Interpersonal Family Relationships**</b>                    <b>3</b> <b>(dual listing 7220)</b> In accordance with expertise of instructor, covers selected interpersonal issues in intimate and family relations. (F)</p>
<p><b>FCHD 5540</b>                    <b>Family Life Education Methods</b>                    <b>3</b> Introductory course focused on theory, principles, and skills necessary to prepare, present, and evaluate family life education programs and workshops. Prerequisites: Junior standing, FCHD 1500 and 2400. Enrollment limited to FCHD majors <i>only</i>. (F,Sp) <sup>DE</sup></p>	<p><b>FCHD 6230</b>                    <b>Family and Social Policy*</b>                    <b>3</b> <b>(dual listing 7230)</b> In accordance with expertise of instructor, covers issues and implications of local, state, and federal policies relating to individuals and families across the lifespan. (Sp)</p>
<p><b>FCHD 5550</b>                    <b>Interdisciplinary Workshop</b>                    <b>1-3<sup>®</sup></b> (F,Sp,Su) <sup>DE</sup></p>	<p><b>FCHD 6310</b>                    <b>Survey of Marriage and Family Therapy</b>                    <b>3</b> Overview of marriage and family therapy models. Historical development of marriage and family therapy as a profession and a practice. Enrollment limited to FCHD Marriage and Family Therapy master's students <i>only</i>. (F)</p>
<p><b>FCHD 5950</b>                    <b>Financial Counseling Practicum</b>                    <b>3<sup>®</sup></b> Students apply their knowledge by conducting one-on-one counseling sessions, observing other counselors, and teaching workshops. Students develop valuable management, communication, and counseling skills. Students should sign up as far in advance as possible after being admitted to the Family Finance emphasis. Prerequisites: FCHD 4220, 4460, 5340 (may be taken concurrently). Enrollment limited to FCHD majors with a Family Finance Emphasis. The application deadlines are: February 15 for fall semester, June 15 for spring semester, and October 15 for summer semester. (F,Sp,Su)</p>	<p><b>FCHD 6320</b>                    <b>Foundations of Marriage and Family Therapy</b>                    <b>3</b> Epistemological and philosophical directions of marriage and family therapy, beginning with early applications of General Systems theories and cybernetics through constructivist and postmodern frameworks. (F)</p>
<p><b>FCHD 6010</b>                    <b>Survey of Family Relations Research</b>                    <b>3</b> Overview and critique of substantive areas of research in marriage and the family. Prerequisite: FCHD 2400 or equivalent. (Sp) <sup>DE</sup></p>	<p><b>FCHD 6330</b>                    <b>Marriage and Family Therapy Practice I: Traditional Approaches</b>                    <b>3</b> Traditional approaches to marriage and family therapy, with a focus on individual and couple issues, including sexuality and personality issues within a systems framework. Prerequisite: FCHD 3110 or equivalent. (Sp)</p>
<p><b>FCHD 6020</b>                    <b>Survey of Human Development Research</b>                    <b>3</b> Examines contemporary research and developmental issues. Highlights social development from social-historical and social change framework. Prerequisite: FCHD 1500 or equivalent. (Sp) <sup>DE</sup></p>	<p><b>FCHD 6340</b>                    <b>Marriage and Family Therapy Practice II: Contemporary Approaches</b>                    <b>3</b> Contemporary approaches to marriage and family therapy. Focuses on couple and family interaction issues, including conflict, parenting, and other common family problems. (Sp)</p>
<p><b>FCHD 6030</b>                    <b>Research Methods</b>                    <b>3</b> Overview of methods for studying family relations and human development, including sampling, measurement, research design, and data analyses/interpretations. Research proposal required. Prerequisite: FCHD 3130 or equivalent. (Sp)</p>	<p><b>FCHD 6350</b>                    <b>Clinical Practice in Marriage and Family Therapy</b>                    <b>3<sup>®</sup></b> Selected clinical issues in marriage and family therapy. (Sp)</p>
<p><b>FCHD 6040</b>                    <b>Family Economics</b>                    <b>3</b> Examination of contemporary research and current issues in family economics. (Sp)</p>	<p><b>FCHD 6360</b>                    <b>Ethical and Professional Development in Marriage and Family Therapy</b>                    <b>3</b> Ethical, legal, and professional issues in marriage and family therapy. (F)</p>
<p><b>FCHD 6050</b>                    <b>Consumer Science Theories</b>                    <b>3</b> Critical review and assessment of theories in consumer science. (F)</p>	<p><b>FCHD 6370</b>                    <b>Assessment in Marriage and Family Therapy</b>                    <b>3</b> Development, application, and interpretation of major individual and family assessment techniques used in marriage and family therapy practice and research. (Sp)</p>
<p><b>FCHD 6060</b>                    <b>Human Development Theories</b>                    <b>3</b> Overview of major developmental theories, including contributions from philosophical, personality, and learning theories. Explores epistemology, ethology, and systems theories relating to human development. Prerequisite: FCHD 1500 or equivalent. (F) <sup>DE</sup></p>	<p><b>FCHD 6380</b>                    <b>Survey of Marital and Family Therapy Research</b>                    <b>3<sup>®</sup></b> Examines contemporary research issues in marriage and family therapy. (F)</p>
<p><b>FCHD 6070</b>                    <b>Family Theories</b>                    <b>3</b> Critical review and assessment of theories in family research, along with construction and application of family theory. Prerequisite: FCHD 2400 or equivalent. (F)</p>	<p><b>FCHD 6390</b>                    <b>Practicum in Marriage and Family Therapy</b>                    <b>1-6<sup>®</sup></b> Supervised clinical experience in marriage and family therapy. May be graded Pass/Fail, as determined by instructor or section. Prerequisites: Admission to Marriage and Family Therapy specialization and instructor's permission. (F,Sp,Su)</p>
<p><b>FCHD 6080</b>                    <b>Professional Development</b>                    <b>3</b> <b>(dual listing 7080)</b> Capstone course for graduate students, emphasizing issues related to professional development (e.g., grant writing, publishing, vitae development, interview skills, developing a research agenda, networking, ethics, professional conduct, teaching, etc.). (Sp)</p>	<p><b>FCHD 6400</b>                    <b>Topical Seminar in Consumer Science</b>                    <b>3<sup>®</sup></b> <b>(dual listing 7400)</b> Selected issues in consumer science. Usually offered once per year. Semester taught will vary.</p>
<p><b>FCHD 6200</b>                    <b>Topical Seminar in Family Relations</b>                    <b>3<sup>®</sup></b> Selected issues in family relations. Usually offered once per year. Semester taught will vary.</p>	<p><b>FCHD 6410</b>                    <b>Family Financial Problems</b>                    <b>3</b> Review of research on family financial problems, including bankruptcy and related public policies. (Sp)</p>
<p><b>FCHD 6210</b>                    <b>Cultural Diversity in Families*</b>                    <b>3</b> <b>(dual listing 7210)</b> Covers selected issues related to family patterns and functions associated with ethnicity, gender, and social class, as well as additional topics related to expertise of instructor. (F)</p>	<p><b>FCHD 6420</b>                    <b>Housing Policy and Issues</b>                    <b>3</b> <b>(dual listing 7420)</b> Housing market forces and housing policies at the local, state, national, and international levels. Additional assignments required for FCHD 7420. (F)</p>

# Course Descriptions

<p><b>FCHD 6430</b>                    <b>Economics of Aging</b>                    <b>3</b>  <b>(dual listing 7430)</b>  Explores economic behavior of the elderly, including financial preparation and security, health-wealth connection, labor force behavior, intergenerational transfers and supports, and living arrangements. Additional assignments required for FCHD 7430. (F)</p> <p><b>FCHD 6500</b>                    <b>Topical Seminar in Human Development</b>    <b>3<sup>®</sup></b>  Selected issues in human development. Usually offered once per year. Semester taught will vary. <sup>DE</sup></p> <p><b>FCHD 6510</b>                    <b>Development in Infancy*</b>                    <b>3</b>  <b>(dual listing 7510)</b>  Covers developmental period from birth to age three and the major developmental domains of physical, neurological, perception, cognition, language, emotion, and social development. Additional topics discussed relating to expertise of instructor. To receive credit for 7510, students must fulfill additional requirements. (F)</p> <p><b>FCHD 6520</b>                    <b>Development in Childhood**</b>                    <b>3</b>  <b>(dual listing 7520)</b>  Covers developmental period from age 3 to about age 12. Focuses on major developmental domains of physical, cognitive, and emotional/social development across context related to expertise of instructor. To receive credit for 7520, students must fulfill additional requirements. (F)</p> <p><b>FCHD 6530</b>                    <b>Development in Adolescence**</b>                    <b>3</b>  <b>(dual listing 7530)</b>  Covers developmental period from age 12 to about age 20. Focuses on major developmental domains associated with adolescence, including physical, cognitive, and emotional/social development across context related to expertise of instructor. To receive credit for 7530, students must fulfill additional requirements. (Sp)</p> <p><b>FCHD 6900</b>                    <b>Topical Seminar in Family, Consumer, and Human Development</b>                    <b>1-3<sup>®</sup></b>  Selected issues in family, consumer, and human development. (F,Sp,Su)</p> <p><b>FCHD 6910</b>                    <b>Parenting*</b>                    <b>3</b>  <b>(dual listing 7910)</b>  Covers topic of parenting from perspectives of human development, family relations, and consumer science. Specific topics selected within each of these perspectives. To receive credit for 7910, students must fulfill additional requirements. (Sp)</p> <p><b>FCHD 6960</b>                    <b>Readings and Conference</b>                    <b>1-6<sup>®</sup></b>  Directed independent study of topics preselected by faculty and student. Prerequisite: Instructor's permission. (F,Sp,Su)</p> <p><b>FCHD 6970</b>                    <b>Thesis Research</b>                    <b>1-6<sup>®</sup></b>  Research for master's thesis, arranged with advisor. Graded Pass/Fail <i>only</i>. Prerequisite: Advisor's permission. (F,Sp,Su)</p> <p><b>FCHD 6980</b>                    <b>Graduate Practicum</b>                    <b>1-9<sup>®</sup></b>  Application of family and human development skills and knowledge in a supervised setting, as arranged by advisor. Prerequisite: Advisor's permission. (F,Sp,Su)</p> <p><b>FCHD 6990</b>                    <b>Continuing Graduate Advisement</b>                    <b>1-9<sup>®</sup></b>  Continuing registration to complete thesis requirements. Graded Pass/Fail <i>only</i>. Prerequisite: Six credits of FCHD 6970. (F,Sp,Su)</p> <p><b>FCHD 7050</b>                    <b>Advanced Research and Theory in Consumer Science</b>                    <b>3</b>  Critical review of research and theories in consumer science. Prerequisite: FCHD 6050. (F)</p> <p><b>FCHD 7060</b>                    <b>Advanced Research and Theory in Human Development</b>                    <b>3</b>  Critical review of research and theories in human development. Prerequisite: FCHD 6060 or equivalent. (Sp)</p>	<p><b>FCHD 7070</b>                    <b>Advanced Research and Theory in Family Relations</b>                    <b>3</b>  Critical review of research and theories in marriage and family relationships. Prerequisite: FCHD 6070 or equivalent. (Sp)</p> <p><b>FCHD 7080</b>                    <b>Professional Development</b>                    <b>3</b>  <b>(dual listing 6080)</b>  Capstone course for graduate students, emphasizing issues related to professional development (e.g., grant writing, publishing, vitae development, interview skills, developing a research agenda, networking, ethics, professional conduct, teaching, etc.). (Sp)</p> <p><b>FCHD 7200</b>                    <b>Topical Seminar in Family Relations</b>                    <b>3<sup>®</sup></b>  Selected issues for advanced professionals in family relations. Usually offered once per year. Semester taught will vary.</p> <p><b>FCHD 7210</b>                    <b>Cultural Diversity in Families*</b>                    <b>3</b>  <b>(dual listing 6210)</b>  Covers selected issues related to family patterns and functions associated with ethnicity, gender, and social class, as well as additional topics related to expertise of instructor. (F)</p> <p><b>FCHD 7220</b>                    <b>Interpersonal Family Relationships**</b>                    <b>3</b>  <b>(dual listing 6220)</b>  In accordance with expertise of instructor, covers selected interpersonal issues in intimate and family relations. (F)</p> <p><b>FCHD 7230</b>                    <b>Family and Social Policy*</b>                    <b>3</b>  <b>(dual listing 6230)</b>  In accordance with expertise of instructor, covers issues and implications of local, state, and federal policies relating to individuals and families across the lifespan. (Sp)</p> <p><b>FCHD 7400</b>                    <b>Topical Seminar in Consumer Science</b>                    <b>3<sup>®</sup></b>  <b>(dual listing 6400)</b>  Selected issues for advanced professionals in consumer science. Usually offered once per year. Prerequisite: FCHD 6400. Semester taught will vary.</p> <p><b>FCHD 7420</b>                    <b>Housing Policy and Issues</b>                    <b>3</b>  <b>(dual listing 6420)</b>  Housing market forces and housing policies at the local, state, national, and international levels. Additional assignments required for FCHD 7420. (F)</p> <p><b>FCHD 7430</b>                    <b>Economics of Aging</b>                    <b>3</b>  <b>(dual listing 6430)</b>  Explores economic behavior of the elderly, including financial preparation and security, health-wealth connection, labor force behavior, intergenerational transfers and supports, and living arrangements. Additional assignments required for FCHD 7430. (F)</p> <p><b>FCHD 7500</b>                    <b>Topical Seminar in Human Development</b>                    <b>3<sup>®</sup></b>  Selected issues for advanced professionals in human development. Usually offered once per year. Semester taught will vary.</p> <p><b>FCHD 7510</b>                    <b>Development in Infancy*</b>                    <b>3</b>  <b>(dual listing 6510)</b>  Covers developmental period from birth to age three and the major developmental domains of physical, neurological, perception, cognition, language, emotion, and social development. Additional topics discussed relating to expertise of instructor. To receive credit for 7510, students must fulfill additional requirements. (F)</p> <p><b>FCHD 7520</b>                    <b>Development in Childhood**</b>                    <b>3</b>  <b>(dual listing 6520)</b>  Covers developmental period from age 3 to about age 12. Focuses on major developmental domains of physical, cognitive, and emotional/social development across context related to expertise of instructor. To receive credit for 7520, students must fulfill additional requirements. (F)</p> <p><b>FCHD 7530</b>                    <b>Development in Adolescence**</b>                    <b>3</b>  <b>(dual listing 6530)</b>  Covers developmental period from age 12 to about age 20. Focuses on major developmental domains associated with adolescence, including physical, cognitive, and emotional/social development across context related to</p>
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# Course Descriptions

expertise of instructor. To receive credit for 7530, students must fulfill additional requirements. (Sp)

**FCHD 7900      Topical Seminar in Family, Consumer, and Human Development      1-3<sup>®</sup>**

Selected issues for advanced professionals in family, consumer, and human development. (F,Sp,Su)

**FCHD 7910      Parenting\*      3**  
(dual listing 6910)

Covers topic of parenting from perspectives of human development, family relations, and consumer science. Specific topics selected within each of these perspectives. To receive credit for 7910, students must fulfill additional requirements. (Sp)

**FCHD 7960      Readings and Conference      1-6<sup>®</sup>**

Directed independent study of topics preselected by faculty and student. Prerequisite: Instructor's permission. (F,Sp,Su)

**FCHD 7970      Dissertation Research      1-9<sup>®</sup>**

Research for dissertation, as arranged with advisor. Graded Pass/Fail *only*. Prerequisite: Advisor's permission. (F,Sp,Su)

**FCHD 7980      Advanced Graduate Practicum      1-9<sup>®</sup>**

Professional supervision of doctoral students, applying general principles from the study of research in family and human development. Prerequisite: Advisor's permission. (F,Sp,Su)

**FCHD 7990      Continuing Graduate Advisement      1-9<sup>®</sup>**

Continuing registration to complete dissertation requirements. Graded Pass/Fail *only*. Prerequisite: Twenty credits of FCHD 7970. (F,Sp,Su)

\*Taught 2010-2011.

\*\*Taught 2009-2010.

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>®E</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Family and Consumer Sciences Education (FCSE)

See *Department of Agricultural Systems Technology and Education*, pages 149-155

**FCSE 1140      Introductory Sewing      2**

Introductory-level sewing techniques geared toward beginning sewing students. Includes use of sewing machines and sergers. No previous sewing experience needed. Graded Pass/Fail *only*. (F,Sp)

**FCSE 2040      Clothing Production Principles      3**

Intermediate-level clothing construction techniques, pattern alteration and fitting, and use of sewing machine and serger. Previous sewing experience recommended. Enrollment limited to FCSE majors *only*, or with instructor's permission. (F,Sp)

**FCSE 2510      Orientation to Family and Consumer Sciences Education      3**

Overview of the integrated Family and Consumer Sciences Education system. Students learn how family and human development, nutrition, finance, clothing production, and consumerism is planned, implemented, and evaluated through FCSE programs in the public schools. Enrollment limited to FCSE majors *only*. (Sp)

**FCSE 3030      DSC/QI Textile Science      4**

Study of fibers, yarns, fabric constructions, and finishes related to suitability for desired end uses. Use of mathematics and descriptive statistics for reporting and interpreting data collected from lab experiments. Prerequisites: Completion of at least 30 credits and C- or better in a QL course. Lectures and laboratory. (Sp)

**FCSE 3040      Advanced Clothing Production Principles      3**

Flat pattern design and tailoring techniques. Prerequisite: FCSE 2040. (F)

**FCSE 3060      DSS/CI Human Behavior Related to Dress      3**

Analyzes economic, historic, psychological, social, and cultural contexts shaping individual and group dress and appearance. Prerequisite: Completion of a course having University Studies Breadth Social Sciences (BSS) designation. (Su)

**FCSE 3080      DHA Dress and Humanity      3**

Explores relationship of dress and humanity. Collaborative group assignments, discussions of history related to dress, cultures as related to dress, and the influence dress has in today's society. Prerequisite: Completion of course having University Studies Breadth Humanities (BHU) designation. (F,Sp)

**FCSE 3300      Family and Consumer Sciences Education Clinical Experience I      1**

Provides on-site experience for students to model a secondary family and consumer sciences education teacher. Students are expected to learn teaching and classroom management principles. Graded Pass/Fail *only*. Must be taken concurrently with FCSE 3400. Prerequisite: Admission to Secondary Education Professional Education Component. (Sp)

**FCSE 3400      Family and Consumer Sciences Education Methods I      3**

Methods of successfully planning and maintaining family and consumer sciences work education programs in secondary schools. History and philosophy of applied technology education. Prerequisite: Admission to Secondary Education. FCSE 3400 and 3300 must be taken concurrently. (Sp)

**FCSE 3790      Housing and Interior Design Teaching Methods      3**

Online course mirroring Utah's state standards for housing and interior design. Students review housing and interior design content, and then generate teaching strategies appropriate for teaching that content at the high school level. Prerequisites: ID 1790, FCSE 3400. Enrollment limited to FCSE majors *only*. (F,Sp,Su)

**FCSE 4250      Internship in Family and Consumer Sciences Education      1-12<sup>®</sup>**

Midmanagement-level experience in a position approved by the department. One credit earned for each 60 hours of experience. Graded Pass/Fail *only*. Prerequisite: Junior standing. (F,Sp,Su)

**FCSE 4300      Family and Consumer Sciences Education Clinical Experience II      1**

Provides on-site experience for students to model a secondary family and consumer sciences education teacher. Students expected to learn teaching and classroom management principles. Graded Pass/Fail *only*. Prerequisites: FCSE 3300, 3400. (F)

**FCSE 4400      Family and Consumer Sciences Education Methods II      3**

Development of competency in curriculum planning, and skill and sensitivity in the use of various teaching-learning strategies and resources. Includes assessment for vocational education. Prerequisites: FCSE 3300, 3400. (F)

**FCSE 4900      Independent Study in Family and Consumer Sciences Education      1-5<sup>®</sup>**

Prior to registration, students must identify a project of interest and discuss the project with instructor. Prerequisite: Junior standing and approval of faculty. (F,Sp,Su)

**FCSE 5500      Student Teaching Seminar      2**

Taken during student teaching in secondary schools to complement school experience. Focuses upon problems arising during student teaching. Includes teaching plans, procedures, adaptive classroom practices, and evaluation. Graded Pass/Fail *only*. Prerequisites: FCSE 4300, 4400. Must be taken concurrently with FCSE 5630. (Sp)

**FCSE 5550      Workshop Topics in Family and Consumer Sciences Education      0.5-3<sup>®</sup>**

Concentrated offerings to increase knowledge, skills, or creative expression in current Family and Consumer Sciences Education topics or curriculum areas. (F,Sp,Su)

## FCSE 5630 Student Teaching in Secondary Schools 10

After assignment to a cooperating family and consumer sciences educator, students are given professional responsibilities associated with teaching. Graded Pass/Fail only. Prerequisites: FCSE 4300, 4400. Must be taken concurrently with FCSE 5500. (Sp)

## FCSE 6210 Analysis of Social Research Data\*\* 3

Explores the use of SPSS for descriptive statistics, contingency tables, differential statistics, and correlational statistics. Discussion of syntax, procedure options, and interpretation of output. (F)

## FCSE 6240 Graduate Topics in Career and Technical Education 1-3®

Surveys selected topics in career and technical education. Topics will be unique each time course is offered. (F,Sp,Su)

## FCSE 6250 Graduate Internship in Career and Technical Education 1-6®

Designed for graduate students who wish to acquire or upgrade their experience in an occupational field related to their area of study. One credit earned for each 60 hours of experience. Repeatable for up to 6 credits. Prerequisite: Instructor approval prior to enrollment. (F,Sp,Su)<sup>DE</sup>

## FCSE 6290 Current Issues in Education and Extension Research\* 3

Investigation and reporting of current issues related to career and technical education and extension education research. (F)<sup>DE</sup>

## FCSE 6520 Administration and Supervision in Education and Extension 3

Application of research and theory of administration and supervision to define and clarify the role of leadership in formal education and extension situations. (F)

## FCSE 6530 Classroom Management, Student Motivation, and Guidance 3

Multiple-strategy approach for increasing teachers' effectiveness and satisfaction in classroom management and discipline. (Sp)

## FCSE 6540 Program Development, Testing, and Evaluation in Career and Technical Education\*\* 3

Examines current trends in curriculum and program development related to specific educational outcomes. Includes curriculum development process. (F)

## FCSE 6550 Advanced Teaching Techniques\* 3®

Explores advanced application of teaching strategies and theory, as well as the creation of innovative classroom materials. (F)<sup>DE</sup>

## FCSE 6560 Mentoring New Professionals\* 3

Explores the role of mentoring in the success of new teaching professionals. Reviews four components of professional practice. Examines techniques for observation and conferencing. Students reflect upon their own teaching/mentoring experiences and the impact upon professional practice. (Sp)

## FCSE 6570 Adult Education and Volunteer Programs 3

Explores current program formats and instructional materials developed for adult education. Emphasizes program and course development and teaching strategies suitable for adults. This course is currently inactive. Contact department for information about when this course may be taught.

## FCSE 6900 Graduate Independent Study in Career and Technical Education 1-4®

Independent study in an area of career and technical education. For approval of project and allowable credits, students should check with committee. (F,Sp,Su)<sup>DE</sup>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Finance (FIN)

See Department of Economics and Finance, pages 230-233

**Note:** Effective Fall Semester 2009, some of the courses previously listed under the Business Administration (BA) prefix will be taught under the FIN prefix. These courses are shown below. Other courses previously listed under the BA prefix will be taught under the Management (MGT) prefix. (MGT courses are shown on pages 603-607.) Students registering for Summer Semester 2009 Business Administration courses can find them under the BA prefix by logging into Access at: <http://www.usu.edu/myusu/>

## FIN 3400 QI Corporate Finance 3

How corporations raise and manage capital. Study of modern financial principles, methods, policies, and institutions. Corporate organization, creation, and reorganization. Prerequisites: MATH 1050; ACCT 2010; choose one statistics course from: STAT 1040, 2300, 3000, or PSY 2800; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp,Su)<sup>DE</sup>

## FIN 4300 International Finance 3

Overview of international financial management, including international financial markets, exchange rate behavior, and financing international trade. Prerequisites: Grade of B- (2.67) or better in FIN 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)

## FIN 4410 Financial Institutions 3

Role of domestic and international financial institutions in supplying services to consumers, businessmen, and government. Prerequisites: Grade of B- (2.67) or better in FIN 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)

## FIN 4420 Insurance 3

Studied from the standpoint of insurance services consumers, course explores types of life, property, and casualty insurance contracts; nature and uses of life and property insurance; and the organization, management, and government supervision of insurance companies. Prerequisites: Grade of B- (2.67) or better in FIN 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F)

## FIN 4430 Real Estate Finance 3

Covers theory, principles, and techniques of real estate investment, emphasizing present value and cash-flow approaches to real estate investment decisions. Prerequisites: Grade of B- (2.67) or better in FIN 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (Sp)

## FIN 4450 Fundamentals of Valuation 3

Augments and extends the basic equity valuation material in corporate finance to the specific and complex setting of valuing equity securities. Covers valuation models (i.e., dividend discount model) as well as multiples and technical approaches. Prerequisites: Grade of B- (2.67) or better in FIN 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)

## FIN 4460 Investments 3

Provides an understanding of security analysis and portfolio management. Market operations; risk and return; stock, bond, and option analysis; and portfolio theory and creation. Prerequisites: Grade of B- (2.67) or better in FIN 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)

## FIN 4900 Independent Research and Reading 1-3®

(F,Sp,Su)<sup>DE</sup>

## FIN 4950 Senior Honors Thesis/Project 3

Creative project that will then be written up, and presented, as a Senior Thesis as required for an Honors Plan. (Sp)

## FIN 5350 Quantitative Financial Modeling and Applications 3

Introduction to quantitative methods and computer applications applicable in financial modeling. Covers financial statement modeling, asset allocation, risk analysis, scenario generation, and option pricing through the introduction and proper uses of spreadsheet modeling, decision analysis, simulation, and optimization techniques. Prerequisites: FIN 3400 and MIS 2100. Also taught as MIS 5350. (Sp)

# Course Descriptions

<b>FIN 5420</b>	<b>Risk Management</b>	<b>3</b>
Examines a common set of techniques which can be used in dealing with pure risk, including risk assumption, prevention, diversification, and transfer via insurance and noninsurance market mechanisms. Prerequisites: FIN 3400 and 4460. (Sp)		
<b>FIN 5460</b>	<b>Advanced Investments</b>	<b>3</b>
Advanced topics in investment instruments, portfolio management, markets, and financial modeling techniques impacting financial decisions. Prerequisites: FIN 3400 and 4460. (F)		
<b>FIN 6410</b>	<b>Corporate Finance Essentials</b>	<b>1.5</b>
Introduction of corporate finance principles for students entering a master's degree program in the Huntsman School of Business. Prerequisite: Acceptance into a Huntsman School of Business master's degree program. (Su)		
<b>FIN 6420</b>	<b>Financial Problems</b>	<b>3</b>
Corporate finance case course, dealing with problems in working capital management, capital budgeting, cost of capital problems, and corporate restructuring. (F) <sup>DE</sup>		
<b>FIN 6440</b>	<b>Financial Decision Making</b>	<b>3</b>
Presentation of financial modelling techniques impacting firm decisions. (Sp) <sup>DE</sup>		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## French (FREN)

See Department of Languages, Philosophy, and Speech Communication, pages 334-346

### Lower Division

<b>FREN 1010</b>	<b>French First Year I</b>	<b>4</b>
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Not open to those with more than one year high school French or equivalent. (F) <sup>DE</sup>		
<b>FREN 1020</b>	<b>French First Year II</b>	<b>4</b>
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: FREN 1010 or equivalent. (Sp) <sup>DE</sup>		
<b>FREN 1030</b>	<b>Beginning French for Everyday Communication</b>	<b>3</b>
Development of basic conversational skills, communication strategies, and cultural knowledge through immersion in a French-speaking environment. Offered only through USU's study abroad program in France. Cannot be substituted for FREN 1010 or 1020. Graded Pass/Fail <i>only</i> . (Su)		
<b>FREN 1050</b>	<b>French First Year I Study Abroad</b>	<b>4</b>
Intensive first-year language course designed to increase proficiency in the four language skills and in intercultural knowledge. Offered only through USU's summer study abroad program in France. Not open to those with more than one year high school French or equivalent. (Su)		
<b>FREN 1150</b>	<b>French First Year II Study Abroad</b>	<b>4</b>
Intensive first-year language course designed to increase proficiency in the four language skills and in intercultural knowledge. Offered only through USU's summer study abroad program in France. Prerequisite: FREN 1010 or 1050. (Su)		
<b>FREN 1820</b>	<b>Beginning Independent Study: Experiencing Paris</b>	<b>2</b>
Beginning-level independent study project focusing on the city of Paris, its history, culture, and patterns of life. Offered only through USU's summer study abroad program in France. (Su)		

<b>FREN 2010</b>	<b>French Second Year I</b>	<b>4</b>
Continued development of communicative competencies in the four language skills, with more emphasis on communication through reading and writing and continued exposure to cultures and customs. Prerequisite: FREN 1020 or equivalent. (F)		
<b>FREN 2020</b>	<b>French Second Year II</b>	<b>4</b>
Continued development of communicative competencies in the four language skills, with more emphasis on communication through reading and writing and continued exposure to cultures and customs. Prerequisite: FREN 2010 or equivalent. (Sp)		
<b>FREN 2030</b>	<b>Intermediate French for Everyday Communication</b>	<b>3</b>
Development of intermediate-level conversational skills, communication strategies, and cultural knowledge through immersion in a French-speaking environment. Offered only through USU's study abroad program in France. Cannot be substituted for FREN 2010 or 2020. Graded Pass/Fail <i>only</i> . (Su)		
<b>FREN 2050</b>	<b>French Second Year I Study Abroad</b>	<b>4</b>
Intensive second-year language course designed to increase proficiency in the four language skills and in intercultural knowledge, with more emphasis on communication through reading and writing. Offered only through USU's summer study abroad program in France. Prerequisite: FREN 1020 or equivalent. (Su)		
<b>FREN 2150</b>	<b>French Second Year II Study Abroad</b>	<b>4</b>
Intensive second-year language course designed to increase proficiency in the four language skills and in intercultural knowledge, with more emphasis on communication through reading and writing. Offered only through USU's summer study abroad program in France. Prerequisite: FREN 2010 or 2050 or equivalent. (Su)		
<b>FREN 2820</b>	<b>Intermediate Independent Study: Experiencing Paris</b>	<b>2</b>
Intermediate-level independent study project focusing on the city of Paris, its history, culture and patterns of life. Offered only through USU's summer study abroad program in France. (Su)		
<b>FREN 2880</b>	<b>Individual Readings</b>	<b>3<sup>®</sup></b>
Individual study of selected readings in French. Cannot be substituted for FREN 2010 or 2020. Prerequisite: Instructor's permission. (Su)		
<b>Upper Division</b>		
Upper-division French courses (3000-level and above) are available <i>only</i> to students who have completed FREN 2020 or who can demonstrate equivalent proficiency through testing. ( <b>Exception:</b> FREN 3500, Topics in French Literature in Translation, does <i>not</i> require the 2020-level prerequisite, and <i>will not count</i> toward the Bachelor of Arts degree language requirement.)		
<b>FREN 3030</b>	<b>Advanced French for Everyday Communication</b>	<b>3</b>
Development of advanced conversational skills, communication strategies, and cultural knowledge through immersion in a French-speaking environment. Offered only through USU's study abroad program in France. Cannot be applied to requirements for the major or minor in French. Graded Pass/Fail <i>only</i> . (Su)		
<b>FREN 3060 CI</b>	<b>French Conversation</b>	<b>3</b>
Designed to develop effective communication skills, to increase vocabulary, and to teach students to express and justify facts, opinions, ideas, and emotions in French. Not open to students with foreign experience. Designed for students who have not had extended residence in a francophone country or extended exposure to a francophone environment.		
<b>FREN 3070</b>	<b>Advanced French Language Study Abroad I</b>	<b>4</b>
Intensive upper-division language course combining grammar review, phonetics, advanced conversation and composition, and the study of culture, with an emphasis on current affairs. Offered only through USU's summer study abroad program in France. (Su)		

# Course Descriptions

**FREN 3080**      **Advanced French Language Study Abroad II**      **4**  
 Intensive upper-division language course combining grammar review, phonetics, advanced conversation and composition, and the study of culture, with an emphasis on current affairs. Offered only through USU's summer study abroad program in France. (Su)

**FREN 3090 CI**      **French Intermediate Written Communication**      **3**  
 Provides students with intensive practice in various types of writing (e.g., summary, description, narration, letter-writing, etc.) based on a process approach. Involves discussion, writing, and revising. Stresses grammar review.

**FREN 3500 DHA**      **Topics in French Literature in Translation**      **3<sup>®</sup>**  
 Reading, analysis, and discussion of important French literature in English translation. Topics and texts may vary. Course may be repeated for credit with different content.

**FREN 3510 CI**      **Business French\***      **3**  
 Study of vocabulary, idioms, and expressions used in French business communications and an introduction to French business practices. (F)

**FREN 3550 DHA**      **French Civilization\*\***      **3**  
 Study of historical, social, political, economic, and cultural conditions and institutions of France from early to modern times.

**FREN 3570**      **France Today**      **3**  
 Study of contemporary life in France, the French people, their daily habits, and their surroundings. What makes the French French. Extensive use of videos, films, and slides. Prerequisite: FREN 2020 or equivalent.

**FREN 3600**      **Textual Analysis**      **3<sup>®</sup>**  
 Introduction to the methods, terminology, and practice of textual analysis. Development of critical thinking and writing skills through the analysis of selected literary and nonliterary texts from different periods and genres, ranging from poetry, novels, and plays to film, painting, music, and art. Course may be repeated once for credit with different content.

**FREN 3820**      **Advanced Independent Study: Experiencing Paris**      **2**  
 Advanced-level independent study project focusing on the city of Paris, its history, culture, and patterns of life. Offered only through USU's summer study abroad program in France. (Su)

**FREN 3880**      **Individual Readings**      **1-4<sup>®</sup>**  
 Individual study of selected readings in French. Instructor's permission required. (F,Sp,Su)

**FREN 3900**      **Topics in French and Francophone Studies\*\***      **3<sup>®</sup>**  
 Studies through literature, media, and film on specific topics or themes. Discussion, analysis, and interpretation of selected literary and/or nonliterary works. Occasionally taught in English.

**FREN 4060 CI**      **Advanced French Conversation**      **3**  
 Designed for students who have already reached advanced proficiency in speaking through foreign experience, but need to continue the development of their conversational skills. Prerequisite: FREN 3060 or permission of instructor.

**FREN 4090 CI**      **Advanced Written Communication**      **3**  
 Continued development of French written communication skills based on a process approach. Includes the more advanced concepts of French grammar and extensive writing practice in variety of genres. Prerequisite: FREN 3090 or permission of instructor.

**FREN 4200**      **Applied French Linguistics and Phonetics\***      **3**  
 First part analyzes phonological and phonetic patterns of French. Second part deals with selected morphological and syntactic features of French.

**FREN 4520**      **Information Technologies in French**      **3**  
 Practices, theoretical issues, and policy concerns of information technologies resulting from computers, networking, and videodisk. Use of computer with French programs. Taught in French. This course is not currently being taught. For information about when it may be taught, contact the department.

**FREN 4610 DHA**      **Period Studies in French Literature\***      **3**  
 Examination of a particular period or century. Involves close reading, discussion, analysis, and interpretation of selected literary and nonliterary texts. Sample topics include: The Medieval Period, The Renaissance, Classicism, Baroque, Romanticism, Naturalism, and Contemporary French Literature. Prerequisite: FREN 3600 or instructor's permission.

**FREN 4620 DHA**      **Genre Studies in French Literature\*\***      **3**  
 Examination of a particular genre or body of works from a variety of periods and authors (e.g., novel, play, poetry, short story, film). Involves close reading, discussion, analysis, and interpretation of selected literary and nonliterary texts. Sample topics include: Romance Novels from the Middle Ages to the Present, From Classical to Contemporary French Theatre, French poetry from Baudelaire to Ponge, The Nouveau Roman, New Wave French Cinema, and The Negritude Movement. Prerequisite: FREN 3600 or instructor's permission.

**FREN 4880**      **Individual Readings**      **1-4<sup>®</sup>**  
 Readings in scientific, technical, or literary French. Prerequisite: Permission of instructor. (F,Sp,Su)

**FREN 4900**      **Seminar in French and Francophone Studies\*\***      **3<sup>®</sup>**  
 In-depth exploration of issues central to understanding language, literature, and culture. Critical reading and viewing of written and nonwritten texts with emphasis on student presentations, independent research, and the completion of extended projects. Seminar topics may focus on authors, literary periods, important historical events and social movements, and aspects of francophone cultures. Used periodically for literature in translation.

**FREN 4920**      **French Language Tutoring**      **1<sup>®</sup>**  
 Allows students to develop tutoring skills by assisting professors in lower-division courses or fulfilling instructional duties for a comparable amount of time in the language laboratory, public schools, or similar activities with departmental approval. May be repeated to a maximum of 3 credits. Prerequisite: Permission of instructor. (F,Sp)

**FREN 6200**      **French Linguistics and Phonetics**      **3**  
 Analysis of selected phonological, morphological, syntactic, and semantic features of contemporary French, including a study of colloquial French, comparing pronunciation, vocabulary, and grammar with standard forms. Prerequisite: FREN 2020, another 3000-level or higher FREN course, or demonstrated proficiency through testing.

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

## Geology (GEO)

See *Department of Geology, pages 290-295*

**GEO 1010 BPS**      **Introduction to Geology: Geology of National Parks**      **3**  
 Plate tectonics and internal and external earth processes, using national parks for examples. Emphasizes mineral and rock identification, as well as recognition of basic geologic features. Two lectures per week and seven weeks of lab. (F,Su)<sup>DE</sup>

**GEO 1060 BPS**      **Introduction to Environmental Geoscience**      **3**  
 Explores the earth's internal and external processes. Interprets the roles these processes play in human habitation of the planet. Evaluates the interplay occurring between humans and the earth, as in the distribution of resources and the development of civilization. (Sp)



# Course Descriptions

<p><b>GEO 1110 BPS The Dynamic Earth: Physical Geology 4</b> Physical processes, both internal and external, shaping the Earth. Igneous, metamorphic, and sedimentary environments and products. Emphasizes geology as an applied science, relying on other basic sciences as tools for interpretation and understanding. Three lectures and one two-hour lab per week. (F,Sp)<sup>DE</sup></p> <p><b>GEO 1120 Geology of National Parks Field Trip 1</b> One weekend field trip to a western national park, allowing students to observe geologic features and processes, and to gain hands-on practice in rock identification. Limited to 30 participants. Requires some strenuous hiking. Prerequisite or corequisite: GEO 1010. (F,Su)</p> <p><b>GEO 2250 Introductory Internship/Co-op 1-4<sup>®</sup></b> Introductory educational work experience. (F,Sp,Su)</p> <p><b>GEO 2500 Geology Field Excursions 1<sup>®</sup></b> Geologic features and processes observed in the field. Graded Pass/Fail <i>only</i>. Prerequisite: GEO 1010 or 1110. (F,Sp)</p> <p><b>GEO 3100 DSC Natural Disasters 3</b> Hazardous geologic processes affecting humans. Cause, prediction, avoidance, and frequency of natural disasters, including earthquakes, volcanic eruptions, tsunamis, landslides, floods, subsidence, meteorite impacts, and global changes. Topics discussed in the context of earth systems and cycles. Three lectures per week. Prerequisite: One Breadth Physical Sciences (BPS) course. (Sp)<sup>DE</sup></p> <p><b>GEO 3200 DSC The Earth Through Time 4</b> Investigates dynamic nature of Earth's physical and biological processes, and how these processes have shaped Earth's 4.5 billion-year history. Emphasis on interpretation of the story of the geologic record (rocks and landforms) and Earth's sequential physical and biological changes. Three lectures and one two-hour lab per week. Prerequisite: GEO 1010 or 1110. (Sp)<sup>DE</sup></p> <p><b>GEO 3300 DSC Geology of the World's Oceans 3</b> Geologic evidence for the development of ocean basins and continental margins through plate tectonic processes. Also, the interaction of the geo- and biospheres and their effect on the evolution of the oceans and atmosphere. Discussion of shoreline and marine environments, the organisms inhabiting them, and the physical and chemical processes in operation therein. Three lectures per week. Prerequisite: One University Studies Breadth Physical Sciences (BPS) course. (Sp)</p> <p><b>GEO 3500 Mineralogy and Crystallography 4</b> Introduction to crystallography, crystal chemistry, and descriptive mineralogy. Three lectures and one three-hour lab per week. Prerequisites: CHEM 1210 and GEO 1110. (F)</p> <p><b>GEO 3520 Optical Mineralogy and Petrography 2</b> Introduction to the theory of optical crystallography. Determination of minerals using the petrographic microscope. One lecture and one lab per week. Prerequisite: GEO 3500. (Sp)</p> <p><b>GEO 3550 CI Sedimentation and Stratigraphy 4</b> Classification and analysis of sedimentary rocks and structures, with an emphasis on the interpretation of ancient sedimentary environments. Controls on sedimentary processes over time. Principles of stratigraphic correlation. Three lectures and one lab per week. Prerequisite: GEO 3200. (F)</p> <p><b>GEO 3600 Geomorphology 4</b> Geomorphic processes, origin of landforms and surficial deposits. Emphasizes fluvial and hillslope landscape elements, and surficial geologic mapping. Three one-hour lectures and one three-hour lab per week. Prerequisite: GEO 1010 or 1110 or GEOG 1000. Also taught as WATS 3600. (F)</p> <p><b>GEO 3700 Structural Geology 4</b> Geometries, mechanisms, and mechanics of rock deformation. Stress and strain relationships, fault and fold classification and description. Lab presents applications and techniques for representing deformed rocks in map, cross section, and three-dimensional views; interpretation of deformed rocks. Three lectures and one lab per week. Prerequisite: GEO 1110. (Sp)</p> <p><b>GEO 4250 Advanced Internship/Co-op 1-4<sup>®</sup></b> Advanced educational work experience. (F,Sp,Su)</p>	<p><b>GEO 4500 Igneous and Metamorphic Petrology* 4</b> Origin, processes of formation, classification, and identification of igneous and metamorphic rocks. Study of igneous and metamorphic rocks in hand specimens and thin sections. Three lectures and one three-hour lab per week. Prerequisite: GEO 3500; corequisite: GEO 3520. (Sp)</p> <p><b>GEO 4700 CI Geologic Field Methods* 3</b> Collection, recording, and interpretation of geologic deposits and processes in the field. Written reports with geologic maps, cross-sections, and graphs are required. Two extended lab periods per week, weekend day trips, and one lecture per week. Fieldwork will end early. Prerequisite: GEO 3700. (F)</p> <p><b>GEO 4900 Special Problems 1-4<sup>®</sup></b> Directed study of selected topics. Written report required. Prerequisite: Permission of instructor. (F,Sp)</p> <p><b>GEO 5150 Fluvial Geomorphology 3</b> <b>(dual listing 6150)</b> Focuses on physical processes in streams that control their shape, plan form, slope, bed material, and distribution of channel bars. Emphasizes field analysis of these topics, and application of geomorphology to aquatic ecology and environmental restoration. Also taught as WATS 5150/6150. (F)</p> <p><b>GEO 5170 Fluvial Geomorphology Lab 2</b> <b>(dual listing 6170)</b> Field analysis focuses on physical processes in streams which control their shape, plan form, slope, bed material, and distribution of channel bars. Application of geomorphology to aquatic ecology and environmental restoration. Also taught as WATS 5170/6170. (F)</p> <p><b>GEO 5200 Geology Field Camp* 5</b> Integrative approach to examining geologic relationships in the field, deciphering geologic evolution of map regions, and interpreting the structure and distribution of rocks. Results presented in reports, maps, cross-sections, and graphical formats. Requires 40-45 hours of lab per week for 3.5-4.0 weeks. Prerequisites: GEO 3500, 3550, 3600, 3700, 4700. (Su)</p> <p><b>GEO 5410 Introduction to Clay Mineralogy* 2</b> <b>(dual listing 6410)</b> Introduction to and application of techniques, such as X-ray diffraction, differential thermal analysis, and chemical analysis, to study of clay minerals. Examination of the effects of clay mineral structures on physical and chemical properties. Three lectures and one lab per week; half semester. Prerequisite: GEO 3500. (Sp)</p> <p><b>GEO 5420 Metallic Mineral Deposits* 4</b> Origin and occurrence of metallic mineral deposits, study of representative ore suites, and field trips to active mines. Three lectures and one lab per week. Prerequisite: GEO 4500. (Sp)</p> <p><b>GEO 5430 Paleontology* 2</b> Survey of prominent microfossil, invertebrate, and vertebrate groups, including their diagnostic morphologic features, stratigraphic ranges, and environmental tolerances. Equips students with the necessary information and techniques to enable them to recognize and utilize fossils in stratigraphic and paleoenvironmental interpretation. Three lectures and one lab per week. Half semester; may be paired with GEO 5440. Prerequisite: GEO 3200. (F)</p> <p><b>GEO 5440 CI Paleoecology* 2</b> <b>(dual listing 6440)</b> Interrelationships between various organisms and between organisms and their environment. Provides field, laboratory, and quantitative techniques for the interpretation of ancient environments and the analysis of past biotic interrelationships. Three lectures and one lab per week. Half semester; may be paired with GEO 5430. Prerequisite: GEO 5430. (F)</p> <p><b>GEO 5460 Advanced Physical Sedimentology* 3</b> <b>(dual listing 6460)</b> Detailed interpretation of sedimentary rocks, based on petrography and sedimentary characteristics. Source terranes, tectonic settings, depositional environments, and diagenetic changes during burial. Three lectures and two labs per week. Half semester. Prerequisites: GEO 3500 and 3550. (F)</p>
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# Course Descriptions

<p><b>GEO 5470</b>                      <b>Chemical Sedimentary Rocks*</b>                      <b>2</b>  <b>(dual listing 6470)</b>            Application of field observations, hand-sample, thin-section, and X-ray diffraction analyses to the interpretation of chemical sedimentary rocks. Emphasizes determination of depositional environment and evaluation of diagenetic changes. Three lectures and one lab per week. Half semester. Prerequisites: GEO 3500 and 3550. (Sp)</p>	<p><b>GEO 5620</b>    <b>QI</b>                      <b>Global Geophysics*</b>                      <b>3</b>  <b>(dual listing 6620)</b>            Application of physics to understanding geologic processes, the earth's interior, and the theory of plate tectonics. Two lectures and one two-hour lab per week. Prerequisites: GEO 3700 and PHYS 2220.</p>
<p><b>GEO 5480</b>                      <b>Sedimentary Basin Analysis</b>                      <b>3</b>  <b>(dual listing 6480)</b>            Detailed coverage of techniques of sedimentary basin analysis, including depositional systems, provenance, basin modeling, and fluid and heat flow history. Survey of types of sedimentary basins worldwide. Prerequisites: GEO 3500 and 3550. (F)</p>	<p><b>GEO 5630</b>                      <b>Photogeology*</b>                      <b>3</b>            Interpretation of geologic features on aerial photographs. Three two-hour labs per week. Half semester; may be paired with GEO 4700. Prerequisites: GEO 3600, 3700. (Sp)</p>
<p><b>GEO 5500</b>                      <b>Advanced Igneous Petrology*</b>                      <b>4</b>  <b>(dual listing 6500)</b>            Advanced concepts in the origin and evolution of magmatic systems, effects of different tectono thermal regimes on magma genesis, magma dynamics, and phase equilibria in magmatic systems. Concepts illustrated by rock suites from classic locations. Three lectures and three laboratory hours each week. Prerequisite: GEO 4500 or equivalent. (F)</p>	<p><b>GEO 5650</b>                      <b>Senior Thesis</b>                      <b>1-4®</b>            Prerequisite: Permission of instructor. (F,Sp)</p>
<p><b>GEO 5510</b>    <b>QI</b>                      <b>Groundwater Geology</b>                      <b>3</b>            Provides graduate students and senior undergraduates with understanding of fundamental principles of groundwater geology and hydrology, and helps prepare them for careers in hydrogeology or environmental geology. Three lectures per week. Prerequisites: GEO 1110 and MATH 1210 or permission of instructor; GEO/WATS 3600 recommended. (F)</p>	<p><b>GEO 5660</b>                      <b>Applied Geophysics*</b>                      <b>4</b>  <b>(dual listing 6660)</b>            Field-oriented course involving data collection, data analysis, and overview/introduction of geophysical imaging and analysis of the subsurface. For GEO 6660, students must complete a written project and presentation. Prerequisites: MATH 1210, PHYS 2210, 2220; or permission of instructor. (Sp)</p>
<p><b>GEO 5520</b>    <b>CI</b>                      <b>Techniques of Groundwater Investigations</b>                      <b>3</b>  <b>(dual listing 6520)</b>            Survey of techniques used in groundwater investigations for collecting physical and chemical data. Includes well drilling and construction; water level, flow rate, and discharge measurements; hydraulic and tracer tests; and groundwater sampling. Prerequisite: GEO 5510 or permission of instructor. (Sp)</p>	<p><b>GEO 5680</b>                      <b>Paleoclimatology*</b>                      <b>3</b>  <b>(dual listing 6680)</b>            Covers climate through the past four billion years of geologic time. Explores driving forces behind climate changes. Examines data and methods used in paleoclimate research. Includes discussion of literature and stresses local paleoclimate records. Three lectures per week, along with field trips. Prerequisite: GEO/WATS 3600 or permission of instructor. Also taught as CLIM 5680/6680 and WATS 5680/6680. (Sp)</p>
<p><b>GEO 5530</b>    <b>QI</b>                      <b>Petroleum Systems: Principles of Exploration and Development*</b>                      <b>3</b>            Analysis of the petroleum system from source to trap. Examines processes of generation, migration, and accumulation of oil and gas. Overview of petroleum economics and technology. Prerequisites: GEO 3550 and 3700; or permission of instructor. (Sp)</p>	<p><b>GEO 5900</b>                      <b>Topics for Teachers</b>                      <b>1-4®</b>            Special topics in geology for elementary and secondary science teachers to provide an understanding of the geology of Utah and the Western United States. Emphasis on field and lab activities. Prerequisite: Introductory geology course or permission of instructor. <sup>DE</sup></p>
<p><b>GEO 5540</b>    <b>QI</b>                      <b>Quantitative Methods in Geology*</b>                      <b>3</b>  <b>(dual listing 6540)</b>            Application of various quantitative methodologies to geologic problems. Requires student presentation on thesis research methodology. Two lectures and one lab per week. (F)</p>	<p><b>GEO 6050</b>                      <b>Graduate Seminar in Tectonics (Topic)</b>                      <b>1-3®</b>  <b>(dual listing 7050)</b>            Advanced topics of current interest in tectonics and orogenesis. (F,Sp)</p>
<p><b>GEO 5550</b>                      <b>Geochemical Application of Electron Microprobe and X-Ray Fluorescence Analysis*</b>                      <b>4</b>            Theory and application of X-ray fluorescence spectrometry and the electron microprobe to problems in geochemistry and materials analysis. Two hours lecture and six hours laboratory per week. Prerequisite: CHEM 1210 or equivalent, or permission of instructor. (Sp)</p>	<p><b>GEO 6100</b>                      <b>Graduate Seminar in Geomorphology (Topic)</b>                      <b>1-3®</b>  <b>(dual listing 7100)</b>            Advanced topics of current interest in geomorphology and landscape evolution. (F,Sp)</p>
<p><b>GEO 5560</b>                      <b>Subsurface Analyses: Principles and Techniques*</b>                      <b>1</b>            Survey of techniques used to characterize subsurface geologic environments. Includes map and three-dimensional depictions, well-log analyses, reflection seismology, and volumetric and risk analysis. Prerequisites: GEO 3550, 3700, or permission of instructor. (Sp)</p>	<p><b>GEO 6120</b>                      <b>Advanced Geomorphology*</b>                      <b>3</b>  <b>(dual listing 7120)</b>            Process geomorphology seminar focusing on hillslope, tectonic, and climatic geomorphology research. (Sp)</p>
<p><b>GEO 5600</b>                      <b>Geochemistry</b>                      <b>3</b>            Application of thermodynamics, solution chemistry, phase diagrams, and both radioactive and stable isotopes to the understanding of earth processes. Three lectures per week. Prerequisite: GEO 3500. (F)</p>	<p><b>GEO 6150</b>                      <b>Fluvial Geomorphology</b>                      <b>3</b>  <b>(dual listing 5150)</b>            Focuses on physical processes in streams that control their shape, plan form, slope, bed material, and distribution of channel bars. Emphasizes field analysis of these topics, and application of geomorphology to aquatic ecology and environmental restoration. Also taught as WATS 6150/5150. (F)</p>
<p><b>GEO 5610</b>                      <b>Tectonic Evolution of North America*</b>                      <b>3</b>  <b>(dual listing 6610)</b>            Survey of tectonic styles and processes along plate margins, using the tectonic evolution of western North America as the prime example. Two lectures and one lab per week. Prerequisite: GEO 3700.</p>	<p><b>GEO 6160</b>                      <b>Hillslope and Landscape Geomorphology*</b>                      <b>3</b>            Includes basics of hillslope weathering, transport, and hydrologic processes. Surveys classic and recent literature on hillslope-scale and landscape-scale geomorphic research. Three lectures and several Saturday field trips. Prerequisite: GEO/WATS 3600. Also taught as WATS 6160. (Sp)</p>
	<p><b>GEO 6170</b>                      <b>Fluvial Geomorphology Lab</b>                      <b>2</b>  <b>(dual listing 5170)</b>            Field analysis focuses on physical processes in streams which control their shape, plan form, slope, bed material, and distribution of channel bars. Application of geomorphology to aquatic ecology and environmental restoration. Also taught as WATS 6170/5170. (F)</p>
	<p><b>GEO 6200</b>                      <b>Graduate Seminar in Geochemistry (Topic)</b>                      <b>1-3®</b>  <b>(dual listing 7200)</b>            Advanced topics of current interest in geochemistry. (F,Sp)</p>

# Course Descriptions

<p><b>GEO 6240</b>                    <b>Structural Analysis of Deformed Geological Materials*</b>                    <b>3</b></p> <p>Explores how rocks, sediments, ice, and soils deform. By examining the geometry, kinematics, mechanics, and mechanisms of deformation, students learn how to interpret deformed materials in the field and laboratory.</p>	<p><b>GEO 6510</b>                    <b>Graduate Seminar in Hydrology (Topic)</b>                    <b>1-3®</b> (dual listing 7510) Advanced topics of current interest in hydrology. (F,Sp)</p>
<p><b>GEO 6250</b>                    <b>Mechanics and Processes in Earth Sciences*</b>                    <b>3</b> (dual listing 7250) Fundamentals of solid and fluid mechanics with applications to the earth sciences. Applications to rock deformation, fluid flow, glacier movement, and slope stability. Designed for graduate students in earth sciences and engineering. Two lectures, one lab per week. Prerequisites: MATH 1210, PHYS 2210, and graduate standing. (Sp)</p>	<p><b>GEO 6520</b>                    <b>Techniques of Groundwater Investigations</b>                    <b>3</b> (dual listing 5520) Survey of techniques used in groundwater investigations for collecting physical and chemical data. Includes well drilling and construction; water level, flow rate, and discharge measurements; hydraulic and tracer tests; and groundwater sampling. Prerequisite: GEO 5510 or permission of instructor. (Sp)</p>
<p><b>GEO 6300</b>                    <b>Graduate Seminar in Petrology (Topic)</b>                    <b>1-3®</b> (dual listing 7300) Advanced topics of current interest in petrology of igneous, metamorphic, or sedimentary rocks. (F,Sp)</p>	<p><b>GEO 6540</b>                    <b>Quantitative Methods in Geology*</b>                    <b>3</b> (dual listing 5540) Application of various quantitative methodologies to geologic problems. Requires student presentation on thesis research methodology. Two lectures and one lab per week.</p>
<p><b>GEO 6350</b>                    <b>Graduate Seminar in Paleontology and Paleocology (Topic)</b>                    <b>1-3®</b> (dual listing 7350) Advanced topics in paleontology and paleocology. (F,Sp)</p>	<p><b>GEO 6550</b>                    <b>Geochemical Application of Electron Microprobe and X-Ray Fluorescence Analysis*</b>                    <b>4</b> (dual listing 5550) Theory and application of X-ray fluorescence spectrometry and the electron microprobe to problems in geochemistry and materials analysis. Two hours lecture and six hours laboratory per week. Prerequisite: CHEM 1210 or equivalent, or permission of instructor. (Sp)</p>
<p><b>GEO 6400</b>                    <b>Graduate Seminar in Sedimentary Geology (Topic)</b>                    <b>1-3®</b> (dual listing 7400) Advanced topics of current interest in sedimentary geology, depositional systems, and basin evolution. (F,Sp)</p>	<p><b>GEO 6600</b>                    <b>Graduate Seminar in Geophysics (Topic)</b>                    <b>1-3®</b> (dual listing 7600) Advanced topics of current interest in geophysics. (F,Sp)</p>
<p><b>GEO 6410</b>                    <b>Introduction to Clay Mineralogy*</b>                    <b>2</b> (dual listing 5410) Introduction to and application of techniques, such as X-ray diffraction, differential thermal analysis, and chemical analysis, to study of clay minerals. Examination of the effects of clay mineral structures on physical and chemical properties. Three lectures and one lab per week; half semester. Prerequisite: GEO 3500. (Sp)</p>	<p><b>GEO 6610</b>                    <b>Tectonic Evolution of North America*</b>                    <b>3</b> (dual listing 5610) Survey of tectonic styles and processes along plate margins, using the tectonic evolution of western North America as the prime example. Two lectures and one lab per week. Prerequisite: GEO 3700.</p>
<p><b>GEO 6440</b>                    <b>Paleocology*</b>                    <b>2</b> (dual listing 5440) Interrelationships between various organisms and between organisms and their environment. Provides field, laboratory, and quantitative techniques for the interpretation of ancient environments and the analysis of past biotic interrelationships. Three lectures and one lab per week. Half semester; may be paired with GEO 5430. Prerequisite: GEO 5430. (F)</p>	<p><b>GEO 6620</b>                    <b>Global Geophysics*</b>                    <b>3</b> (dual listing 5620) Application of physics to understanding geologic processes, the earth's interior, and the theory of plate tectonics. Two lectures and one two-hour lab per week. Prerequisites: GEO 3700 and PHYS 2220.</p>
<p><b>GEO 6460</b>                    <b>Advanced Physical Sedimentology*</b>                    <b>3</b> (dual listing 5460) Detailed interpretation of sedimentary rocks, based on petrography and sedimentary characteristics. Source terranes, tectonic settings, depositional environments, and diagenetic changes during burial. Three lectures and two labs per week. Half semester. Prerequisites: GEO 3500 and 3550. (F)</p>	<p><b>GEO 6660</b>                    <b>Applied Geophysics*</b>                    <b>4</b> (dual listing 5660) Field-oriented course involving data collection, data analysis, and overview/introduction of geophysical imaging and analysis of the subsurface. For GEO 6660, students must complete a written project and presentation. Prerequisites: MATH 1210, PHYS 2210, 2220; or permission of instructor. (Sp)</p>
<p><b>GEO 6470</b>                    <b>Chemical Sedimentary Rocks*</b>                    <b>2</b> (dual listing 5470) Application of field observations, hand-sample, thin-section, and X-ray diffraction analyses to the interpretation of chemical sedimentary rocks. Emphasizes determination of depositional environment and evaluation of diagenetic changes. Three lectures and one lab per week. Half semester. Prerequisites: GEO 3500 and 3550. (Sp)</p>	<p><b>GEO 6680</b>                    <b>Paleoclimatology*</b>                    <b>3</b> (dual listing 5680) Covers climate through the past four billion years of geologic time. Explores driving forces behind climate changes. Examines data and methods used in paleoclimate research. Includes discussion of literature and stresses local paleoclimate records. Three lectures per week, along with field trips. Prerequisite: GEO/WATS 3600 or permission of instructor. Also taught as CLIM 6680/5680 and WATS 6680/5680. (Sp)</p>
<p><b>GEO 6480</b>                    <b>Sedimentary Basin Analysis</b>                    <b>3</b> (dual listing 5480) Detailed coverage of techniques of sedimentary basin analysis, including depositional systems, provenance, basin modeling, and fluid and heat flow history. Survey of types of sedimentary basins worldwide. Prerequisites: GEO 3500 and 3550. (F)</p>	<p><b>GEO 6700</b>                    <b>Graduate Seminar in Structural Geology (Topic)</b>                    <b>1-3®</b> (dual listing 7700) Advanced topics of current interest in structural geology. (F,Sp)</p>
<p><b>GEO 6500</b>                    <b>Advanced Igneous Petrology*</b>                    <b>4</b> (dual listing 5500) Advanced concepts in the origin and evolution of magmatic systems, effects of different tectono thermal regimes on magma genesis, magma dynamics, and phase equilibria in magmatic systems. Concepts illustrated by rock suites from classic locations. Three lectures and three laboratory hours each week. Prerequisite: GEO 4500 or equivalent. (F)</p>	<p><b>GEO 6800</b>                    <b>Seminar</b>                    <b>1-4®</b></p>
	<p><b>GEO 6900</b>                    <b>Graduate Internship/Co-op Experience</b>                    <b>1-6®</b> Graduate educational work experience. Prerequisite: Approval of contract between student and department prior to enrollment. (F,Sp,Su)</p>
	<p><b>GEO 6970</b>                    <b>Thesis</b>                    <b>1-9®</b> Graded Pass/Fail only. (F,Sp,Su)</p>
	<p><b>GEO 6990</b>                    <b>Continuing Graduate Advisement</b>                    <b>1-3®</b> Graded Pass/Fail only. (F,Sp,Su)</p>

# Course Descriptions

**GEO 7050 Graduate Seminar in Tectonics (Topic) 1-3<sup>®</sup>**  
(dual listing 6050)  
Advanced topics of current interest in tectonics and orogenesis. (F,Sp)

**GEO 7100 Graduate Seminar in Geomorphology (Topic) 1-3<sup>®</sup>**  
(dual listing 6100)  
Advanced topics of current interest in geomorphology and landscape evolution. (F,Sp)

**GEO 7120 Advanced Geomorphology\* 3**  
(dual listing 6120)  
Process geomorphology seminar focusing on hillslope, tectonic, and climatic geomorphology research. (Sp)

**GEO 7200 Graduate Seminar in Geochemistry (Topic) 1-3<sup>®</sup>**  
(dual listing 6200)  
Advanced topics of current interest in geochemistry. (F,Sp)

**GEO 7250 Mechanics and Processes in Earth Sciences\* 3**  
(dual listing 6250)  
Fundamentals of solid and fluid mechanics with applications to the earth sciences. Applications to rock deformation, fluid flow, glacier movement, and slope stability. Designed for graduate students in earth sciences and engineering. Two lectures, one lab per week. Prerequisites: MATH 1210, PHYS 2210, and graduate standing. (Sp)

**GEO 7300 Graduate Seminar in Petrology (Topic) 1-3<sup>®</sup>**  
(dual listing 6300)  
Advanced topics of current interest in petrology of igneous, metamorphic, or sedimentary rocks. (F,Sp)

**GEO 7350 Graduate Seminar in Paleontology and Paleocology (Topic) 1-3<sup>®</sup>**  
(dual listing 6350)  
Advanced topics in paleontology and paleocology. (F,Sp)

**GEO 7400 Graduate Seminar in Sedimentary Geology (Topic) 1-3<sup>®</sup>**  
(dual listing 6400)  
Advanced topics of current interest in sedimentary geology, depositional systems, and basin evolution. (F,Sp)

**GEO 7510 Graduate Seminar in Hydrology (Topic) 1-3<sup>®</sup>**  
(dual listing 6510)  
Advanced topics of current interest in hydrology. (F,Sp)

**GEO 7600 Graduate Seminar in Geophysics (Topic) 1-3<sup>®</sup>**  
(dual listing 6600)  
Advanced topics of current interest in geophysics. (F,Sp)

**GEO 7700 Graduate Seminar in Structural Geology (Topic) 1-3<sup>®</sup>**  
(dual listing 6700)  
Advanced topics of current interest in structural geology. (F,Sp)

**GEO 7800 Graduate Seminar Series 1<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

**GEO 7970 Dissertation Research 1-12<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

**GEO 7990 Continuing Graduate Advisement 1-9<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

\*This course is taught alternating years. Check with department for information about when course will be taught.

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Geography (GEOG)

See Department of Environment and Society, pages 271-278

**GEOG 1000 BPS Physical Geography 3**  
Geographic analysis of physical processes and spacial distribution of natural elements (i.e., the atmosphere, hydrosphere, lithosphere, and biosphere). (F,Sp,Su)<sup>DE</sup>

**GEOG 1005 Physical Geography Lab 1**  
Laboratory exercises in natural physical geography. Provides initial field and laboratory experiences in the earth system. Required for all geography majors. Prerequisite: GEOG 1000 (may be taken concurrently). (F,Sp)

**GEOG 1300 BSS World Regional Geography 3**  
Survey of world cultural regions, with an analysis of political, economic, and resource patterns in their physical setting. (F)<sup>DE</sup>

**GEOG 1400 BSS Human Geography 3**  
Spatial study within selected socio-cultural settings, including cultural landscapes, rural-urban linkages, languages, religions, politics, and economic activities. (Sp)<sup>DE</sup>

**GEOG 1990 Professional Orientation for Geography 1**  
Introduces new Geography majors to the range of discipline and related professional careers utilizing concepts and tools of geography. Includes a discussion of current issues, education, curricula, faculty, professional societies, and employment opportunities. (F)

**GEOG 2130 Population Geography 3**  
Spatial analysis of demographic data emphasizing global distribution, population growth, measures of density, migration, settlement, and economic development. (Sp)

**GEOG 3430 Political Geography 3**  
Study of relationship between Earth, people, and the state. Global political phenomena studied from a geographic perspective. Explores impact of natural resources territorial seas and the nature of the state. Also taught as POLS 3430. (Sp)

**GEOG 3610 Geography of Rural/Urban Planning\* 3**  
Analysis of the organization and interrelationships of urban-city and rural space. Emphasizes spatial planning of rural-urban environments to improve quality of life, internal structure of cities, and applied principles and practices of community planning. Field trips and applied class projects integrated into lectures and demonstrations. (F)

**GEOG 3850 Map, Air Photo, and GIS Interpretation 4**  
Introduces students to theoretical and practical nature of maps, basic mapping processes, issues of scale, basic photogrammetry, interpretation of remotely sensed imagery, geographic referencing strategies, and geographic information systems. Includes weekly laboratory sessions. (F)

**GEOG 4100 Geographic Approaches to the Human-Environmental Relationship 3**  
(dual listing 6100)  
Introduces students to the study of human-environmental interactions from a geographic perspective, with special emphasis on the social and political dynamics of selected environmental problems and how these dynamics interrelate across different spatial and temporal scales. (Sp)

**GEOG 4120 Environment and Development in Latin America 3**  
(dual listing 6120)  
Examines the changing environment and developmental geography of Latin America. Focuses on globalization throughout history, along with its impact on lives and environments in the region, varied and changing human-environment relationships, and processes of economic and social inequality. (F)

**GEOG 4140 Violent Environments: Linking Ecology and Conflict in Sub-Saharan Africa 3**  
(dual listing 6140)  
Examines the relationship between violent conflict and natural resources, with particular attention given to human rights and political ecology perspectives. Through specific cases, conflict resources are explored, along with the threat they pose to national, regional, and global security. Also includes discussion of the diverse actors that profit from the persistence of conflict and civil unrest. (Sp)

# Course Descriptions

**GEOG 4200 CI Regional Geography 3<sup>®</sup>**  
 Analysis of physical and cultural geography for a variety of regions. Can be repeated for each different region as offered (e.g., Pacific Rim, Africa, Middle East, Europe, Asia, Latin America, and North America). <sup>DE</sup>

**GEOG 4300 Geography Education Classroom Practicum 1-3<sup>®</sup>**  
 (dual listing 6300)  
 Allows geography education students to participate in actual geography classroom teaching with experienced geography teachers. Students observe, work with individuals and groups of students, team-teach lesson(s) with the teacher, and self-teach individual lesson(s). (F,Sp,Su)

**GEOG 4800 Teaching Geography 3**  
 (dual listing 6800)  
 Designed specifically for geography education/social studies education students preparing to teach grades K-12. Exploration of national and state standards and core curriculum, as well as state-of-the-art geography education technology and teaching resources. Students develop teaching lessons, and gain classroom teaching experience with local geography teachers. (F)

**GEOG 4850 Cartographic Design\* 3**  
 Techniques used in design and construction of maps, charts, and map projections. (Sp)

**GEOG 5130 Geography Education Field Practicum 1-6<sup>®</sup>**  
 (dual listing 6130)  
 Specifically designed for undergraduate students and graduate students (teachers) who need specific classroom teaching experience in order to improve their quality of teaching and/or to carry out special classroom curriculum research as part of their geography education degrees. (F,Sp,Su)

**GEOG 5650 DSS Developing Societies 3**  
 (dual listing 6650)  
 Reviews how sociology, cultural geography, and economic anthropology analyze processes of globalization in postcolonial societies. Examines changing livelihoods, patterns of spatial incorporation and societal evolution, and emergent policy problems associated with rapid socioeconomic change. Also taught as ANTH 5650/6650 and SOC 5650/6650. (F) <sup>DE</sup>

**GEOG 5810 Geography Education Inservice Workshop 3**  
 (dual listing 6810)  
 Assists classroom teachers in broadening their perspective of Geography Education through increased knowledge, improving their geographic techniques, methods, and teaching resources for their classrooms. (F,Sp,Su)

**GEOG 5900 Graduate Special Topics 1-4<sup>®</sup>**  
 (dual listing 6900)  
 Designed for geography students involved in field research and/or internships. Provides opportunity for students to gain practical applied experience in their specialized academic emphasis in geography. (F,Sp,Su)

**GEOG 5970 Classroom Technology in Geography Education 3**  
 Design, development, and application of contemporary technologies and multimedia classroom teaching resources for preservice and inservice geography education teachers. (F,Su)

**GEOG 6100 Geographic Approaches to the Human-Environmental Relationship 3**  
 (dual listing 4100)  
 Introduces students to the study of human-environmental interactions from a geographic perspective, with special emphasis on the social and political dynamics of selected environmental problems and how these dynamics interrelate across different spatial and temporal scales. (Sp)

**GEOG 6120 Environment and Development in Latin America 3**  
 (dual listing 4120)  
 Examines the changing environment and developmental geography of Latin America. Focuses on globalization throughout history, along with its impact on lives and environments in the region, varied and changing human-environment relationships, and processes of economic and social inequality. (F)

**GEOG 6130 Geography Education Field Practicum 1-6<sup>®</sup>**  
 (dual listing 5130)  
 Specifically designed for undergraduate students and graduate students (teachers) who need specific classroom teaching experience in order to improve

their quality of teaching and/or to carry out special classroom curriculum research as part of their geography education degrees. (F,Sp,Su)

**GEOG 6140 Violent Environments: Linking Ecology and Conflict in Sub-Saharan Africa 3**  
 (dual listing 4140)  
 Examines the relationship between violent conflict and natural resources, with particular attention given to human rights and political ecology perspectives. Through specific cases, conflict resources are explored, along with the threat they pose to national, regional, and global security. Also includes discussion of the diverse actors that profit from the persistence of conflict and civil unrest. (Sp)

**GEOG 6200 Advanced Regional Geography 3<sup>®</sup>**  
 Critical analysis of world's regions, focusing on analysis and synthesis of a region's economic, political, population, and cultural themes in the context of physical environment and global processes. Repeatable for different regions. (F,Sp,Su)

**GEOG 6300 Geography Education Classroom Practicum 1-3<sup>®</sup>**  
 (dual listing 4300)  
 Allows geography education students to participate in actual geography classroom teaching with experienced geography teachers. Students observe, work with individuals and groups of students, team-teach lesson(s) with the teacher, and self-teach individual lesson(s). (F,Sp,Su)

**GEOG 6650 Developing Societies 3**  
 (dual listing 5650)  
 Reviews how sociology, cultural geography, and economic anthropology analyze processes of globalization in postcolonial societies. Examines changing livelihoods, patterns of spatial incorporation and societal evolution, and emergent policy problems associated with rapid socioeconomic change. Also taught as ANTH 6650/5650 and SOC 6650/5650. (F)

**GEOG 6800 Teaching Geography 3**  
 (dual listing 4800)  
 Designed specifically for geography education/social studies education students preparing to teach grades K-12. Exploration of national and state standards and core curriculum, as well as state-of-the-art geography education technology and teaching resources. Students develop teaching lessons, and gain classroom teaching experience with local geography teachers. (F)

**GEOG 6810 Geography Education Inservice Workshop 3**  
 (dual listing 5810)  
 Assists classroom teachers in broadening their perspective of Geography Education through increased knowledge, improving their geographic techniques, methods, and teaching resources for their classrooms. (F,Sp,Su)

**GEOG 6900 Graduate Special Topics 1-4<sup>®</sup>**  
 (dual listing 5900)  
 Designed for geography students involved in field research and/or internships. Provides opportunity for students to gain practical applied experience in their specialized academic emphasis in geography. (F,Sp,Su)

\*Taught 2010-2011.

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## German (GERM)

See *Department of Languages, Philosophy, and Speech Communication*, pages 334-346

### Lower Division

**GERM 1010 German First Year I 4**  
 Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Not open to those with more than one year high school German or equivalent. (F,Sp) <sup>DE</sup>

**GERM 1020 German First Year II 4**  
 Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: GERM

# Course Descriptions

1010 or at least one (but not more than two) years of German in high school or equivalent. (F,Sp)<sup>DE</sup>

**GERM 1800 German I Study Abroad 1-4<sup>®</sup>**  
Intensive study in a German-speaking country, advancing proficiency in the four language skills and multicultural knowledge at the beginning level. No prerequisites. (Su)

**GERM 2010 German Second Year I 4**  
Further development of first-year competencies with emphasis on language structure, vocabulary expansion, reading, writing, and conversation in the context of cross-cultural analysis. Prerequisite: GERM 1020 or equivalent. (F,Sp)

**GERM 2020 German Second Year II 4**  
Further development of first-year competencies with emphasis on language structure, vocabulary expansion, reading, writing, and conversation in the context of cross-cultural analysis. Prerequisite: GERM 2010 or equivalent. (F,Sp)

**GERM 2550 German Civilization\* 3**  
Covers the most important developments in German-speaking countries from the High Middle Ages to the present. Deals with political, social, literary, historical, and artistic expressions of an emerging culture. Taught in English. (F)

**GERM 2570 Contemporary Germany\*\* 3**  
Covers the most important elements of contemporary German culture in its literary, social, and artistic manifestations, and the political and historical dimensions of agents of change. Taught in English. (Sp)

**GERM 2800 German II Study Abroad 1-4<sup>®</sup>**  
Intensive study in a German-speaking country, advancing proficiency in the four language skills and multicultural knowledge at the second-year level. (Su)

**GERM 2880 Individual Readings 1-4<sup>®</sup>**  
Individual study of selected readings in German. Prerequisite: Instructor's permission. (F,Sp)

## Upper Division

Upper-division German courses (3000 level and above) are available *only* to students who have completed GERM 2020 or who can demonstrate equivalent proficiency through testing. All upper-division courses are taught in German, unless otherwise indicated.

**GERM 3000 DHA Introduction to German Studies 3**  
Introduction to the discipline of German Studies (history, literature, the arts, philosophy, science, economics, politics, etc.), addressing information resources, research methods, student career goals, and practice. Advances oral and written language proficiency. (F)

**GERM 3040 CI Advanced German Grammar and Composition 3**  
**GERM 3050 CI Advanced German Grammar and Composition 3**

Thorough review of German grammar and style. Application of rules of writing to compositions. Oral presentations of contemporary topics with graded difficulty. (F) (Sp)

**GERM 3300 DHA Contemporary German Speaking Cultures 3**  
Multidisciplinary examination of current trends in contemporary cultures. Written, oral, visual, and electronic texts from the post-World War II period will be analyzed and placed in sociopolitical, economic, historical, and literary contexts. Emphasis on Germany as a multicultural society, and on related popular and minority cultural discourse. Interactive format. (Sp)

**GERM 3510 CI Business German\* 3**  
Study of current German business and commercial practices, terminology, and business-related communications skills in a multi-disciplinary and global world context. Advances the four language skills. (Sp)

**GERM 3540 CI Techniques in Translating German Texts\* 3**  
Approaches to translation. Specialized vocabulary, reference materials, and aids. Translation theory. Practical exercises. (F)

**GERM 3550 DHA Cultural History of German Speaking Peoples\*\* 3**  
Overview and critical analysis of cultural, historical, and intellectual developments that have shaped the civilizations of German-speaking peoples from 800 A.D. until the end of World War II. Examination of written, oral, visual, and electronic texts integrated in the context of Western philosophy and humanist thought. Interactive format. (F)

**GERM 3600 DHA Survey of German Literature I\*\* 3**  
Overview, with selected readings, of the major literary trends in German-speaking cultures from the medieval period to the early nineteenth century, including the study of genres, epochs, styles, and theories in the context of evolving cultures. (F)

**GERM 3610 DHA Survey of German Literature II\*\* 3**  
Overview, with selected readings, of the major literary trends in German-speaking cultures from the early nineteenth century to the present, including the study of genres, epochs, styles, and theories in the context of evolving cultures. (Sp)

**GERM 3800 German III Study Abroad 1-4<sup>®</sup>**  
Intensive study in a German-speaking country, advancing proficiency in the four language skills and multicultural knowledge at the third-year level. (Su)

**GERM 3880 Individual Readings 1-4<sup>®</sup>**  
Individual study of selected readings in German. Prerequisite: Instructor's permission. (F,Sp)

**GERM 4200 Applied German Linguistics and Phonetics\*\* 3**  
Discussion of syntactical and morphological problems of German, principles of language learning, and analysis of phonological and phonetic patterns. (Sp)

**GERM 4600 Faust's Legacy\*\* 3**  
Examination of the legendary figure of Faust through historical and contemporary perspectives. Analysis of the Faust theme and character as presented in literature, films, stage productions, and musicals. Taught in English. (F)

**GERM 4610 German Narratives\*\* 3**  
Readings from a wide range of narrative texts representing various historical periods. Focus on literary traditions within historical contexts. Examination of styles, motifs, and the theory of the novel. (Sp)

**GERM 4650 DHA Trends in Modern German Literature\* 3**  
Study of literary movements, topics, and styles of modern (twentieth century) German literature. Concentration on texts representing a variety of aesthetic expressions, central to experiences of twentieth-century life. (F)

**GERM 4800 German IV Study Abroad 1-4<sup>®</sup>**  
Intensive study in a German-speaking country, advancing proficiency in the four language skills and multicultural knowledge at the fourth-year level. (Su)

**GERM 4880 Individual Readings 1-4<sup>®</sup>**  
Readings in technical, scientific, and literary German. Prerequisite: Instructor's permission. (F,Sp)

**GERM 4900 Special Topics\* 3<sup>®</sup>**  
Selected critical topics and themes relating to German literature, culture, film, pedagogy, linguistics, and associated theories. Includes readings in English and German. Content determined by student need and interest. (Sp)

**GERM 4910 German for Special Purposes\*\* 3**  
Advances German communicative proficiency in the fields of business, science, and pedagogy. Promotes professional applications of German terminologies and procedures for science and commerce, as well as teaching methodology. Discipline-interactive projects advance the four language skills. (Sp)

**GERM 4920 German Language Tutoring 1<sup>®</sup>**  
Allows students to develop tutoring skills by assisting professors in lower-division courses or fulfilling instructional duties for a comparable amount of time in the language laboratory, public schools, or similar activities with departmental approval. May be repeated to a maximum of 3 credits. Prerequisite: Permission of instructor. (F,Sp,Su)

# Course Descriptions

**GERM 6200 German Linguistics and Phonetics 3**  
 Discussion of syntactical and morphological problems of German and principles of language learning. Phonological and phonetic patterns of the German language also discussed. Prerequisite: GERM 2020, another 3000-level or higher GERM course, or demonstrated proficiency through testing. (Sp)

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

DEThis course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

## Greek (GRK)

See *Department of History, pages 304-309*

Also see *Classics Minor, page 211*

**GRK 1010 Beginning Ancient Greek I 5**  
 Basics of Greek grammar and vocabulary. Beginning readings. Prerequisites: LATN 1010, 1020. (F)

**GRK 1020 Beginning Ancient Greek II 5**  
 Intermediate concepts of Greek grammar and vocabulary. Intermediate readings. Prerequisite: Minimum grade of B in GRK 1010. (F)

**GRK 3300 Intermediate Greek Prose 3**  
 Readings in ancient Greek prose. Prerequisite: Minimum grade of B in GRK 1020. (F)

**GRK 3330 Intermediate Greek Poetry 3**  
 Readings in Greek poetry. Prerequisite: Minimum grade of B in GRK 3300. (F)

**GRK 4300 Advanced Greek Readings 3®**  
 Readings in Ancient Greek poetry and/or prose. Prerequisites: Minimum grades of B in GRK 3300 and 3330. (F)

**GRK 4930 Directed Readings in Greek Poetry and Prose Authors 1-3**  
 Directed readings in advanced Greek poetry and prose authors. Prerequisite: Successful completion of at least three semesters of Greek. (F,Sp,Su)

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

## Humanities, Arts, and Social Sciences (HASS)

See *College of Humanities, Arts, and Social Sciences, pages 135-137*

**HASS 1250 Interdisciplinary Workshop 1-5®**  
 (F,Sp,Su)

**HASS 2250 Introductory Internship/Co-op 1-5®**  
 Introductory-level educational work experience in an internship or cooperative education position approved by the College of Humanities, Arts, and Social Sciences. Graded Pass/Fail only. (F,Sp,Su) DE

**HASS 3050 The Arts in Cultural Context 3**  
 Interdisciplinary study of a work, figure, or theme in the arts. When possible, taught in conjunction with Arts and Lecture Series sponsored by Caine School of the Arts. Topics vary. (F,Sp)

**HASS 4250 Advanced Internship/Co-op 1-15®**  
 Internship or cooperative education position of a more professional level, with increased complexity, approved by the College of Humanities, Arts, and Social Sciences. Graded Pass/Fail only. (F,Sp,Su) DE

**HASS 4900 Rhetoric Associates Seminar 2**  
 Training course for students to learn how to effectively peer tutor fellow students in writing. Overview of theory, grammar, and interpersonal communication skills. (F)

**HASS 4910 Study Abroad 1-20**  
 A semester study abroad experience through a student exchange program. Graded SP (Satisfactory Progress) only. Prerequisite: Approval from the Study Abroad Office. (F,Sp,Su)

**HASS 5250 Interdisciplinary Workshop 1-5®**  
 (F,Sp,Su)

**HASS 6250 Graduate Internship/Co-op 1-15®**  
 Internship or cooperative education position approved by the department and/or the College of Humanities, Arts, and Social Sciences. (F,Sp,Su)

**HASS 6910 Study Abroad 1-12**  
 A semester study abroad experience through a student exchange program. Prerequisite: Approval from the Study Abroad Office. (F,Sp,Su)

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

DEThis course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Health Education Professional (HEP)

See *Department of Health, Physical Education and Recreation, pages 296-303*

**HEP 2000 First Aid and Emergency Care 2**  
 Provides instruction and practical experience for the development of first aid knowledge, skills, and personal judgment. Focuses on recognizing emergencies, activating EMS, and providing direct care. (F,Sp,Su) DE

**HEP 2300 Cardiopulmonary Resuscitation 1**  
 Techniques and skills of adult, child, and infant airway management and cardiopulmonary resuscitation for the lay person (one rescuer). Taught according to current standards. (Arr)<sup>1</sup>

**HEP 2500 Health and Wellness 2**  
 Designed to enable students to enhance personal wellness by gaining understanding about the social, physical, spiritual, and emotional dimensions of health, and by applying different strategies for improving personal health behaviors. (F,Sp,Su) DE

**HEP 3000 Drugs and Human Behavior 3**  
 Students evaluate the historical and modern use, misuse, and abuse of drugs in relation to current concepts of physical, social, and emotional wellness. Special emphasis on educational and community strategies for prevention of drug-related problems. (F,Su) DE

**HEP 3100 School Health Programs 3**  
 Essentials of the existing paradigm of Comprehensive School Health Programs and their development in relation to current child health status. Assessment, planning, implementation, and evaluation. Prerequisite: Formal acceptance into the School Health Education Emphasis or School Health Minor or consent of instructor. (F)

**HEP 3200 Consumer Health 3**  
 Focuses on helping students become discriminating consumers of health information, health products, and health services. (F,Su) DE

**HEP 3300 Clinical Experience I 1**  
 Clinical experience in school health education. Graded Pass/Fail only. Prerequisite: Acceptance into School Health major or minor. (F,Sp)

**HEP 3400 Stress Management 3**  
 Concepts and principles of personal stress management, with special emphasis on effective stress management coping strategies, maximizing positive stress outcomes, and minimizing negative stress effects, to aid in obtaining and maintaining a balanced health homeostatic condition. (F,Sp) DE

# Course Descriptions

<p><b>HEP 3500</b>      <b>Elementary School Health Education</b>      <b>2</b> Explores child health status and the vital roles that the school/elementary teacher plays in enabling children to acquire healthful lifestyle behaviors while increasing their potential for academic success. (F,Sp)<sup>DE</sup></p> <p><b>HEP 3600</b>    <b>CI</b>      <b>Introduction to Community Health</b>      <b>3</b> Introduction to agencies, facilities, and programs playing a role in protection and promotion of health in the community. Special emphasis on competencies necessary for the health educator to function in a variety of community settings. (F)<sup>DE</sup></p> <p><b>HEP 3900</b>      <b>Social Marketing in Health Education</b>      <b>3</b> Explores social marketing techniques used in health promotion and examines the marketing process, which includes formative research, target audience analysis and segmentation, marketing mix, marketing strategies, pretesting, implementation, and evaluation. Prerequisites: HEP 2500 and passing score on Computer and Information Literacy (CIL) Exam. (Sp)</p> <p><b>HEP 4100</b>      <b>Foundations of Community Health</b>      <b>3</b> Professional preparation course for health education majors. Primary emphasis on ethical issues, behavioral and sociological theories used in the profession, philosophical issues, technology, and health education methodologies. Prerequisite: HEP 2500. (Sp)</p> <p><b>HEP 4200</b>    <b>QI</b>      <b>Planning and Evaluation for Health Education</b>      <b>3</b> Provides indepth study of planning, implementation, and evaluation of school and community health education programs. Students obtain hands-on experience planning a health education program. Prerequisites: HEP 3600; MATH 1030 or STAT 1040. (F)</p> <p><b>HEP 4250</b>      <b>Advanced Cooperative Work Experience</b>      <b>1-15<sup>®</sup></b> Professional-level cooperative education work experience as student advances toward completion of the program. Graded Pass/Fail <i>only</i>. Prerequisite: Consent of instructor. (F,Sp,Su)</p> <p><b>HEP 4300</b>      <b>Clinical Experience II</b>      <b>1</b> Clinical experience in school health education. Graded Pass/Fail <i>only</i>. Prerequisite: Acceptance into School Health major or minor. (F,Sp)</p> <p><b>HEP 4400</b>      <b>Creative Methods in Teaching Health Education</b>      <b>3</b> Planning, designing, and evaluating comprehensive school health education curricula and instruction for secondary school students, utilizing various creative instructional strategies and materials. Participation in peer teaching experiences. Prerequisites: HEP 2500, junior standing, and acceptance into School Health Education. (F,Sp)</p> <p><b>HEP 4500</b>      <b>Sexuality Education Within the Schools</b>      <b>3</b> Emphasizes broad understanding of human sexuality, with specific focus on adolescent sexuality/behavior, age and topic appropriate instruction, state law, and effective curriculum/strategies for human sexuality education within the secondary schools. Prerequisite: Formal acceptance into the School Health Education emphasis or School Health minor, or consent of instructor. (Sp)</p> <p><b>HEP 4600</b>      <b>Field Work in Health Education</b>      <b>1-9<sup>®</sup></b> Supervised student participation in school or community health programs or directed projects. Prerequisites: HEP 3600, 4100, and consent of instructor. (F,Sp,Su)</p> <p><b>HEP 4700</b>      <b>Honors Senior Thesis</b>      <b>1-6</b> Requirements for the honors thesis include: (1) a detailed review of scholarly literature on the health topic of interest to the student, and (2) the collection of primary data on the topic of interest (e.g., through interviews, surveys, focus groups, etc.), which must include references. The student must meet regularly with the faculty mentor, who will help with the development of the honors thesis. (F,Sp,Su)</p> <p><b>HEP 5000</b>    <b>CI</b>      <b>Race, Culture, Class, and Gender Issues in Health</b>      <b>3</b> Focuses on how multicultural issues affect health status and health choices. Special emphasis on how race, ethnicity, culture, socioeconomic status, and gender impact health status and access to health care. Prerequisite: Junior standing. (Sp)</p>	<p><b>HEP 5100</b>    <b>CI</b>      <b>Cultural and Complementary Medicine</b>      <b>3</b> Provides in-depth view into health beliefs, traditions, and practices of various cultures and of the major minority groups in the U.S. Emphasizes ancient, eastern, and native health practices collectively known as complementary medicine and healing modalities. (Arr)<sup>1</sup></p> <p><b>HEP 5200</b>      <b>International Health</b>      <b>3</b> Explores meaning of "health" through the lens of different cultures. Provides an international comparison of health status, including morbidity and mortality data. Evaluates different programs, policies, and strategies for addressing international health problems. Prerequisite: Junior standing. (Arr)<sup>1</sup></p> <p><b>HEP 5300</b>      <b>Grant Proposal Writing</b>      <b>3</b> Teaches practical skills needed to plan and write proposals for federal, state, local, and private funding. Students develop proposals in area in which they have developed expertise, and coordinate with a local agency for funding. Prerequisites: HEP 2500, fulfillment of Communications Literacy CL2 requirement, and passing score on Computer and Information Literacy (CIL) Exam. Enrollment limited to Health Education and Public Health majors <i>only</i>. (Sp)</p> <p><b>HEP 5500</b>      <b>Student Teaching Seminar</b>      <b>2</b> Weekly seminar dealing with the professional practice of school health education. Graded Pass/Fail <i>only</i>. Prerequisite: HEP 4400. (F,Sp)</p> <p><b>HEP 5630</b>      <b>Student Teaching</b>      <b>10</b> Practical experience teaching health in the public school system. Graded Pass/Fail <i>only</i>. Prerequisite: HEP 4400. (F,Sp)</p> <p><b>HEP 5700</b>      <b>Special Topics in Health</b>      <b>1-6<sup>®</sup></b> In-depth review and discussion of special topics in health. May be graded Pass/Fail, as determined by instructor or section. (Arr)<sup>1</sup> <sup>DE</sup></p> <p><b>HEP 5900</b>      <b>Independent Study</b>      <b>1-3<sup>®</sup></b> Prerequisite: Consent of instructor. (F,Sp,Su)</p> <p><b>HEP 5950</b>      <b>Independent Research</b>      <b>1-3<sup>®</sup></b> Prerequisite: Consent of instructor. (F,Sp,Su)</p> <p><b>HEP 6000</b>      <b>Evaluating Health-Promotion Programs</b>      <b>3</b> Students learn to develop and carry out a health-promotion program evaluation, interpret the results of an evaluation, and identify implications for future program planning. (Sp)</p> <p><b>HEP 6100</b>      <b>Current Trends in Health Promotion</b>      <b>3</b> Focuses on trends and issues in the promotion of health behaviors in a variety of settings. Analyzes and challenges prevailing assumptions and philosophies in relation to health promotion. (F)</p> <p><b>HEP 6250</b>      <b>Graduate Cooperative Work Experience</b>      <b>1-15</b> Professional level of education work experience in a cooperative education position for graduate students. Prerequisite: Consent of instructor. (F,Sp,Su)</p> <p><b>HEP 6300</b>      <b>Stress Management</b>      <b>3</b> Explores concepts and principles of personal stress management, with special emphasis on effective stress management coping strategies, maximizing positive stress outcomes, and minimizing negative stress effects, thus aiding in obtaining and maintaining a balanced, healthy homeostatic condition. (Arr)<sup>1</sup></p> <p><b>HEP 6500</b>      <b>Proposal Seminar for Health Education</b>      <b>2</b> During this seminar, second-year health education graduate students develop a thesis proposal adhering to departmental, college, and University guidelines. Students apply what they have learned in theory, research methods, and statistics courses for the final proposal. Graded Pass/Fail <i>only</i>. Prerequisites: EDUC 6570, 6600, and HEP 6800; or consent of instructor. (F)</p> <p><b>HEP 6600</b>      <b>Field Work in Health Education</b>      <b>2<sup>®</sup></b> Supervised student participation in school or community health projects or directed projects. Prerequisite: Consent of instructor. (F,Sp,Su)</p>
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# Course Descriptions

<b>HEP 6700</b>	<b>Special Topics in Health</b>	<b>1-6<sup>®</sup></b>
In-depth review and discussion of special topics in health. (Arr) <sup>1</sup>		
<b>HEP 6800</b>	<b>Seminar in Health Behavior</b>	<b>3</b>
Explores current theoretical perspectives in relation to behaviors. Students critically examine theories commonly used in health education. Focuses on practical application of theory in health promotion programs. (F)		
<b>HEP 6900</b>	<b>Independent Study</b>	<b>1-3<sup>®</sup></b>
Prerequisite: Consent of instructor. (F,Sp,Su)		
<b>HEP 6950</b>	<b>Independent Research</b>	<b>1-3<sup>®</sup></b>
Prerequisite: Consent of instructor. (F,Sp,Su)		
<b>HEP 6970</b>	<b>Thesis</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail only. (F,Sp,Su)		
<b>HEP 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-12<sup>®</sup></b>
Graded Pass/Fail only. (F,Sp,Su)		

<sup>1</sup>This class is not taught on a regular basis. See department for further information.  
<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.  
<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## History (HIST)

*See Department of History, pages 304-309*

<b>HIST 1060</b>	<b>BHU Introduction to Islamic Civilization</b>	<b>3</b>
Survey of Islamic civilization from the Prophet Muhammed to the present. <sup>DE</sup>		
<b>HIST 1100</b>	<b>BHU Foundations of Western Civilization: Ancient and Medieval</b>	<b>3</b>
Survey of institutions and developments of early and medieval Western civilization from its Mediterranean origins to the beginning of the early modern period. (F,Sp,Su) <sup>DE</sup>		
<b>HIST 1110</b>	<b>BHU Foundations of Western Civilization: Modern</b>	<b>3</b>
Survey of the institutions and developments in Western civilization from 1500 to the present. (F,Sp,Su) <sup>DE</sup>		
<b>HIST 1500</b>	<b>BHU Cultural and Economic Exchange in the Pre-Nineteenth Century World</b>	<b>3</b>
Surveys pre-Nineteenth Century cultural and economic interactions in important zones of exchange. Regional focus determined by instructor. Themes may include: trade, religious conversion, migration, slavery, warfare, and other types of cross-cultural exchange. (F,Sp) <sup>DE</sup>		
<b>HIST 1510</b>	<b>BHU The Modern World</b>	<b>3</b>
Survey of world history from the beginning of the nineteenth century to the present. (F,Sp,Su) <sup>DE</sup>		
<b>HIST 1600</b>	<b>American Cultures in Film</b>	<b>3</b>
Introduction to major ethnic groups in America and their treatment in recent feature films. Also taught as ENGL 1600. (F,Sp)		
<b>HIST 1700</b>	<b>BAI American Civilization</b>	<b>3</b>
Fundamentals of American civilization. Covers history, political system, and economic institutions of the United States. Fulfills American Institutions requirement. <sup>DE</sup>		
<b>HIST 2010</b>	<b>Special Topics Seminar</b>	<b>3</b>
Study of special cross-cultural topics, including Imperial Paris, British India, Slavery in America, and Ute History.		
<b>HIST 2210</b>	<b>BHU Introduction to Folklore</b>	<b>3</b>
Introduction to major genres of folklore (folk narrative, custom, folk music and song, vernacular architecture and arts), folk groups (regional, ethnic, occupational, familial), and basic folklore research method (collecting and archiving). Also taught as ANTH 2210 and ENGL 2210. (F,Sp) <sup>DE</sup>		

<b>HIST 2700</b>	<b>BAI United States to 1877</b>	<b>3</b>
Survey of the development of American society, economy, culture, and politics to 1877. (F,Sp,Su) <sup>DE</sup>		
<b>HIST 2710</b>	<b>BAI United States 1877-Present</b>	<b>3</b>
Survey of the development of American society, economy, culture, and politics since 1877. (F,Sp,Su) <sup>DE</sup>		
<b>HIST 2720</b>	<b>Survey of American Folklore</b>	<b>3</b>
Principal ethnic, regional, and occupational folk groups in America. Relations between folklore and American history, literature, and society. Key genres in American folklore (narrative, art, song, etc.) and their role in American culture. Also taught as ENGL 2720 and ANTH 2720. (Sp)		
<b>HIST 3010</b>	<b>Introduction to Buddhism**</b>	<b>3</b>
General survey of historical development, basic doctrine, and practice of Hinayana and Mahayana Buddhism. Also taught as RELS 3010.		
<b>HIST 3020</b>	<b>Introduction to Hinduism**</b>	<b>3</b>
Surveys history, doctrinal developments, and sociological concerns of Hinduism from the Vedic Period through the Modern Period. Focuses primarily on Hindu religious thought as applied to Hindu life through various modes of religious action. Also taught as RELS 3020.		
<b>HIST 3070</b>	<b>DHA Perspectives in Folklore</b>	<b>3<sup>®</sup></b>
In-depth study of folklore for nonmajors. Topics vary according to faculty expertise. Also taught as ENGL 3070. (F,Su)		
<b>HIST 3110</b>	<b>DHA/CI Ancient Near East*</b>	<b>3</b>
Survey of history and civilization of ancient Mesopotamia, Egypt, and Israel, from prehistory to 500 B.C. Writing intensive. Prerequisite: Fulfillment of Communications Literacy CL2 requirement. Also taught as ARTH 3110. (Sp)		
<b>HIST 3130</b>	<b>DHA/CI Greek History</b>	<b>3</b>
History of Greece from Neolithic period to modern times. Special emphasis on politics, art, literature, and civilization. Writing intensive. Prerequisite: Fulfillment of Communications Literacy CL2 requirement.		
<b>HIST 3150</b>	<b>CI Roman History</b>	<b>3</b>
History of Rome from Neolithic era to "fall" of the Western Empire. Special emphasis on politics, art, literature, and civilization. Writing intensive. Prerequisite: Fulfillment of Communications Literacy CL2 requirement. (Sp)		
<b>HIST 3220</b>	<b>DHA/CI Medieval European Civilization, 500-1500</b>	<b>3</b>
Provides students with overview of major themes in medieval European history from 500 to 1500 A.D. Also introduces major historiographical problems related to this period. Writing intensive and document based. Prerequisite: Fulfillment of Communications Literacy CL2 requirement.		
<b>HIST 3230</b>	<b>Early Modern Europe</b>	<b>3</b>
Explores major themes of early modern European history, such as secularization, the rise of the nation state, the Reformation, and the birth of capitalism. Introduces major historiographical issues of the period. Reading and writing intensive. Prerequisite: Fulfillment of Communications Literacy CL2 requirement.		
<b>HIST 3240</b>	<b>Modern Europe from 1789 to the Present</b>	<b>3</b>
Historical survey of Europe from the French Revolution to the present, with special emphasis on political and cultural implications of imperialism. Prerequisite: HIST 1110. <sup>DE</sup>		
<b>HIST 3250</b>	<b>DHA/CI Renaissance Europe 1300 to 1520</b>	<b>3</b>
Emphasizing writing and primary sources, covers significant changes in Europe in government, society, and intellectual life caused by the Black Death, the humanist revolution in arts and literature, and the centralizing efforts of popes and monarchs. (F,Sp) <sup>DE</sup>		
<b>HIST 3260</b>	<b>History of Spain and Portugal</b>	<b>3</b>
History of Iberian peninsula from fifteenth century to the present. Age of Exploration, conquest and colonization in the Americas and Africa, eighteenth century reforms, constitutional monarchies, civil wars, and twentieth century dictatorships. Writing intensive. Prerequisite: Fulfillment of Communications Literacy CL2 requirement.		

# Course Descriptions

<p><b>HIST 3280 East Central Europe Since 1520</b> 3 Examines history of East Central Europe, with special emphasis on growth of nationalism and establishment of the states of Czechoslovakia, Hungary, and Poland. Emphasizes research and writing.</p> <p><b>HIST 3310 Balkans Since 1389</b> 3 Examines history of Balkan peninsula, with special emphasis on growth of nationalism and establishment of Bulgaria, Albania, Greece, Romania, and Yugoslavia. Emphasizes research and writing.</p> <p><b>HIST 3320 Tsarist Russia</b> 3 Political, economic, and cultural development of Russian people to 1917. Writing and computer intensive.</p> <p><b>HIST 3330 The Soviet Union and its Heirs</b> 3 Beginning with the Russian Revolution, surveys political, cultural, and economic history of the Soviet Union and the regional states emerging in its wake. Writing and computer intensive.</p> <p><b>HIST 3410 The Modern Middle East</b> 3 Examines history of the Middle East (Arabian peninsula, Fertile Crescent, Egypt, Iran, and Turkey), with special emphasis on social and political currents which have shaped the area's history. <sup>DE</sup></p> <p><b>HIST 3460 Comparative Asian History</b> 3 Surveys history of Asian continent, analyzing common patterns in the cultures of West, South, Southeast, and East Asia.</p> <p><b>HIST 3480 History of China</b> 3 Development of traditional Chinese culture and effect on that culture of the growth of Western influence. Writing and computer intensive.</p> <p><b>HIST 3490 Survey of Japanese History</b> 3 Surveys history of Japan from its beginnings to the present. Explores early Japan's cultural, social, and economical evolution. Covers feudal Japan and its transition toward joining the fraternity of nations. Studies World War II and its effects on Japan. Discusses contemporary conditions of Japan. (F)</p> <p><b>HIST 3510 Africa and the World</b> 3 Explores foundation of Africa's contemporary problems. Surveys Africa's history of interactions with Asia and Europe. In addition to writing several short essays covering readings and films, students investigate an aspect of cultural, political, or economic interaction and prepare a short research paper.</p> <p><b>HIST 3530 African Environmental History</b> 3 Surveys changing historical relationship between Africans and their physical environment. Readings cover ecological change in arid, savanna, rain forest, and montane environments. Students also survey and evaluate the methods and sources used by environmental historians to explain environmental stress, degradation, and rehabilitation.</p> <p><b>HIST 3550 DHA Culture of East Asia</b> 3 Helps students explore and appreciate the culture of three East Asian countries: China, Japan and Korea. Students gain sincere view and understanding of these East Asian cultures through readings, hands-on cultural activities, viewing video materials, writing, and discussions. Topics include: major historical and social events, customs and traditions, thoughts and beliefs, people, food, contemporary issues, art, literature, and film. Also taught as ANTH 3550 and LANG 3550. <sup>DE</sup></p> <p><b>HIST 3620 History of Colonial Latin America</b> 3 Surveys art, culture, religion, and social organization of the Aztecs, Incas, and Mayas, and of the European dominated post-conquest. Introduces students to major historiographical problems in the field. Prerequisite: Fulfillment of Communications Literacy CL2 requirement.</p> <p><b>HIST 3630 History of Modern Latin America</b> 3 Introduces history and historiography of Latin America from the wars of independence to the contemporary era. Writing intensive.</p>	<p><b>HIST 3640 History of Social Movements in Latin America</b> 3 Examines the changing nature of social movements in Latin America from the nineteenth century to the present. Topics include social movements concerning citizenship, religion, unions, feminism, torture, poverty, indigenous rights, and environmentalism. Prerequisite: Fulfillment of Communications Literacy CL2 requirement.</p> <p><b>HIST 3650 Caribbean History</b> 3 Surveys the Caribbean from pre-Columbian cultures to the present, with special emphasis on slavery, colonialism, piracy, immigration, independence and revolutionary movements, nation-building, artistic creation, and tourism. Prerequisite: Fulfillment of Communications Literacy CL2 requirement.</p> <p><b>HIST 3660 History of Mexico</b> 3 Surveys Mexico from the rise of indigenous states to the present, with special emphasis on indigenous culture, colonialism, independence, the U.S.-Mexican War, the French Intervention, the Mexican Revolution, political reform, everyday life, globalization, and border issues. Prerequisite: Fulfillment of Communications Literacy CL2 requirement.</p> <p><b>HIST 3670 Slavery in the Atlantic World</b> 3 Examines slavery in the Americas from the Atlantic perspective (including Africa and Europe) from the Fifteenth Century until abolition, with special emphasis on the slave trade, the plantation system, daily life, slavery and race, resistance, the Haitian Revolution, and abolition in the Americas. Prerequisite: Fulfillment of Communications Literacy CL2 requirement.</p> <p><b>HIST 3700 CI Regional Folklore*</b> 3 Study of folklore and folklife as they relate to regional cultures. Also taught as ENGL 3700. (F,Sp)</p> <p><b>HIST 3710 CI Folklore Colloquium</b> 3<sup>®</sup> Issues, problems, and methodologies in folklore study. Focus and instructor variable. Also taught as ENGL 3710 and RELS 3710. (Sp)</p> <p><b>HIST 3720 Colonial America</b> 3 Advanced survey of North American Colonies, emphasizing British experience, from their founding to 1763. Addresses major issues of interpreting America's beginnings. (F) <sup>DE</sup></p> <p><b>HIST 3730 The New American Nation</b> 3 Advanced survey of American history from 1763 to 1800, with special emphasis on historiography of the Revolution, creation of a Republic, and efforts to define the New Nation. (Sp)</p> <p><b>HIST 3740 United States in the Age of Jefferson and Jackson</b> 3 Examines history of United States from 1800 to 1846, from election of Jefferson to outbreak of war with Mexico. Prerequisite: Fulfillment of Communications Literacy CL2 requirement. (F) <sup>DE</sup></p> <p><b>HIST 3750 Civil War and Reconstruction</b> 3 Analysis of most trying period in U.S. history, with special emphasis on the course and results of the war. Prerequisite: Fulfillment of Communications Literacy CL2 requirement. (Sp) <sup>DE</sup></p> <p><b>HIST 3755 The Gilded Age (U.S. 1877-1900)</b> 3 Examines national politics, culture, and social and economic change in late nineteenth-century America.</p> <p><b>HIST 3760 DHA/CI The United States, 1900-1945</b> 3 Analyzes scholars' approaches to U.S. history in the early twentieth century, with attention to socio-economic change, political reform, and transforming impact of American involvement in two world wars. Writing intensive. Prerequisite: Fulfillment of Communications Literacy CL2 requirement. (Sp) <sup>DE</sup></p> <p><b>HIST 3770 Contemporary America, 1945-Present</b> 3 Domestic and foreign policy since World War II. Emphasizes Cold War, Civil Rights, and the political and social developments of contemporary United States. Contains intensive writing component. (F)</p>
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# Course Descriptions

<p><b>HIST 3840</b>      <b>Twentieth Century American West</b>      <b>3</b>            Considers emerging scholarly literature about the American West in the twentieth century, with attention to economic, environmental, and demographic questions. (Sp)</p> <p><b>HIST 3850</b>      <b>DHA/CI History of Utah</b>      <b>3</b>            Prehistory to the present. Examines environment and peoples of Utah, emphasizing use of primary documents to view and interpret Utah's past. Reading and writing intensive. Requires use of USU Special Collections and Archives. Prerequisite: Fulfillment of Communications Literacy CL2 requirement. (Sp)<sup>DE</sup></p> <p><b>HIST 3900</b>      <b>DSC Science and Technology in World History</b>      <b>3</b>            Explores the nature of scientific and technological change. Employs historical approach as the means for exploring the relationships between science, technology, and human values. Investigates how science and technology have shaped economic, political, military, societal, environmental, and cultural life. Prerequisites: Passing scores on all Computer and Information Literacy (CIL) exams, fulfillment of Communications Literacy CL2 requirement. (F)</p> <p><b>HIST 3950</b>      <b>DHA/CI Environmental History</b>      <b>3</b>            Surveys writings from a relatively new genre of historical scholarship that attempts to explain the relationship between human society and the natural world. Readings focus on North America, but students also have opportunity to survey materials from the non-Western world. Course is reading and writing intensive, and requires students to conduct a research project in which they construct the history of a particular landscape.<sup>DE</sup></p> <p><b>HIST 4010</b>      <b>Buddhism in the West**</b>      <b>3</b>            One-semester introduction to Buddhism in the Western world for nonspecialists in Buddhism. Focuses on development of Buddhism as a Western religious phenomenon. Presents interpretive, historical introduction to Buddhism in the West. Also taught as RELS 4010.</p> <p><b>HIST 4210</b>      <b>Celtic Europe**</b>      <b>3</b>            History of Celtic peoples in British Isles, Scandinavia, and continental Europe, from Neolithic times to the Norman Conquest in 1066. Computer intensive. Also taught as ARTH 4210. (F)</p> <p><b>HIST 4230</b>      <b>DHA/CI The History of Christianity in the West</b>      <b>3</b>            Introduces students to history of Christian spirituality, asking how Christianity has been lived and how it has shaped lives over two thousand years. Uses original sources to introduce both the history and the historiographical problems surrounding the Christian religion. Writing intensive.</p> <p><b>HIST 4250</b>      <b>The Reformation in Britain: 1450-1688</b>      <b>3</b>            Focuses on major research questions in the field of early modern studies. Explores causes and consequences of English Reformation and British Civil War. Writing and research intensive.<sup>DE</sup></p> <p><b>HIST 4290</b>      <b>Europe and the French Revolution, 1700-1815</b>      <b>3</b>            Examines causes and consequences of the French Revolution, introducing students to major themes in its interpretation.</p> <p><b>HIST 4310</b>      <b>History of Nationalism</b>      <b>3</b>            Examines development of nationalism. Addresses different theories of nationalism, and then tests these theories with various case studies. Emphasizes research and writing.</p> <p><b>HIST 4320</b>      <b>DHA History of Scientific Thought</b>      <b>3</b>            Examination of key episodes in the history of science and associated ideas about the nature of scientific knowledge and how it may be acquired. Also taught as PHIL 4320. (Sp)</p> <p><b>HIST 4330</b>      <b>Modern Germany with Special Emphasis on the Twentieth Century</b>      <b>3</b>            Historical survey of Germany beginning with Frederick the Great of Prussia, and considering the parallel history of the Habsburg empire and the Germany of the Kleinstaaterei. Considers wars and economic and political developments beginning in 1871, which produced the Nazi period. Prerequisite: HIST 1110.</p>	<p><b>HIST 4350</b>      <b>Greek Intellectual History</b>      <b>3</b>            Through reading and discussing Greek literature and philosophy, attempts to understand the major Greek philosophers, in the context of the major literary authors of the period and contemporary political developments. Prerequisite: CLAS 3210. (Sp)</p> <p><b>HIST 4390</b>      <b>British Imperialism from 1688 to the Present</b>      <b>3</b>            Topical survey of British Imperialism from 1688 to the present. Topics include the interaction of British imperialism with foreign policy; social, economic, and political institutions; the life of the mind and senses; and non-European cultures. Prerequisite: HIST 1110.</p> <p><b>HIST 4400</b>      <b>DHA History of Aviation and Aeronautics</b>      <b>3</b>            Traces aeronautics from its origins to the present day. Examines selected topics concerning flight within the earth's atmosphere from an international perspective, with particular emphasis on the United States of America.</p> <p><b>HIST 4510</b>      <b>The History of Urban America</b>      <b>3</b>            Examines the history of communities, cities, and suburbs in American history, from the Colonial era to the present. Explores how forces, including immigration, economic growth, and technological change, shaped American cities. Also examines subjects connected to urban history, including architectural history, as well as the history of landscape architecture and urban planning.</p> <p><b>HIST 4550</b>      <b>DHA/CI Women and Gender in America</b>      <b>3</b>            Writing intensive course drawing on film, primary documents, and readings to trace the history of women, emphasizing race, class, and gender influences of each era. Also taught as WGS 4550. (F)</p> <p><b>HIST 4600</b>      <b>DHA/CI The History of the American West</b>      <b>3</b>            Traces major themes in nineteenth century history of the land between the Mississippi River and the Pacific Coast. In a writing intensive course, students use primary documents and secondary materials to discover the race, class, and gender issues that shaped the American West.<sup>DE</sup></p> <p><b>HIST 4610</b>      <b>Themes and Methods in Economic History</b>      <b>3</b>            Themes and methods in economic history, drawing on various societies and time periods. Designed to prepare future historians to work in their field. Prerequisite: MATH 1030 or STAT 1040.</p> <p><b>HIST 4620</b>      <b>CI Advanced Seminar in American Studies</b>      <b>3</b>            Practical introduction to theories and methods of American Studies, utilizing interdisciplinary research around a central theme, subject, or text(s). Strongly recommended for American Studies majors and American Studies minors. Open to students who have taken three courses in literature and/or history. Also taught as ENGL 4620. (F,Sp)</p> <p><b>HIST 4630</b>      <b>The History of Mexican Americans</b>      <b>3</b>            Reading-intensive and writing-intensive course, examining the historical experiences of Mexican Americans, from prior to the U.S. annexation of Northern Mexico in 1848 to the present. Special emphasis given to immigration and migration, labor, gender, race and ethnicity, and the social and cultural evolution of Mexican Americans within American society.</p> <p><b>HIST 4640</b>      <b>CI Studies in the American West</b>      <b>3</b>            Interdisciplinary course in American Studies, exploring the region of the West through the analysis of literary texts, historical sources, and socio-cultural materials. Also taught as ENGL 4640. (F,Sp)<sup>DE</sup></p> <p><b>HIST 4700</b>      <b>Folk Material Culture**</b>      <b>3</b>            Study of folk objects and their connections with culture and history. Also taught as ENGL 4700. (Sp)</p> <p><b>HIST 4710</b>      <b>American Indian History</b>      <b>3</b>            Prehistory to the present. Emphasizes ethnohistory and the Western U.S., focusing on intercultural contacts, subsistence and environmental change, and contemporary political and economic issues, while analyzing primary documents and secondary readings. (F)</p>
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# Course Descriptions

<p><b>HIST 4720 CI/DHA The Civil Rights Movement</b> 3 Traces struggle of black Americans for equality since emancipation, with emphasis on the post-World War II period. Focuses on the individuals and social trends that laid the groundwork for change by the mid-Twentieth Century. Prerequisite: Fulfillment of Communications Literacy CL2 requirement. (F,Sp)</p> <p><b>HIST 4730 CI History of Black America</b> 3 Study of African-American experience from slavery to freedom, as well as the difficult quest for democracy and equality in contemporary America. Includes both creative and research writing components. (Sp)</p> <p><b>HIST 4740 American Immigration History</b> 3 Examines history of immigration to the United States from Europe, Africa, Latin America, and Asia. Requires library research, especially in government documents, and use of oral history techniques. (F)</p> <p><b>HIST 4750 Advanced Folklore Workshop: Fife Conference</b> 3® Focuses on one theme or topic in folklore, and offers lectures from nationally prominent scholars in the area. Taught during one week, every day and all day. Also taught as ENGL 4750. (Su)</p> <p><b>HIST 4780 DHA American Financial History</b> 3 Explores American financial history from the nineteenth century to the present. Covers historical development of the U.S. banking system, the stock market, coins and currency, the Federal Reserve system, accounting practices, credit, monetary policy, taxation, and personal finance. (Sp)</p> <p><b>HIST 4790 American Religious History**</b> 3 Varieties of American religious experience from settlement to the present.</p> <p><b>HIST 4800 The Supreme Court and American Constitutional History</b> 3 Examines many of the major arguments made about the Constitution, which were presented before the Supreme Court of the United States. Also taught as POLS 4800.</p> <p><b>HIST 4810 American Military History</b> 3 Covers evolution of the military in American history and society from 1775 to the present.</p> <p><b>HIST 4820 World War II in Europe</b> 3 Focuses exclusively on World War II developments in the ETO. That is, the efforts of the Allied forces, mainly the United States, Britain, the Soviet Union, Free France, Canada, and resistance fighters and British Commonwealth soldiers against the expansion and occupation of most of Eurasia by Nazi Germany and/or Fascist Italy. Covers the chronology of 1939 to 1945. Included in the course's scope is the Holocaust. (Sp)</p> <p><b>HIST 4821 DHA World War II in Asia</b> 3 Focuses on Japanese and Allied fighting in the Pacific and the Asian mainland from 1937 to 1945. British, French, and Dutch losses in Asia to Japan, as well as efforts to recover them. U.S.-Japanese conflict in the Pacific Theater. (Sp)</p> <p><b>HIST 4830 CI/DHA Structure of Engineering Revolutions</b> 3 Provides an integrated approach to the history of engineering practice. Students research the life cycle of a major engineering project from historical, political, and economic perspectives, while using original sources and conducting interviews. Prerequisites: Completion of CIL exams; STAT 1040 or MATH 1050; fulfillment of Communications Literacy CL2 requirement. (Sp)</p> <p><b>HIST 4850 Interpreting the Past for Teachers</b> 3 Focuses on nonformal educational experiences open to secondary school students outside of the classroom. Interpretive modes examined include historical film, documentaries, living history programs, history fairs and festivals, and historical novels and magazines. (F,Sp)</p> <p><b>HIST 4860 Teaching History</b> 3 Designed to introduce history teaching majors to ethical and methodological issues arising in history classroom. (F)<sup>DE</sup></p>	<p><b>HIST 4870 Teaching World History: Themes, Approaches, and Materials</b> 3 For history teaching majors and minors <i>only</i>. Introduces students to a number of approaches to the study and teaching of world history. Students survey theoretical and pedagogical literature, then assemble a course package, which is presented to their peers. (Sp)</p> <p><b>HIST 4880 History Workshop: Special Topics</b> 1-3® Focuses on a theme or topic in history. (F,Sp,Su)</p> <p><b>HIST 4890 DHA Cold War in Asia</b> 3 Explores history of the Cold War conflicts in Korea and Vietnam, from Asian and American perspectives. Students ascertain the economic, political, military, environmental, diplomatic, psychological, and demographic implications of these conflicts for the U.S., as well as for the Asians involved. (F,Sp)</p> <p><b>HIST 4891 DHA Cold War: Vietnam and Afghanistan</b> 3 Focuses on the later stages of the Cold War in Asia, 1961-1991, in Vietnam and Afghanistan.</p> <p><b>HIST 4910 Special Studies in History</b> 3® Examination of special areas and themes in history. (F,Sp,Su)<sup>DE</sup></p> <p><b>HIST 4930 Directed Readings</b> 1-3® Directed readings in any special historical field. For each credit granted, minimum of four books must be read. Prerequisite: Instructor's approval.<sup>DE</sup></p> <p><b>HIST 4940 Historical Internship</b> 1-3® Directed internship involving participation in a historical research or cultural management project. (F,Sp,Su)<sup>DE</sup></p> <p><b>HIST 4945 Archives Management/ (dual listing 6840) Archives Internship</b> 3 Through a mixture of lecture, discussion, and hands-on activities, provides an introduction to archives and archival practices. Examines archival practices in the real world, and discusses how archival institutions interact with the public in general and with historians in particular. Drawing on his experience as a professional archivist, the instructor uses materials held in USU Special Collections and Archives to teach this course.</p> <p><b>HIST 4990 CI Special Topics in History</b> 3® Senior history seminar emphasizing historiographical literacy, research, and writing skills in relation to a specific historical topic. Prerequisites: Lower- and upper-division courses in areas relating to topic in question. (F,Sp,Su)<sup>DE</sup></p> <p><b>HIST 5690 CI American Studies Capstone Seminar</b> 3 Required for students majoring in American Studies. Enables students to synthesize American Studies theory and methods with interdisciplinary cognate courses. Supports senior thesis design and writing, allowing topics to reflect individual programs of study. Also taught as ENGL 5690. (Sp)</p> <p><b>HIST 5700 Folk Narrative</b> 3 Forms and functions of folk narrative genres: myth, legend, folktale, memorate, and ballad. Also taught as ENGL 5700.</p> <p><b>HIST 6000 Historical Methods and Research</b> 3 Introduction to the historical profession, emphasizing research and writing skills, as well as the critical assessment of scholarly works. Should be taken at beginning of student's graduate program. Required for history master's students. (F)</p> <p><b>HIST 6010 History and Theory</b> 3® Examination of major works that have influenced the theory and practice of historical writing. History master's students are required to complete HIST 6010, 6020, or another theory-enriched course.</p> <p><b>HIST 6020 Approaches to History</b> 3® Uses readings in particular instructor's field to underscore theories and methods different historians bring to their subject. History master's students are required to complete HIST 6010, 6020, or another theory-enriched course.</p> <p><b>HIST 6030 Research Seminar</b> 3® Research in primary sources for graduate students.</p>
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# Course Descriptions

<b>HIST 6100</b>	<b>Special Topics: Ancient History</b>	<b>3<sup>®</sup></b>	<b>HIST 6610</b>	<b>Seminar on the American West</b>	<b>3-4<sup>®</sup></b>
Intensive readings and group discussions of selected topics in ancient history.			Readings and research on topics in the American West. Interdisciplinary focus suitable for graduate students in History and American Studies. Also taught as ENGL 6610. (F)		
<b>HIST 6130</b>	<b>Special Topics: Early Modern European History</b>	<b>3<sup>®</sup></b>	<b>HIST 6620</b>	<b>Seminar in Native American Studies</b>	<b>3-4<sup>®</sup></b>
Intensive readings and group discussions of selected topics in early modern European history.			Readings and research on topics in Native American history and culture. Interdisciplinary focus suitable for graduate students in History and American Studies. Also taught as ENGL 6620. (F)		
<b>HIST 6160</b>	<b>Special Topics: Modern European History</b>	<b>3<sup>®</sup></b>	<b>HIST 6630</b>	<b>Studies in Film and Popular Culture</b>	<b>3<sup>®</sup></b>
Intensive readings and group discussions of selected topics in modern European history.			Offered annually on a rotating basis by professors in folklore and English (Cultural Studies, Literature, British and Commonwealth). Topics and theoretical approaches vary, but the primary focus is on feature films. Also taught as ENGL 6630. (F)		
<b>HIST 6200</b>	<b>Special Topics: Comparative World History</b>	<b>3<sup>®</sup></b>	<b>HIST 6700</b>	<b>Folklore Theory and Method</b>	<b>3</b>
Intensive readings and group discussions of selected topics in comparative world history.			Serves as orientation for new graduate students in folklore. Introduces students to comparative annotation, folklore indices, oral-formulaic theory, performance theory, contextual analysis, and other approaches. Also taught as ENGL 6700. (F)		
<b>HIST 6230</b>	<b>Special Topics: Middle Eastern History</b>	<b>3<sup>®</sup></b>	<b>HIST 6710</b>	<b>Space, Place, and Folklore</b>	<b>3</b>
Intensive readings and group discussions of selected topics in middle eastern history.			Study of expressive culture in relation to space and place in social theory. Perspectives range from ideas about landscape and region to globalization. Also taught as ENGL 6710. (Sp)		
<b>HIST 6260</b>	<b>Special Topics: Asian History</b>	<b>3<sup>®</sup></b>	<b>HIST 6720</b>	<b>Folklore Fieldwork</b>	<b>3</b>
Intensive readings and group discussions of selected topics in Asian history.			Basic methodology class for folklorists and oral historians. Students learn interviewing techniques and other methods for observing and recording the performance of tradition and traditional history. Also taught as ENGL 6720. (F,Sp)		
<b>HIST 6300</b>	<b>Special Topics: African History</b>	<b>3<sup>®</sup></b>	<b>HIST 6730</b>	<b>Public Folklore</b>	<b>3</b>
Intensive readings and group discussions of selected topics in African history.			Provides history and analysis of governmental involvement in protecting, promoting, and otherwise manipulating and utilizing cultural heritage. Also taught as ENGL 6730. (F,Sp)		
<b>HIST 6330</b>	<b>Special Topics: Latin American History</b>	<b>3<sup>®</sup></b>	<b>HIST 6740</b>	<b>Folk Narrative</b>	<b>3</b>
Intensive readings and group discussions of selected topics in Latin American history.			Covers principal narrative genres in folk tradition (myth, tale, legend, ballad) and the basic theories for their analysis and discussion. Also taught as ENGL 6740. (Sp)		
<b>HIST 6400</b>	<b>Special Topics: American History</b>	<b>3<sup>®</sup></b>	<b>HIST 6750</b>	<b>Advanced Folklore Workshop (the Fife Conference)</b>	<b>3</b>
Intensive readings and group discussions of selected topics in American history. <sup>DE</sup>			Intensive workshop focusing on a topic in folklore. Brings in nationally known experts as lecturers and discussants. Taught during one week, every day and all day. Also taught as ENGL 6750. (Su)		
<b>HIST 6430</b>	<b>Special Topics: Western American History</b>	<b>3<sup>®</sup></b>	<b>HIST 6760</b>	<b>Cultural and Historical Museums</b>	<b>3</b>
Intensive readings and group discussions of selected topics in Western American history.			Examines outdoor cultural and historical museums, examining their function in modern multi-cultural societies. Also taught as ENGL 6760. (Sp)		
<b>HIST 6460</b>	<b>Seminar in Environmental History</b>	<b>3</b>	<b>HIST 6770</b>	<b>Seminar in Folklore and Folklife</b>	<b>3<sup>®</sup></b>
Focuses on historical writings seeking to explain relationship between society and nature. Many of assigned readings are set in the non-Western world.			Conducts close, professional-level study of major areas of folklore and folklife research. Also taught as ENGL 6770. (F,Sp,Su)		
<b>HIST 6500</b>	<b>Archiving Internship</b>	<b>2-4<sup>®</sup></b>	<b>HIST 6800</b>	<b>Paleography</b>	<b>3</b>
Directed internship at a regional archive. Internship should reflect eight to sixteen hours of work per week during the semester. (F,Sp,Su)			Skills course covering subjects such as technology of writing, interpretation of hands, and mastery of abbreviations. Useful to any student working with old manuscripts, it is essential for those writing theses in medieval or early modern European history.		
<b>HIST 6520</b>	<b>Editing Internship</b>	<b>2<sup>®</sup></b>	<b>HIST 6820</b>	<b>Writing Scholarly Reviews</b>	<b>3</b>
Training in requirements of editorial work in scholarly journals and books. Emphasis placed on editing techniques and mechanics of editorial work. Can be repeated once for credit. (F,Sp,Su)			Prepares students for writing, editing, and publishing reviews in their chosen discipline. Taught by book review editors at <i>Western American Literature</i> and <i>Western Historical Quarterly</i> .		
<b>HIST 6540</b>	<b>Museum Internship</b>	<b>2-4<sup>®</sup></b>	<b>HIST 6840</b>	<b>Archives Management/ (dual listing 4945) Archives Internship</b>	<b>3</b>
Directed internship at a regional museum. Internship should reflect eight to sixteen hours of work per week during the semester. (F,Sp,Su)			Through a mixture of lecture, discussion, and hands-on activities, provides an introduction to archives and archival practices. Examines archival practices in the real world, and discusses how archival institutions interact with the public in general and with historians in particular. Drawing on his experience as a professional archivist, the instructor uses materials held in USU Special Collections and Archives to teach this course.		
<b>HIST 6560</b>	<b>Professional Internship</b>	<b>2-4<sup>®</sup></b>			
Directed internship involving participation in a historical research project for a government agency, corporation, municipality, or some other entity. (F,Sp,Su)					
<b>HIST 6580</b>	<b>Teaching Internship</b>	<b>2<sup>®</sup></b>			
Involves working with the teacher of an upper-division undergraduate course. Intern prepares, explains, and grades one of the written assignments in the course, as well as completing work required of the undergraduates. Can be repeated once for credit. (F,Sp,Su)					
<b>HIST 6600</b>	<b>American Studies Theory and Method</b>	<b>3</b>			
Provides students with theory and method of graduate-level research in American Studies. Also taught as ENGL 6600. (F)					

# Course Descriptions

**HIST 6860 Historical Criticism: Practicum 1-3**  
Preparation of critiques for student-presented projects entered into Utah History Fair state-wide competition. Operation of one-day workshop for History Fair finalists.

**HIST 6880 Special Topics: Advanced History Workshop 1-3®**  
From teaching values of democracy in public school setting to writing publishable biographies, Department of History sponsors advanced credit workshops on a range of subjects.

**HIST 6900 Directed Studies 1-3®**  
Directed readings in any special historical field. For each credit granted, a minimum of four books must be read. Instructor signature required. (F,Sp,Su)

**HIST 6970 Thesis Research 1-6®**  
Graded Pass/Fail only. (F,Sp,Su)

**HIST 6990 Continuing Graduate Advisement 1-6®**  
Graded Pass/Fail only. (F,Sp,Su)

\*Taught 2010-2011.

\*\*Taught 2009-2010.

® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

DE This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Honors (HONR)

See Honors Program, page 310

**Note:** The following are general descriptions. For further details, see the Honors website at: <http://honors.usu.edu/>

**HONR 1300 BAI U.S. Institutions 3**  
Interdisciplinary course providing basic understanding of history, principles, form of government, and economic system of the United States. Open only to students enrolled in USU Honors Program. (F)

**HONR 1320 BHU Civilization: Humanities 3**  
Interdisciplinary course providing basic understanding of broad range of themes cutting across human history and continuing to be important in contemporary society. Covers both Western and non-Western civilization. Open only to students enrolled in USU Honors Program. (F,Sp)

**HONR 1330 BCA Civilization: Creative Arts 3**  
Interdisciplinary course exploring questions such as: "What is art, and how do you judge it?" and "How does artistic expression vary across cultures?" Covers several forms of art. Students attend concerts, visit galleries, and attend theatrical performances. Open only to students enrolled in USU Honors Program. (F,Sp)

**HONR 1340 BSS Social Systems and Issues 3**  
Interdisciplinary course that considers how a society of self-interested individuals can live together in peace and harmony. Topic explored from perspectives of different disciplines. Open only to students enrolled in USU Honors Program. (F,Sp)

**HONR 1350 BLS Integrated Life Science 3**  
Interdisciplinary course focusing on basic concepts of life science. Demonstrates role of modeling, prediction, and observation in the process of scientific discovery, which occurs within an historical and social context. Open only to students enrolled in USU Honors Program. (F)

**HONR 1360 BPS Integrated Physical Science 3**  
Interdisciplinary course focusing on basic concepts of physical science, including structure of matter and magnitude and character of the forces of nature. Demonstrates role of modeling, prediction, and observation in the process of scientific discovery, which occurs within an historical and social context. Open only to students enrolled in USU Honors Program. (F)

**HONR 2000 Scholars Forum 1**  
Includes orientation to the Honors Program and to undergraduate research. Gateway to the Honors Program for entering first-year students. Taught online. (F)

**HONR 2100 Honors Inquiry Seminar 1**  
Introduces students to the nature of inquiry in their field or major. Sections are major-specific. Assists students in planning their undergraduate education to enable them to graduate with Honors. Prerequisite: Admission to Honors Program. (Sp)

**HONR 2200 Honors Enrichment 0.5®**  
Provides opportunity for Honors students to enhance their academic experience by attending and reflecting on a series of colloquia, as well as cultural and arts events. During the semester, students attend activities chosen from a menu prepared by the Honors Program. Each event affords an opportunity to react in writing, as well as orally during the bimonthly seminars. Grading based on attendance, participation, and written work. Prerequisite: Admission to Honors Program. (F,Sp)

**HONR 3010 DSC Special Topics: Life and Physical Sciences 3®**  
Focuses on basic scientific concepts and methods of inquiry used by scientists. Considers science from a broad perspective, showing how various disciplines are related. Open only to students enrolled in USU Honors Program. (Sp)

**HONR 3020 DHA Special Topics: Humanities/Creative Arts 3®**  
Humanities section focuses on important historical and contemporary cultural themes, both Western and non-Western. Creative Arts section examines one or more art forms across cultures. Covers several forms of art. Students attend concerts, visit galleries, and attend theatrical performances. Open only to students enrolled in USU Honors Program. (F)

**HONR 3030 DSS Special Topics: Social Sciences 3®**  
Examines one or more social institutions and asks how we live within these structures from the perspectives of different disciplines. Open only to students enrolled in USU Honors Program. (Sp)

**HONR 3900 Independent Study 1-3®**  
Independent research, library and/or laboratory work, or creative effort working in a one-to-one relationship with a faculty member. Limited to students actively pursuing an Honors degree. (F,Sp)

**HONR 4000 Reading Seminar 1-3®**  
Opportunity to read, discuss, and write about books and current events. Open only to students enrolled in USU Honors Program. (F,Sp)

**HONR 4700 Honors Fellows 0.5®**  
Junior or senior Honors students assist in leading Honors seminars and tutorials. (F,Sp)

**HONR 4800 Thesis/Project Seminar 1**  
Oral presentation and discussion of Honors senior theses/projects. Guest presentations focus on essential contrasts and similarities in "ways of knowing" among various academic specialties. (F,Sp)

**HONR 4900 Senior Thesis/Project 1-3®**  
All Honors students are required to submit a senior thesis/project for graduation with an Honors degree. Thesis/project may be in any area of student's choice, prepared in cooperation with an advisor drawn from the faculty at large. (F,Sp,Su)

® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

## Health Sciences (HS)

See Weber State University/Utah State University Nursing Program, pages 392-393

**HS 2230 Introductory Pathophysiology 3**  
An introduction to the nature of disease and its effect on body systems. (Su)

# Course Descriptions

## Interior Design (ID)

See *Interior Design Program*, pages 316-318

<b>ID 1700</b>	<b>Interior Design Professional Seminar</b>	<b>1®</b>	Weekly seminars to provide an orientation to the professional aspects of interior design. Exploration of related careers and professional societies. Invited participation by outside speakers. Repeatable for up to eight credits. (F,Sp)
<b>ID 1740</b>	<b>Computer Applications in Interior Design</b>	<b>3</b>	Introduction to software specifically related to discipline of interior design. Computer techniques taught using personal computers and related peripherals. (F,Sp,Su)
<b>ID 1750</b>	<b>BCA Design in Everyday Living</b>	<b>3</b>	Investigation of the basic elements and principles of design related to everyday living experiences and the practical application of relevant theory. (F,Sp)
<b>ID 1760</b>	<b>Rapid Visualization in Interior Design</b>	<b>3</b>	Students develop and hone abilities in and understanding of various types of rapid visualization in interior design. (F,Sp,Su)
<b>ID 1770</b>	<b>History of Interior Furnishings and Architecture I</b>	<b>3</b>	Identification of historical architectural styles and elements in interior furnishings and materials, dating from ancients, middle ages, Italian renaissance, the Hispanic periods, and the French periods. (F)
<b>ID 1780</b>	<b>History of Interior Furnishings and Architecture II</b>	<b>3</b>	Identification of historical architectural styles and elements in interior furnishings and materials, including the English period and the American period, Victorian through the present. (Sp)
<b>ID 1790</b>	<b>BCA Interior Design Theory</b>	<b>3</b>	Explores basic philosophy of interior design. Analyzes design elements and principles when applied to interior spaces. Evaluation of contemporary design theories as factors influencing design trends. (Sp)
<b>ID 2710</b>	<b>Architectural Graphics I</b>	<b>3</b>	Competency development in use of drafting tools, symbols, and techniques used in interior design presentation. Includes communication skills related to techniques and approaches to graphic presentations of interior design solutions: floor plans, elevations, sections, axonometrics, details, and dimensioning. (F)
<b>ID 2720</b>	<b>Architectural Graphics II</b>	<b>3</b>	Introduction to three-dimensional drawing: isometric and perspective. Development of methods of rapid graphic communication techniques and approaches to complete professional presentations. Exploration of various types of media and presentation methods. Prerequisite: ID 2710. (Sp)
<b>ID 2730</b>	<b>Interior Space Planning and Human Dimensions</b>	<b>3</b>	Focuses on physical, psychological, and human factors influencing design of interior space. Includes research, programming, analysis, and design of residential and nonresidential spaces. Prerequisite: ID 2710. (Sp)
<b>ID 2750</b>	<b>Computer Aided Drafting and Design I</b>	<b>3</b>	Introduction to computer aided drafting and design for design students. Prerequisite: OSS 1400 or passing grade on Computer and Information Literacy (CIL) Exam. (F)
<b>ID 2760</b>	<b>Computer Aided Drafting and Design II</b>	<b>3</b>	Advanced exploration and study of computer aided design, creative applications, and proficiencies. Prerequisite: ID 2750. (Sp)
<b>ID 3730</b>	<b>QI Interior Materials and Construction</b>	<b>3</b>	Identification of current interior materials; their characteristics, use, and care. Experience in specification estimation, workroom procedures, and development of a working resource file. Prerequisite: ID 2730. (F)
<b>ID 3760</b>	<b>Commercial Design Studio</b>	<b>4</b>	Studio projects of various complexity and type, having commercial focus. May include hospitality, retail, medical, office, and other commercial and institutional design opportunities. Prerequisite: ID 2730. (F)
<b>ID 3770</b>	<b>Residential Design Studio</b>	<b>4</b>	Studio projects of various complexity and type, having residential focus. Analysis of various approaches to problem solving. Graphic and verbal presentation, emphasizing high-end design evaluation. Prerequisite: ID 3760. (Sp)
<b>ID 3780</b>	<b>Design Detailing</b>	<b>3</b>	Detailing of interior components. Preparation of detail drawings for use by the trades for interior components. Student develops construction documents and prepares scale model for senior exhibit. (Sp)
<b>ID 3790</b>	<b>Architectural Systems</b>	<b>3</b>	Study of architectural systems in contemporary buildings. Investigation of construction drawings and their interpretation. Includes related codes and professional terminology. (F)
<b>ID 4700</b>	<b>Topics in Interior Design</b>	<b>3®</b>	Current topics associated with interior design. Prerequisites: Approval of instructor and junior class standing. (F,Sp,Su)
<b>ID 4710</b>	<b>Interior Design Advanced Internship I</b>	<b>1-12®</b>	Placement experience in applying skills and knowledge in businesses and community agencies. One credit for each 50 hours of experience. Prerequisites: Approval of instructor and junior class standing. (F,Sp,Su)
<b>ID 4720</b>	<b>Interior Design Advanced Internship II</b>	<b>1-12®</b>	Placement experience in applying skills and knowledge in businesses and community agencies. One credit for each 50 hours of experience. Prerequisite: ID 4710. (F,Sp,Su)
<b>ID 4740</b>	<b>CI Business and Professional Practices in Interior Design</b>	<b>3</b>	Overview of business practices and principles for interior design, including: salesmanship, marketing, client and trade relationships, establishing an interior design practice, and fee structure. (Sp)
<b>ID 4750</b>	<b>Senior Design Studio I</b>	<b>3</b>	Interior design projects focusing on research, programming, schematics, space planning, project specifications, and presentation. Prerequisites: Senior ranking in Interior Design and ID 3780. (F)
<b>ID 4760</b>	<b>Senior Design Studio II</b>	<b>3</b>	Interior design projects include finish selections, specifications, construction document development, and project presentation. Prerequisite: ID 4750. (Sp)
<b>ID 4770</b>	<b>Senior Exhibit</b>	<b>1</b>	Analysis and review of student work in preparation for formal exhibition. (Sp)
<b>ID 4780</b>	<b>Interior Design Travel Course</b>	<b>1-3®</b>	Travel experiences geared toward the examination of design in various geographical locations, both within the United States and abroad. (F,Sp,Su)
<b>ID 4900</b>	<b>Independent Study in Interior Design</b>	<b>1-5®</b>	Focused independent activities. Students must identify a project or topic of interest and discuss with proposed instructor. Prerequisite: Junior class standing and approval of faculty. (F,Sp,Su)
<b>ID 4910</b>	<b>Creative Projects</b>	<b>1-4®</b>	Creative project or practicum conducted under direction of faculty member. Topic may be initiated by student or faculty. Prerequisites: Junior class standing and approval of faculty. (F,Sp,Su)
<b>ID 6700</b>	<b>Graduate Topics in Interior Design</b>	<b>1-3®</b>	(F,Sp,Su)
<b>ID 6710</b>	<b>Graduate Internship in Interior Design</b>	<b>1-3®</b>	(F,Sp,Su)
<b>ID 6720</b>	<b>Research Methods in Interior Design</b>	<b>3</b>	(F)

# Course Descriptions

<b>ID 6730</b>	<b>Interior Design Graduate Studio</b>	<b>1-6<sup>®</sup></b>
Requires research, analysis, and production of a given subject area, including its final planning, design, and documentation. Student plans project and executes it through individual initiative and scheduled consultation with the instructor. Prerequisite: Graduate standing. (F,Sp,Su)		
<b>ID 6750</b>	<b>Readings in Interior Design</b>	<b>1-3<sup>®</sup></b>
Readings about the creative process, post-occupancy evaluation, culture and environment, and design forecasting. Repeatable for up to 3 credits. (F,Sp)		
<b>ID 6760</b>	<b>Computer Applications of Modeling in Interior Design</b>	<b>3</b>
Application of software to produce a model of interior spaces, using contemporary modeling software. Prerequisite: ID 2760. (Sp) <sup>DE</sup>		
<b>ID 6770</b>	<b>Facilities Planning and Management</b>	<b>3</b>
Facilities management process in large-scale organizations. Formation of facilities policies, procedures, and standards. The facilities data base, space allocations, and management process. (Sp)		
<b>ID 6780</b>	<b>Design Methodologies in Interior Design</b>	<b>3</b>
Identifies and defines various design methodologies, with regard to design solutions for interior environments. (F)		
<b>ID 6790</b>	<b>Master's Seminar in Interior Design</b>	<b>1-3<sup>®</sup></b>
Graded Pass/Fail only. (F,Sp)		
<b>ID 6900</b>	<b>Special Problems</b>	<b>1-3<sup>®</sup></b>
Selected problems to meet individual student interests and areas of concentration. Prerequisites: Graduate standing and permission of departmental faculty. (F,Sp,Su)		
<b>ID 6970</b>	<b>Master's Thesis Research in Interior Design</b>	<b>1-6<sup>®</sup></b>
Repeatable for up to 6 credits. (F,Sp,Su)		
<b>ID 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-3<sup>®</sup></b>
Graded Pass/Fail only. (F,Sp,Su)		

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Intensive English Language Institute (IELI)

See *Intensive English Language Institute*, page 313

<b>IELI 1120</b>	<b>Writing I</b>	<b>4</b>
Develops writing skills. Focuses on description, narration, and canonical word order at sentence and paragraph levels. (F,Sp,Su)		
<b>IELI 1160</b>	<b>Reading I</b>	<b>4</b>
Builds reading skills. Students read texts individually and collaboratively. Focuses on active reading (e.g., making use of background knowledge, predicting, and critically assessing reading passages). (F,Sp,Su)		
<b>IELI 1220</b>	<b>Writing from Sources</b>	<b>4</b>
Focuses on sentence and paragraph writing. Students gather information from various sources, transform and organize it, and present it in both verbal and written form. (F,Sp,Su)		
<b>IELI 1230</b>	<b>Cross-Cultural Talk</b>	<b>3<sup>®</sup></b>
Multilevel course designed to improve oral communication through small group work and one-on-one conversation with American undergraduate teaching fellows. Emphasizes interactive language fluency. Repeatable for credit for students who place at the basic level on the IELI placement exam. (F,Sp,Su)		

<b>IELI 1240</b>	<b>Integrated Skills</b>	<b>3<sup>®</sup></b>
Multilevel speaking and listening course designed to develop basic to intermediate language skills through content-based instruction. Repeatable for credit for students who place at the basic level on the IELI placement exam. (F,Sp,Su)		
<b>IELI 1260</b>	<b>Reading II</b>	<b>4</b>
Builds low intermediate to intermediate level reading skills. Students distinguish main ideas from supporting ideas. Extensive vocabulary work. Focuses on active reading, summarizing, and vocabulary attack skills. (F,Sp,Su)		
<b>IELI 2310</b>	<b>Comprehending Academic Discourse</b>	<b>3</b>
Introduction to listening strategies and note-taking, focusing on organization and information. Develops strategies for listening to authentic passages, such as interviews, news broadcasts, and documentaries. (F,Sp,Su)		
<b>IELI 2320</b>	<b>Writing Authentic Texts</b>	<b>4</b>
Assists students in developing more sophisticated writing skills, from more complex sentences to coherent paragraphs and various kinds of compositions. Students learn to use the library and the Internet to find resources for their writings. (F,Sp,Su)		
<b>IELI 2330</b>	<b>Spoken Discourse and Cultural Communication</b>	<b>3</b>
Emphasizes interpersonal communication and academic tasks with American undergraduate classroom assistants. Focuses on the dynamics of assuming various roles in small group discussions and presentations. (F,Sp,Su)		
<b>IELI 2360</b>	<b>Reading Authentic Texts</b>	<b>4</b>
Introduces strategies for reading several genres typical of university assignments, including excerpts from textbooks in several disciplines and popular magazine articles having academic value. Brief overview of scholarly journals. Introduction to strategies and exercises for vocabulary development. (F,Sp,Su)		
<b>IELI 2410</b>	<b>Comprehending Lecture Discourse</b>	<b>3</b>
Develops techniques for understanding the planned and spontaneous academic discourse of university classrooms. Focuses on information processing. (F,Sp,Su)		
<b>IELI 2420</b>	<b>Writing from Academic Sources</b>	<b>4</b>
Introduction to various academic writing demands. Students gather information from various sources, including interviews, surveys, and academic texts (textbooks, journals, etc.); analyze and summarize the information; and write documented essays and reports. (F,Sp,Su)		
<b>IELI 2440</b>	<b>Academic Discourse</b>	<b>3</b>
Designed to assist students in developing oral competency, with emphasis on comprehensibility in individual and group academic presentations. (F,Sp,Su)		
<b>IELI 2450</b>	<b>Topics for ESL</b>	<b>4<sup>®</sup></b>
Introduction to contemporary topics in culture and language. Focuses on language development through content-based instruction. Repeatable for up to 12 credits. (F,Sp,Su)		
<b>IELI 2460</b>	<b>Reading from Academic Sources</b>	<b>4</b>
Focuses on processes and strategies for a variety of academic and disciplinary genres; strategies for learning from lengthy and complex texts; and vocabulary, speed, and comprehension development. (F,Sp,Su)		
<b>IELI 2470</b>	<b>Cross-Cultural Perspectives of American Culture</b>	<b>4</b>
Provides understanding of what culture is and how it influences behavior and beliefs. Provides cross-cultural perspectives on value systems and institutions. (F,Sp,Su)		
<b>IELI 7920</b>	<b>College Teaching Seminar</b>	<b>1-3<sup>®</sup></b>
Workshop designed for international students who will hold teaching assistantships at the University. To be accepted into the workshop, students must take a qualifying language test. Graded Pass/Fail only. (F)		

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.



# Course Descriptions

## Instructional Technology and Learning Sciences (INST)

See *Department of Instructional Technology and Learning Sciences*, pages 311-312

**INST 1000 Information Literacy 3**  
Designed to develop ability to locate, evaluate, and use information. Develops competencies needed for lifelong pursuits of information through the use of libraries and electronic resources. (F,Su)

**INST 3500 Technology Tools for Secondary Teachers 1**  
Integration of technology into the teaching/learning environment. Practical, hands-on experience for pre-service secondary teachers. Use of a variety of technological tools. Introduction to current standards for teachers. Application of technology as both process and product. Prerequisite: Admittance to teacher education. (F,Sp,Su)<sup>DE</sup>

**INST 4010 Principles and Practices of Technology for Elementary Teachers 3**  
Integrated experience for pre-service elementary teachers to apply instructional design principles in their instruction. Hands-on experience using a wide variety of technological tools in practical learning environments. Application of technology as both process and product. Prerequisite: Admittance to teacher education. (F,Sp,Su)<sup>DE</sup>

**INST 4210 Information Access and Literacy Skills 2**  
Information problem-solving skills basic to lifelong information access in today's networked world. Used as part of the Engineering and Technology Education/Instructional Technology minor program. Taught off campus through special programs. (Sp)

**INST 4220 Introduction to Learning Theories 3**  
Detailed study of communication and learning theories as applied to instructional design process. Examines principles and research upon which instructional design and instructional technology are based. Used as part of the Engineering and Technology Education/Instructional Technology minor program. Taught off campus through special programs. (Sp)

**INST 4230 Introduction to Adult Learning 3**  
Covers philosophical and theoretical foundations of adult education, as well as practical applications for incorporating them into current educational settings. Used as part of the Engineering and Technology Education/Instructional Technology minor program. Taught off campus through special programs. (Sp)

**INST 4250 Instructional Design I 3**  
Guided experience in analysis, design, and development of instructional product development utilizing the ADDIE model. Used as the first project experience for the Engineering and Technology Education degree and the Instructional Technology undergraduate minor. Taught off campus through special programs. (Su)

**INST 4260 Instructional Design II 3**  
Guided experience in development, implementation, and evaluation of instructional product development utilizing the ADDIE model. Used as the second project experience for the Engineering and Technology Education degree and the Instructional Technology undergraduate minor. Taught off campus through special programs. (Su)

**INST 4290 Applying Instructional Design 3**  
Individual experience in instructional product development utilizing the ADDIE model. Used as the capstone experience for the Engineering and Technology Education degree and the Instructional Technology undergraduate minor. Taught off campus through special programs. (F)

**INST 4300 Clinical Experience in School Library Media 1**  
School library media clinical observation experience. Students involved in observing management and assisting in middle and secondary library media centers, arranged by department. Minimum of 40 hours of observation experience required. (Sp)

**INST 4500 Integration and Innovation of Technology in Education 1**  
Based on current educational standards, and using appropriate tools, students design and create an electronic/digital portfolio specific to content area(s) of their anticipated teaching license. Emphasizes integration of technology as both product and process. Prerequisite: Admittance to teacher education. (F,Sp,Su)

**INST 4910 Undergraduate Research and Creative Opportunity 1-3<sup>®</sup>**  
Cooperative process of discovery, investigation, research, or creativity between faculty and one or more students. (F,Sp,Su)

**INST 5000 SLM Foundations and Information Management 3**  
(dual listing 6060) Introduction to historical and philosophical foundations of library media programs. Examines role of library media programs in schools and their contributions to the curriculum. Explores circulation, cataloging, automation tools, technical services, policies, and techniques. Also taught off campus. To receive graduate-level credit, students must fulfill additional requirements. (F)<sup>DE</sup>

**INST 5010 Information Organization and Management 3**  
(dual listing 6110) Explores functions of information technology including circulation, cataloging, automation tools, and technical services within school library media program. Also considers policies and techniques for facilitating access to information in a school library media center. Taught off campus through Utah Education Network. (F)

**INST 5015 SLM Collection Development and Literature 3**  
(dual listing 6015) Focuses on building, maintaining, and evaluating collections for library media programs. Discusses policy development for selection, protecting intellectual freedom, and reviewing, evaluating, and maintaining materials in all formats. Explores children's and young adult literature. Also taught off campus. To receive graduate-level credit, students must fulfill additional requirements. (F)<sup>DE</sup>

**INST 5025 SLM Programs and Instructional Development 3**  
(dual listing 6025) Presents a wide variety of activities which are integral to a school library media program, including reading guidance, instructional development, curriculum development, media skill instruction, and information literacy. Emphasizes collaboration within schools. Also taught off campus. To receive graduate-level credit, students must fulfill additional requirements. (Sp)<sup>DE</sup>

**INST 5030 Information Access, Literacy, and Technology 3**  
(dual listing 6030) Introduction to finding information and resources using print and electronic sources. Emphasizes reference services, knowledge of basic reference/information sources, and resource sharing; and teaching information retrieval strategies within a school library media program. Also taught off campus. To receive graduate-level credit, students must fulfill additional requirements. (Sp)<sup>DE</sup>

**INST 5040 SLM Center Administration and Leadership 3**  
(dual listing 6040) Includes study of organization, personnel, budgets, programs, and management of a library media center. Students define their role within a school setting and in relation to that of the principal and teachers. Prerequisite: INST 5000/6060 and 5025/6025 or approval of instructor. Also taught off campus. To receive graduate-level credit, students must fulfill additional requirements. (Su or Arr)

**INST 5090 School Library Media Practicum 1-6<sup>®</sup>**  
(dual listing 6090) Observation and guided field experience in a library media center under professional library media specialists and instructional technology professionals. Bridge of theory into practice. Graded Pass/Fail *only*. Prerequisites: INST 5025/6025, 5040/6040; or approval of instructor. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp,Su)<sup>DE</sup>

**INST 5105 Distance Education Tools 3**  
(dual listing 6105) Focuses on issues and methods of teaching and learning in distance education. Students develop strategies for effectively integrating technologies and facilitating learning at a distance. To receive graduate-level credit, students must fulfill additional requirements. (Su)

# Course Descriptions

<p><b>INST 5120</b>                    <b>Distance Education Projects</b>                    <b>3</b>  <b>(dual listing 6120)</b>            Application of theory, principles, and practice, providing instruction to learners separated from the instructor by distance and/or time. Addresses characteristics, technologies, and current issues of distance education. Prerequisite: INST 5105/6105. To receive graduate-level credit, students must fulfill additional requirements. (F)<sup>DE</sup></p>	<p><b>INST 5245</b>                    <b>Interactive Multi-Media Production</b>                    <b>3</b>  <b>(dual listing 6245)</b>            Covers fundamental programming concepts, in addition to fundamentals of the interactive multi-media environment. Students finishing this course will have at least one completed fully-functional project for their portfolios. To receive graduate-level credit, students must fulfill additional requirements. (Sp,Su)<sup>DE</sup></p>
<p><b>INST 5130</b>                    <b>Technology and its Role in the</b>  <b>(dual listing 6730)</b>                    <b>Transformation of Education</b>                    <b>1-3</b>            Explores the critical role of educational technology as one tool in the transformation of education. Involves students in change-related projects in the local environment. Also taught off-campus. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p>	<p><b>INST 5255</b>                    <b>Computer-Based</b>  <b>(dual listing 6255)</b>                    <b>Instruction Authoring</b>                    <b>3</b>            Fundamentals of programming computer-based instruction utilizing current authoring systems. Overview of computer-based design issues, including interface/screen design, instructional strategy and interaction, and computer program logic. Prerequisite: Basic computer competencies. To receive graduate-level credit, students must fulfill additional requirements. (Sp,Su)</p>
<p><b>INST 5140</b>                    <b>Producing Distance</b>  <b>(dual listing 6140)</b>                    <b>Education Resources</b>                    <b>3</b>            Focuses on production of Internet-based instructional resources for use in distance, flexible, and open learning. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp)<sup>DE</sup></p>	<p><b>INST 5265</b>                    <b>Internet Development</b>                    <b>3</b>  <b>(dual listing 6265)</b>            Teaches web publishing primarily using HTML (Hyper-Text Markup Language). Explores current web technologies and includes design, development, and evaluation. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp,Su)<sup>DE</sup></p>
<p><b>INST 5160</b>                    <b>Distance Learning—K-12</b>                    <b>3</b>  <b>(dual listing 6160)</b>            Designed for classroom teachers. Discusses technologies and applications of distance education to elementary and secondary school settings. Focuses on instructional strategies for effective teaching and learning at a distance. Taught off-campus. To receive graduate-level credit, students must fulfill additional requirements. (Sp)<sup>DE</sup></p>	<p><b>INST 5275</b>                    <b>Multimedia Special Topic Studio I</b>                    <b>3<sup>®</sup></b>  <b>(dual listing 6275)</b>            Selected special topics related to the development of multimedia products for instruction and training. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp,Su)</p>
<p><b>INST 5195</b>                    <b>Practicum in Distance Learning</b>                    <b>3</b>  <b>(dual listing 6195)</b>            Students demonstrate effective practice by applying instructional development principles for designing, implementing, and evaluating instruction for distant learners. Graded Pass/Fail <i>only</i>. Prerequisites: INST 5105/6105, 5120/6120. To receive graduate-level credit, students must fulfill additional requirements. (Sp)<sup>DE</sup></p>	<p><b>INST 5285</b>                    <b>Multimedia Special Topic Studio II</b>                    <b>3<sup>®</sup></b>  <b>(dual listing 6285)</b>            Selected special topics related to the development of multimedia products for instruction and training. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp,Su)</p>
<p><b>INST 5200</b>                    <b>Principles and Practices of</b>  <b>(dual listing 6200)</b>                    <b>Technology for Secondary Teachers</b>                    <b>2</b>            Integrated experience for pre-service secondary teachers to apply instructional design principles in their instruction. Hands-on experience using a wide variety of technological tools in practical learning environments. Application of technology as both process and product. Prerequisite: Admittance to teacher education. (F,Sp)</p>	<p><b>INST 5290</b>                    <b>Multimedia Production for</b>  <b>(dual listing 6290)</b>                    <b>Instruction and Training</b>                    <b>3</b>            Geared toward assisting master's students in completing their degrees. Provides continuity from the first semester and encourages continued professional development in the discipline. Can be used as capstone experience for multimedia development minor. Prerequisites: INST 5215/6215, 5230/6230, 5255/6255, 5265/6265. To receive graduate-level credit, students must fulfill additional requirements. (Sp)</p>
<p><b>INST 5205</b>                    <b>Computer Applications for</b>  <b>(dual listing 6205)</b>                    <b>Instruction and Training</b>                    <b>3</b>            Introduction to use of computer applications, with special emphasis on software used in instruction and training. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp,Su)</p>	<p><b>INST 5405</b>                    <b>Educational Technology</b>  <b>(dual listing 6405)</b>                    <b>Tools Fundamentals</b>                    <b>3</b>            Designed for practicing classroom teachers. Guides teachers in using research-based principles to apply and teach using technology tools to support their classroom assessment and curriculum standards. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p>
<p><b>INST 5215</b>                    <b>Digital Video Capture and Production</b>                    <b>3</b>  <b>(dual listing 6215)</b>            Fundamental theories and practice in design and development for camera and computer-based audio and video production, including recording, editing, and digitizing audio and video segments for education and training applications. To receive graduate-level credit, students must fulfill additional requirements. (F,Su)</p>	<p><b>INST 5410</b>                    <b>Assessment and Educational Standards</b>                    <b>3</b>  <b>(dual listing 6410)</b>            Designed for practicing classroom teachers. Focuses on basic fundamentals of backward design and instructional practices. Also examines practice examples. Development of backward design unit applied to personal teaching situations. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p>
<p><b>INST 5225</b>                    <b>Digital Audio</b>                    <b>3</b>  <b>(dual listing 6225)</b>            Explores basic concepts of digital audio, synthesis, and sign processing. Establishes proficiency with sound programs, as well as audio editing and sound design tools. To receive graduate-level credit, students must fulfill additional requirements. (Sp,Su)</p>	<p><b>INST 5415</b>                    <b>Implementation of Technology</b>  <b>(dual listing 6415)</b>                    <b>in Education K-12</b>                    <b>3</b>            Designed for practicing classroom teachers. Examines educational value of project-based learning and the constructionist model of effective learning. Focuses on practical application of research. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p>
<p><b>INST 5230</b>                    <b>Instructional Graphic Production</b>                    <b>3</b>  <b>(dual listing 6230)</b>            Fundamental practices of using the computer to design and produce a wide variety of instructional graphics and animations. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp)</p>	<p><b>INST 5420</b>                    <b>Educational Technology</b>  <b>(dual listing 6420)</b>                    <b>Tools Integration</b>                    <b>3</b>            Designed for practicing classroom teachers. Using their own classroom, participants do a class study on low-performance students, create a technology intervention to enhance student performance, and document changes in student behavior and attitudes. To receive graduate-level credit, students must fulfill additional requirements. (F)</p>
<p><b>INST 5235</b>                    <b>DVD Design and Production</b>                    <b>3</b>  <b>(dual listing 6235)</b>            Fundamental theories and practice in the design and development of Digital Video Disc (DVD) based instructional resources. To receive graduate-level credit, students must fulfill additional requirements. (F,Su)</p>	

# Course Descriptions

<p><b>INST 5425</b>                    <b>Technology and Inquiry Based Lessons</b>                    <b>3</b> (dual listing 6425) Designed for practicing classroom teachers. Backward design model used to create powerful, inquiry-based lessons. Investigates role of technology in engaging students in meaningful educational experiences. To receive graduate-level credit, students must fulfill additional requirements. (F)</p>	<p><b>INST 6105</b>                    <b>Distance Education Tools</b>                    <b>3</b> (dual listing 5105) Focuses on issues and methods of teaching and learning in distance education. Students develop strategies for effectively integrating technologies and facilitating learning at a distance. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p>
<p><b>INST 5430</b>                    <b>Educational Technology K-12 Practicum</b>                    <b>3</b> (dual listing 6430) Designed for practicing classroom teachers. Provides opportunities for teachers to work with small groups of children and a master teacher having experience in directing technology in a classroom setting. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p>	<p><b>INST 6110</b>                    <b>Information Organization</b>                    <b>3</b> (dual listing 5010) <b>and Management</b> Explores functions of information technology including circulation, cataloging, automation tools, and technical services within school library media program. Also considers policies and techniques for facilitating access to information in a school library media center. Taught off campus through Utah Education Network. (F)</p>
<p><b>INST 5750</b>                    <b>Instructional Technology Workshop</b>                    <b>1-4</b><sup>®</sup> Special training and experience in latest concepts and innovations in instructional technology. Content changes to reflect most recent topics and problems facing the profession. (Su)<sup>DE</sup></p>	<p><b>INST 6120</b>                    <b>Distance Education Projects</b>                    <b>3</b> (dual listing 5120) Application of theory, principles, and practice, providing instruction to learners separated from the instructor by distance and/or time. Addresses characteristics, technologies, and current issues of distance education. Prerequisite: INST 6105/5105. To receive graduate-level credit, students must fulfill additional requirements. (F)<sup>DE</sup></p>
<p><b>INST 5900</b>                    <b>Independent Study</b>                    <b>1-4</b><sup>®</sup> Individually directed study and projects. Graded Pass/Fail <i>only</i>. Prerequisite: Departmental permission. (F,Sp,Su)<sup>DE</sup></p>	<p><b>INST 6140</b>                    <b>Producing Distance</b>                    <b>3</b> (dual listing 5140) <b>Education Resources</b> Focuses on production of Internet-based instructional resources for use in distance, flexible, and open learning. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp)<sup>DE</sup></p>
<p><b>INST 6015</b>                    <b>SLM Collection Development</b>                    <b>3</b> (dual listing 5015) <b>and Literature</b> Focuses on building, maintaining, and evaluating collections for library media programs. Discusses policy development for selection, protecting intellectual freedom, and reviewing, evaluating, and maintaining materials in all formats. Explores children's and young adult literature. Also taught off campus. To receive graduate-level credit, students must fulfill additional requirements. (F)<sup>DE</sup></p>	<p><b>INST 6160</b>                    <b>Distance Learning—K-12</b>                    <b>3</b> (dual listing 5160) Designed for classroom teachers. Discusses technologies and applications of distance education to elementary and secondary school settings. Focuses on instructional strategies for effective teaching and learning at a distance. Taught off-campus. To receive graduate-level credit, students must fulfill additional requirements. (Sp)<sup>DE</sup></p>
<p><b>INST 6025</b>                    <b>SLM Programs and</b>                    <b>3</b> (dual listing 5025) <b>Instructional Development</b> Presents a wide variety of activities which are integral to a school library media program, including reading guidance, instructional development, curriculum development, media skill instruction, and information literacy. Emphasizes collaboration within schools. Also taught off campus. To receive graduate-level credit, students must fulfill additional requirements. (Sp)<sup>DE</sup></p>	<p><b>INST 6195</b>                    <b>Practicum in Distance Learning</b>                    <b>3</b> (dual listing 5195) Students demonstrate effective practice by applying instructional development principles for designing, implementing, and evaluating instruction for distant learners. Graded Pass/Fail <i>only</i>. Prerequisites: INST 6105/5105, 6120/5120. To receive graduate-level credit, students must fulfill additional requirements. (Sp)<sup>DE</sup></p>
<p><b>INST 6030</b>                    <b>Information Access,</b>                    <b>3</b> (dual listing 5030) <b>Literacy, and Technology</b> Introduction to finding information and resources using print and electronic sources. Emphasizes reference services, knowledge of basic reference/information sources, and resource sharing; and teaching information retrieval strategies within a school library media program. Also taught off campus. To receive graduate-level credit, students must fulfill additional requirements. (Sp)<sup>DE</sup></p>	<p><b>INST 6205</b>                    <b>Computer Applications for</b>                    <b>3</b> (dual listing 5205) <b>Instruction and Training</b> Introduction to use of computer applications, with special emphasis on software used in instruction and training. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp,Su)</p>
<p><b>INST 6040</b>                    <b>SLM Center Administration</b>                    <b>3</b> (dual listing 5040) <b>and Leadership</b> Includes study of organization, personnel, budgets, programs, and management of a library media center. Students define their role within a school setting and in relation to that of the principal and teachers. Prerequisite: INST 6060/5000 and 6025/5025 or approval of instructor. Also taught off campus. To receive graduate-level credit, students must fulfill additional requirements. (Su or Arr)</p>	<p><b>INST 6215</b>                    <b>Digital Video Capture and Production</b>                    <b>3</b> (dual listing 5215) Fundamental theories and practice in design and development for camera and computer-based audio and video production, including recording, editing, and digitizing audio and video segments for education and training applications. To receive graduate-level credit, students must fulfill additional requirements. (F,Su)</p>
<p><b>INST 6060</b>                    <b>SLM Foundations and</b>                    <b>3</b> (dual listing 5000) <b>Information Management</b> Introduction to historical and philosophical foundations of library media programs. Examines role of library media programs in schools and their contributions to the curriculum. Explores circulation, cataloging, automation tools, technical services, policies, and techniques. Also taught off campus. To receive graduate-level credit, students must fulfill additional requirements. (F)<sup>DE</sup></p>	<p><b>INST 6225</b>                    <b>Digital Audio</b>                    <b>3</b> (dual listing 5225) Explores basic concepts of digital audio, synthesis, and sign processing. Establishes proficiency with sound programs, as well as audio editing and sound design tools. To receive graduate-level credit, students must fulfill additional requirements. (Sp,Su)</p>
<p><b>INST 6090</b>                    <b>School Library Media Practicum</b>                    <b>1-6</b><sup>®</sup> (dual listing 5090) Observation and guided field experience in a library media center under professional library media specialists and instructional technology professionals. Bridge of theory into practice. Graded Pass/Fail <i>only</i>. Prerequisites: INST 6025/5025, 6040/5040; or approval of instructor. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp,Su)<sup>DE</sup></p>	<p><b>INST 6230</b>                    <b>Instructional Graphic Production</b>                    <b>3</b> (dual listing 5230) Fundamental practices of using the computer to design and produce a wide variety of instructional graphics and animations. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp)</p>
	<p><b>INST 6235</b>                    <b>DVD Design and Production</b>                    <b>3</b> (dual listing 5235) Fundamental theories and practice in the design and development of Digital Video Disc (DVD) based instructional resources. To receive graduate-level credit, students must fulfill additional requirements. (F,Su)</p>

# Course Descriptions

<p><b>INST 6245</b>                    <b>Interactive Multi-Media Production</b>                    <b>3</b>  <b>(dual listing 5245)</b>  Covers fundamental programming concepts, in addition to fundamentals of the interactive multi-media environment. Students finishing this course will have at least one completed fully-functional project for their portfolios. To receive graduate-level credit, students must fulfill additional requirements. (Sp,Su)<sup>DE</sup></p>	<p><b>INST 6370</b>                    <b>Design and Development of</b>  <b>Computer-Based Instruction</b>                    <b>3</b>  Overview of computer-based design issues, including interface/screen design, instructional strategy and interaction, and computer program logic. Includes hands-on experience with authoring systems. Taught off-campus through EDNET. (F)</p>
<p><b>INST 6255</b>                    <b>Computer-Based</b>  <b>(dual listing 5255)</b>                    <b>Instruction Authoring</b>                    <b>3</b>  Fundamentals of programming computer-based instruction utilizing current authoring systems. Overview of computer-based design issues, including interface/screen design, instructional strategy and interaction, and computer program logic. Prerequisite: Basic computer competencies. To receive graduate-level credit, students must fulfill additional requirements. (Sp,Su)</p>	<p><b>INST 6390</b>                    <b>Planning, Resources, and</b>  <b>Implementation for Technology</b>                    <b>3</b>  Principles and practice of implementing innovations into real-world settings and evaluating their effectiveness. Taught off-campus. Prerequisite: Matriculation into Instructional Technology MEd program. (Sp)<sup>DE</sup></p>
<p><b>INST 6265</b>                    <b>Internet Development</b>                    <b>3</b>  <b>(dual listing 5265)</b>  Teaches web publishing primarily using HTML (Hyper-Text Markup Language). Explores current web technologies and includes design, development, and evaluation. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp,Su)<sup>DE</sup></p>	<p><b>INST 6405</b>                    <b>Educational Technology</b>  <b>(dual listing 5405)</b>                    <b>Tools Fundamentals</b>                    <b>3</b>  Designed for practicing classroom teachers. Guides teachers in using research-based principles to apply and teach using technology tools to support their classroom assessment and curriculum standards. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p>
<p><b>INST 6275</b>                    <b>Multimedia Special Topic Studio I</b>                    <b>3<sup>®</sup></b>  <b>(dual listing 5275)</b>  Selected special topics related to the development of multimedia products for instruction and training. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp,Su)</p>	<p><b>INST 6410</b>                    <b>Assessment and Educational Standards</b>                    <b>3</b>  <b>(dual listing 5410)</b>  Designed for practicing classroom teachers. Focuses on basic fundamentals of backward design and instructional practices. Also examines practice examples. Development of backward design unit applied to personal teaching situations. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p>
<p><b>INST 6285</b>                    <b>Multimedia Special Topic Studio II</b>                    <b>3<sup>®</sup></b>  <b>(dual listing 5285)</b>  Selected special topics related to the development of multimedia products for instruction and training. To receive graduate-level credit, students must fulfill additional requirements. (F,Sp,Su)</p>	<p><b>INST 6415</b>                    <b>Implementation of Technology</b>  <b>(dual listing 5415)</b>                    <b>in Education K-12</b>                    <b>3</b>  Designed for practicing classroom teachers. Examines educational value of project-based learning and the constructionist model of effective learning. Focuses on practical application of research. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p>
<p><b>INST 6290</b>                    <b>Multimedia Production for</b>  <b>(dual listing 5290)</b>                    <b>Instruction and Training</b>                    <b>3</b>  Geared toward assisting master's students in completing their degrees. Provides continuity from the first semester and encourages continued professional development in the discipline. Can be used as capstone experience for multimedia development minor. Prerequisites: INST 6215/5215, 6230/5230, 6255/5255, 6265/5265. To receive graduate-level credit, students must fulfill additional requirements. (Sp)</p>	<p><b>INST 6420</b>                    <b>Educational Technology</b>  <b>(dual listing 5420)</b>                    <b>Tools Integration</b>                    <b>3</b>  Designed for practicing classroom teachers. Using their own classroom, participants do a class study on low-performance students, create a technology intervention to enhance student performance, and document changes in student behavior and attitudes. To receive graduate-level credit, students must fulfill additional requirements. (F)</p>
<p><b>INST 6300</b>                    <b>MEd Orientation</b>                    <b>1</b>  Geared toward assisting master's students in completing their degrees. Provides continuity from the first semester and encourages continued professional development in the discipline. Prerequisite: Matriculation into Instructional Technology MEd program. (Su)</p>	<p><b>INST 6425</b>                    <b>Technology and Inquiry Based Lessons</b>                    <b>3</b>  <b>(dual listing 5425)</b>  Designed for practicing classroom teachers. Backward design model used to create powerful, inquiry-based lessons. Investigates role of technology in engaging students in meaningful educational experiences. To receive graduate-level credit, students must fulfill additional requirements. (F)</p>
<p><b>INST 6310</b>                    <b>Foundations of Educational Technology</b>                    <b>3</b>  Explores foundations, history, perspectives, and literature in the field. Enables students to think more critically about their efforts and career goals. Prerequisite: Matriculation into Instructional Technology MEd program. (F)<sup>DE</sup></p>	<p><b>INST 6430</b>                    <b>Educational Technology K-12 Practicum</b>                    <b>3</b>  <b>(dual listing 5430)</b>  Designed for practicing classroom teachers. Provides opportunities for teachers to work with small groups of children and a master teacher having experience in directing technology in a classroom setting. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p>
<p><b>INST 6325</b>                    <b>Communication, Instruction, and</b>  <b>the Learning Process</b>                    <b>3</b>  Examination of learning theory and communication theory, and their implications for instruction. Taught off-campus. Prerequisite: Matriculation into Instructional Technology MEd program. (Su)</p>	<p><b>INST 6505</b>                    <b>Foundations of Instructional Technology</b>                    <b>3</b>  Considers the present, past, and future of instructional technology, while helping individual student to develop personal understanding of and orientation to the field. Prerequisite: Matriculation into Instructional Technology MS program. (F)</p>
<p><b>INST 6350</b>                    <b>Instructional Design Process I</b>                    <b>3</b>  Examines key techniques in design of instruction. Applies principles to specific design problems. Introduces techniques for developing instructional products according to completed designs. Taught off-campus. Prerequisite: Matriculation into Instructional Technology MEd program. (F)<sup>DE</sup></p>	<p><b>INST 6510</b>                    <b>Research and Evaluation in</b>  <b>Instructional Technology</b>                    <b>3</b>  Detailed study of methodologies for needs assessment, product evaluation, validation, and research. Includes methodological models, data collection, and data interpretation for both formative and summative evaluation. Prerequisite: Permission of instructor. (Sp)</p>
<p><b>INST 6355</b>                    <b>Instructional Design Process II</b>                    <b>3</b>  Continued exposure to design models, principles, and techniques. Integrates project management skills with design procedures. Based on their situation, students design and develop an instructional product. Taught off-campus. Prerequisite: Matriculation into Instructional Technology MEd program. (Sp)<sup>DE</sup></p>	<p><b>INST 6520</b>                    <b>Projects in Instructional Technology</b>                    <b>3</b>  Introduction to the process of Instructional Systems Design (ISD) using Analysis, Design, Development, Implementation, and Evaluation (ADDDIE). Includes introductory combination of theory and application to create an instructional product using the ISD process. Prerequisite: Matriculation into Instructional Technology MS program. (F)</p>

# Course Descriptions

<p><b>INST 6530</b>                    <b>Instructional Design and Development Studio</b>                    <b>3<sup>®</sup></b> Focuses on the utilization and critique of not only finished instruction, but also Instructional Design Theory, as well as a reverse-engineered look at Instructional Systems Design (ISD). Prerequisites: INST 6520 and matriculation into Instructional Technology MS program. (Sp)</p> <p><b>INST 6540</b>                    <b>Learning Theory</b>                    <b>3</b> Detailed study of communication and learning theories as applied to the instructional design process. Examines principles and research upon which instructional design and instructional technology are based. Prerequisite: Matriculation into Instructional Technology MS program. (F)</p> <p><b>INST 6570</b>                    <b>Performance Systems</b>                    <b>3</b> Application of theory, principles, and practice of organizational systems and human competence in designing performance support systems, job aids, and just-in-time instruction. (F)</p> <p><b>INST 6630</b>                    <b>Instructional Simulations</b>                    <b>3</b> Application of theory, principles, and practice of instructional simulations for use within organizational systems and improvement of human performance. (F)</p> <p><b>INST 6650</b>                    <b>Research Seminar</b>                    <b>1<sup>®</sup></b> Provides opportunity for exchange of ideas by Instructional Technology master's students pursuing a Plan A option. Includes discussion of publications and products. (F,Sp,Su)</p> <p><b>INST 6710</b>                    <b>Instructional Development Tools</b>                    <b>3</b> Detailed study of processes, tools, and techniques for guiding and aiding the instructional design process. Emphasizes tools for project management, analysis, and design. (F)</p> <p><b>INST 6720</b>                    <b>Instructional Technology in Adult Education</b>                    <b>3</b> Application of theory, principles, and practice of instructional technology in providing instruction to adult learners. (Sp,Su)</p> <p><b>INST 6730</b>                    <b>Technology and its Role in the (dual listing 5130) Transformation of Education</b>                    <b>1-3</b> Explores the critical role of educational technology as one tool in the transformation of education. Involves students in change-related projects in the local environment. Also taught off-campus. To receive graduate-level credit, students must fulfill additional requirements. (Su)</p> <p><b>INST 6740</b>                    <b>Instructional Evaluation</b>                    <b>2</b> Examines theories and implementation of both formative and summative evaluation of instruction. Includes expert and learner feedback, rapid prototyping, and cost analysis. Prerequisite: Matriculation into Instructional Technology MS program. (Sp)</p> <p><b>INST 6750</b>                    <b>Instructional Technology Workshop</b>                    <b>1-4<sup>®</sup></b> Special training and experience in the latest concepts and innovations in instructional technology. Content changes reflecting the most recent topics and problems facing the profession. (Su)<sup>DE</sup></p> <p><b>INST 6760</b>                    <b>Grant Writing</b>                    <b>3</b> Introduction to the many facets of grant writing. Students write a grant proposal for submission to a funding agency and reflectively critique other proposals. (Sp)<sup>DE</sup></p> <p><b>INST 6770</b>                    <b>Practicum in the Improvement of Instruction</b>                    <b>1-4<sup>®</sup></b> A field-based program focused upon characteristics of effective teaching methodologies, teaching performance, curriculum decision making, value guidelines, and the characteristics of the learner. Taught on demand.</p> <p><b>INST 6775</b>                    <b>Computers in Education for In-service Teachers</b>                    <b>3</b> Introduction to microcomputer applications in education for in-service teachers. Includes hands-on experiences with range of software tools for design, production, and administration. Taught off-campus and on demand.</p>	<p><b>INST 6780</b>                    <b>Instructional Technology Programs</b>                    <b>1-3<sup>®</sup></b> Designed primarily as an in-service experience for teachers, trainers, administrators, and instructional technology personnel to improve local programs and services. Taught on demand.</p> <p><b>INST 6790</b>                    <b>Instructional Technology in Education and Training</b>                    <b>1-3<sup>®</sup></b> Offered on request to instructional designers, teachers, administrators, and media personnel who have special needs related to instructional technology and seek assistance in improving their local programs. Taught on demand.</p> <p><b>INST 6870</b>                    <b>Current Issues Seminar</b>                    <b>1-3<sup>®</sup></b> Allows exploration of new cutting-edge topics in the field. Topics vary and are announced the semester prior to registration. Topics may be theory or practice based. (Arr)</p> <p><b>INST 6900</b>                    <b>Independent Study</b>                    <b>1-6<sup>®</sup></b> Individually directed study and projects. Graded Pass/Fail <i>only</i>. Prerequisite: Departmental permission. (F,Sp,Su)<sup>DE</sup></p> <p><b>INST 6910</b>                    <b>Independent Research</b>                    <b>1-6<sup>®</sup></b> Individually directed research. Graded Pass/Fail <i>only</i>. Prerequisite: Departmental permission. (F,Sp,Su)<sup>DE</sup></p> <p><b>INST 6940</b>                    <b>Internship</b>                    <b>1-6<sup>®</sup></b> An on-site experience in which the student applies knowledge and skills in a work environment. Used as culminating experience for the MS or MEd, Plan C. Graded Pass/Fail <i>only</i>. (F,Sp,Su)<sup>DE</sup></p> <p><b>INST 6960</b>                    <b>Creative Project</b>                    <b>1-6<sup>®</sup></b> Individual experience in instructional product development. May be used as the culminating experience for the MEd and MS Plan C. Graded Pass/Fail <i>only</i>. (F,Sp,Su)<sup>DE</sup></p> <p><b>INST 6970</b>                    <b>Thesis</b>                    <b>1-6<sup>®</sup></b> Individual work in MS thesis and Plan B report writing with guidance and criticism. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>INST 6990</b>                    <b>Continuing Graduate Advisement</b>                    <b>1-8<sup>®</sup></b> Allows students access to faculty and facilities to complete graduate thesis, project, and papers. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>INST 7000</b>                    <b>Pro-seminar I in Instructional Technology</b>                    <b>3</b> Lectures and discussions on advanced topics in instructional technology and related disciplines. Required for Instructional Technology EdS and PhD students. (F)</p> <p><b>INST 7010</b>                    <b>Pro-seminar II in Instructional Technology</b>                    <b>3</b> Continuation of INST 7000. Lectures and discussions on advanced topics in instructional technology and related disciplines. Required for Instructional Technology EdS and PhD students. Prerequisite: INST 7000. (Sp)</p> <p><b>INST 7150</b>                    <b>Advanced Seminar in Instructional Technology</b>                    <b>3<sup>®</sup></b> In-depth study of various topics including learning theory, instructional design, instructional theory, instructional development tools, production techniques, and instructional applications in different cultures. Specific topics for each semester will be announced. (F,Sp,Su)</p> <p><b>INST 7200</b>                    <b>Quantitative and Design Research in Instructional Technology*</b>                    <b>3</b> Examines current trends, applications, methods, and research questions that are appropriate to the use of quantitative and design research within the field of instructional technology. (F)</p> <p><b>INST 7300</b>                    <b>Research in Instructional Technology and Learning Sciences</b>                    <b>3</b> Provides doctoral students with opportunities to achieve further depth in their research skills, as well as opportunities for obtaining additional knowledge by critiquing existing designs and approaches of instructional technology and learning sciences investigation. Emphasizes building research designs, with the intention of creating more exposure and experience regarding the role technology plays in the way people learn. (F)</p>
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# Course Descriptions

**INST 7450 Internship in Program Evaluation 1-4®**  
Experience in practical aspects of program evaluation through planned, supervised evaluation project. Participation must be approved by student's supervisory committee. Graded Pass/Fail *only*. (F,Sp,Su)

**INST 7460 Internship in Research 1-4®**  
Experience in conducting research through planned, supervised evaluation project. Participation must be approved by student's supervisory committee. Graded Pass/Fail *only*. (F,Sp,Su)

**INST 7820 Practicum in Instructional Technology 2®**  
Requires four practica selected from the following: funding proposal, product/research, review product development, evaluation, empirical investigation, and teaching. Graded Pass/Fail *only*. Prerequisite: Permission of instructor. Enrollment limited to Instructional Technology EdS and PhD students *only*. (F,Sp,Su)

**INST 7870 Current Issues Seminar 1-3®**  
Allows exploration of new cutting edge topics in the field. Topics vary and are announced the semester prior to registration. Topics may be theory or practice based. (Arr)

**INST 7900 Independent Study 1-6®**  
Individually directed study and projects. Prerequisite: Departmental permission. Graded Pass/Fail *only*. (F,Sp,Su)

**INST 7910 Independent Research 1-6®**  
Provides for individually directed research. Graded Pass/Fail *only*. Prerequisite: Departmental permission. (F,Sp,Su)

**INST 7920 College Teaching Seminar 1-3**  
Develops skills and knowledge necessary for college teaching. Activities are designed to help participants in a variety of areas, including instructional development and presentation skills development. (Arr)<sup>DE</sup>

**INST 7960 Practicum, Educational Specialist 1-9®**  
Culminating project/externship in partial fulfillment of the Educational Specialist degree. Graded Pass/Fail *only*. (F,Sp,Su)

**INST 7970 Dissertation 1-18®**  
Individual work on research problems in the PhD program. Graded Pass/Fail *only*. (F,Sp,Su)

**INST 7990 Continuing Graduate Advisement 1-9®**  
Allows graduate students access to faculty and facilities to complete graduate dissertation. Graded Pass/Fail *only*. (F,Sp,Su)

\*Taught 2010-2011.

\*\*Taught 2009-2010.

® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Italian (ITAL)

See *Department of Languages, Philosophy, and Speech Communication, pages 334-346*

**ITAL 1010 Italian First Year I 4**  
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Native speaker instructor. Self-study with tutorial assistance. (F)<sup>DE</sup>

**ITAL 1020 Italian First Year II 4**  
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Native speaker instructor. Self-study with tutorial assistance. Prerequisite: ITAL 1010 or equivalent. (Sp)<sup>DE</sup>

**ITAL 2010 Italian Second Year I 4**  
Second-year overview of speaking, listening, reading, and writing, with exposure to cultures and customs. Native speaker instructor. Self-study with tutorial assistance. Prerequisite: ITAL 1020 or equivalent. (F)<sup>DE</sup>

**ITAL 2020 Italian Second Year II 4**  
Second-year overview of speaking, listening, reading, and writing, with exposure to cultures and customs. Native speaker instructor. Self-study with tutorial assistance. Prerequisite: ITAL 2010 or equivalent. (Sp,Su)<sup>DE</sup>

<sup>DE</sup>This course is available online *only* through Regional Campuses and Distance Education (RCDE). Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Interdisciplinary Studies (ITDS)

See *Interdisciplinary Studies Major, pages 314-315*

**ITDS 4900 Senior Thesis/Project 3**  
Students majoring in Interdisciplinary Studies are required to complete a 3-credit thesis or project as part of the major. The thesis or project must be *either* a research paper *or* a creative activity appropriate to the theme of the Interdisciplinary Studies major. Each student works with his or her faculty advisor to determine an appropriate topic of study or a project. The student and advisor outline the protocol and parameters of the thesis or project. Prerequisite: Instructor's permission. (F,Sp,Su)<sup>DE</sup>

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Japanese (JAPN)

See *Department of Languages, Philosophy, and Speech Communication, pages 334-346*

**JAPN 1010 Japanese First Year I 5**  
First course in beginning Japanese. Proficiency in the recognition of the basic Japanese sound system by learning Hiragana and Katakana. Communicative mastery of sentences having polite and plain forms of verbs, adjectives, and copula. Exposure to Japanese culture and customs. (F)

**JAPN 1020 Japanese First Year II 5**  
Second course in beginning Japanese. Introduction to the basic 100 Kanji. Mastery of more complicated sentences, including conditional temporal, volitional, and potential expressions. Exposure to Japanese culture and customs. Prerequisite: JAPN 1010 or equivalent. (Sp)

**JAPN 2010 Japanese Second Year I 5**  
First course in intermediate Japanese. Proficiency in reading and writing 150 additional Kanji. Mastery of the last basic grammar topics, such as passive, causative, passive causative, and giving/receiving expressions. Introduction to honorific/humble expression. Exposure to Japanese culture and customs. Prerequisite: JAPN 1020 or equivalent. (F)

**JAPN 2020 Japanese Second Year II 5**  
Second course in intermediate Japanese. Proficiency in reading 150 additional Kanji and writing 200 additional Kanji. Mastery of frequently used idioms and expressions. Exposure to more authentic reading materials. Competency in writing short essays. Exposure to Japanese culture and customs. Prerequisite: JAPN 2010 or equivalent. (Sp)

**JAPN 3010 Japanese Third Year I 4**  
First segment of the third-year Japanese reading/writing course. Proficiency in reading and writing an additional 500 Kanji. Prerequisite: JAPN 2020 or equivalent. (F)

**JAPN 3020 Japanese Third Year II 4**  
Second segment of the third-year Japanese reading/writing course. Proficiency in reading and writing an additional 500 Kanji. Prerequisite: JAPN 3010 or equivalent. (Sp)

**JAPN 3050 Japanese Calligraphy 1®**  
Study of Japanese writing system through practicing the art of calligraphy. No prerequisites. Also taught as ART 3050. (Sp)

# Course Descriptions

**JAPN 3100**      **Readings in Contemporary Japanese Culture**      **3**  
Introduction to contemporary Japanese culture through readings from newspapers and other source materials. Prerequisites: JAPN 3010 and 3020. (F)

**JAPN 3510**      **Japanese for the Business Environment**      **3**  
Mastery of technical terms related to Japanese business and its environment. Communicative competency in contemporary Japanese society. Prerequisite: JAPN 3020. (Sp)

**JAPN 3560**      **Studies in Japanese Film**      **3**  
Offers an introduction to the historical and theoretical study of Japanese cinema. Course screenings include some of the films made by well-known directors during the 1960s and 1970s, as well as the cutting-edge of contemporary films. (Sp)

**JAPN 4250**      **Internship/Coop**      **3-9**  
Cooperative education through internship programs provided by companies in Japan. Intended for students participating in the U.S.-Japan internship program. Prerequisites: JAPN 3010, 3020, and 3510. (Su)

**JAPN 4920**      **Japanese Language Tutoring**      **1<sup>®</sup>**  
Allows students to develop tutoring skills by assisting professors in lower-division courses or fulfilling instructional duties for a comparable amount of time in the language laboratory, public schools, or similar activities with departmental approval. May be repeated to a maximum of 3 credits. Prerequisite: Permission of instructor. (F,Sp)

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

## Journalism and Communication (JCOM)

See *Department of Journalism and Communication, pages 322-326*

**JCOM 1130**      **Beginning Newswriting for the Mass Media**      **3**  
Techniques of writing news for various media. News values, philosophy, and practice. Elementary news-gathering and interviewing skills. Practice in various newswriting forms. Structures of the news industries and work place. Prerequisites: Fulfillment of Communications Literacy CL1 requirement through coursework or examination; English Proficiency Test offered through the Journalism and Communication Department; and passing scores on Computer and Information Literacy (CIL) exams. (F,Sp,Su)<sup>DE</sup>

**JCOM 1500 BSS**      **Introduction to Mass Communication**      **3**  
History, philosophy, structures, and functions of the mass media (newspapers, magazines, TV and radio, advertising, and public relations) and their intersection with other social institutions. Media economics and the impacts of new technologies on media institutions and society. (F,Sp)

**JCOM 2010 BSS**      **Media Smarts: Making Sense of the Information Age**      **3**  
Critical analysis of the roles and performance of mass media content and messages, and their influence on society. Emphasizes critical reading of news, entertainment, and advertising content regarding women, minorities, children, and other groups. Basic mass media ethics and law. Prerequisite: Fulfillment of Communications Literacy CL1 requirement through coursework or examination. (F,Sp)

**JCOM 2160 CI**      **Introduction to Online Journalism**      **3**  
Use of interactive computer networks, databases, and other electronic resources. Development of personal web pages for portfolio building. Practice in information evaluation for news gathering. Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010. (F,Sp)

**JCOM 2170 CI**      **Reporting Public Affairs**      **3**  
Theory and practice of reporting public affairs, community news, and features. Emphasizes advanced news gathering techniques, understanding local political structures, news and feature writing skills, interviewing, media law, ethics, and cultural sensitivity. Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010. (F,Sp)

**JCOM 2180**      **Beginning Photojournalism**      **3**  
Theory and practice of photojournalism. Roles and functions of electronic photographic images in the news media. Practice in use of cameras and in software techniques. Students furnish cameras and some materials. (F,Sp)

**JCOM 2220**      **Introduction to Video Media**      **3**  
Introduction to the theories and practice of video production and functions in broadcasting and the electronic mass media, including concepts, techniques, and impacts of various video approaches. Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010. (F,Sp)

**JCOM 2230**      **Writing for Electronic Media**      **3**  
Theory and practice of reporting public affairs for broadcast and electronic media. Emphasizes news gathering, understanding local political structures, news and feature writing, interviewing, media law, ethics, and cultural sensitivity. Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010. (F)

**JCOM 2300**      **Introduction to Public Relations**      **3**  
Survey of theories and practice of public relations in a variety of business, corporate, governmental, and nonprofit organizational settings. Elements of promoting organizational messages and communicating with various publics. Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010. (F,Sp)

**JCOM 2310 CI**      **Writing for Public Relations**      **3**  
Theory and practice of information-gathering for public relations, including basic news releases, features, speeches, annual reports, newsletters and brochures, broadcasting, and other forms. Emphasizes advanced news gathering techniques, interviewing, media law, ethics, and cultural sensitivity. Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010. (F,Sp)

**JCOM 3010**      **Communication Research Methods**      **3**  
Practical application of quantitative information and methods within journalism and public relations. Emphasizes using numbers to help media audiences and other publics make sense of issues and events. Prerequisites: JCOM 1130, 1500, and 2010. (F,Sp)

**JCOM 3110 CI**      **Beyond the Inverted Pyramid**      **3**  
Theory and practice of longer literary forms for newspapers and magazines. Feature writing, investigative and interpretive journalism, emphasizing advanced information-gathering and writing skills. Prerequisite: Minimum grade of C in JCOM 2170 or permission of instructor. (F,Sp)

**JCOM 3120 CI**      **Copy Editing and Publication Design**      **3**  
Editing and preparation of news stories and artwork for publication. Principles and practice of publication layout and design. Prerequisites: Minimum grades of C in JCOM 2170, 2230, or 2310; or permission of instructor. (F,Sp)

**JCOM 3140 DSS**      **Opinion Writing**      **3**  
Study and practice of persuasive editorial and opinion writing for the mass media. (F,Sp)

**JCOM 3300 DSS**      **Strategic Research Methods in Public Relations**      **3**  
Quantitative and qualitative research methods standard to real-life applications in public relations problems and campaigns, including survey methods, focus groups, case analysis, and strategic assessments. Prerequisite: Minimum grade of C in JCOM 2310 or permission of instructor. (F,Sp)

**JCOM 3410 DSS**      **Film as Cultural Communication**      **3**  
Analysis of the economic, ideological, political, and cultural constraints influencing film content. (F,Sp)

**JCOM 4010 DSS**      **Mass Communication Ethics**      **3**  
**(dual listing 6440)**  
Study of ethical systems and philosophies and their applications to the practice of mass communication. Prerequisite: Junior standing. (Sp)

**JCOM 4020 DSS**      **Mass Media and Society**      **3**  
Study of theories and practice of the impact of mass media in conjunction with other social institutions: political, social, cultural, ideological, economic, and religious. Prerequisite: Junior standing.

# Course Descriptions

<p><b>JCOM 4030 DSS Mass Media Law</b> <b>3</b> <b>(dual listing 6430)</b> Principles and theories of constitutional and case law governing the mass media, including libel and privacy, copyright, press freedom, broadcast regulation, and press responsibility. Prerequisite: Junior standing or permission of instructor. (F,Sp)</p> <p><b>JCOM 4100 Hard News Café</b> <b>3®</b> Advanced reporting and writing for student news website. Includes advanced reporting techniques, photojournalism, and posting of news reports and materials to interactive website. Prerequisite: Minimum grade of C in JCOM 3110 or permission of instructor. (F,Sp,Su)</p> <p><b>JCOM 4110 CI Computer-Assisted Reporting</b> <b>3</b> Advanced computer-based investigative and in-depth information-gathering and newswriting, including intensive use of computer databases to collect and analyze data. Prerequisites: Minimum grades of C in JCOM 2170 or 2230 or 2310; or permission of instructor. (Sp)</p> <p><b>JCOM 4120 CI Sports Writing</b> <b>3</b> Information-gathering and writing of news and feature stories about sports for print and electronic mass media. Prerequisites: Minimum grades of C in JCOM 2170 or 2230 or 2310; or permission of instructor. (Sp)</p> <p><b>JCOM 4150 Advanced Digital Photojournalism</b> <b>3</b> Advanced lab work in the use of cameras and photographic production techniques, photo imaging, and manipulation. Concludes with student exhibition of work. Prerequisite: Minimum grade of C in JCOM 2180 or permission of instructor. (F,Sp)</p> <p><b>JCOM 4210 CI Newscast I</b> <b>4</b> Basics of electronic newsgathering and writing for electronic news media. Use of electronic video equipment for creation of on-air newscast and other visual news materials. Prerequisite: Minimum grade of C in JCOM 2220. (F,Sp)</p> <p><b>JCOM 4220 CI Newscast II</b> <b>4</b> Newsroom organization and practice in electronic and video news production, including directing and producing, writing for video news, use of studio equipment, use of video production equipment, staff management, and control room operations. Prerequisites: Minimum grades of C in JCOM 2230 and 4210. (F,Sp)</p> <p><b>JCOM 4230 Corporate Video</b> <b>3</b> Project-based lab work in studio video productions for real-world clients. Use of video field equipment and production facilities. Completion of video packages. Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, 2010, and 2220; or permission of instructor. (F,Sp)</p> <p><b>JCOM 4300 Integrated Marketing Communication</b> <b>3</b> Teaches the integrated marketing functions necessary to effectively position, brand, and market a company. Provides students with opportunity to help bridge the gaps existing among management, strategic, and creative players in the design field. Prepares students to better function as effective account managers or campaign leaders in a public relations, marketing, branding, or advertising culture. (F,Sp)</p> <p><b>JCOM 4400 Mass Media Criticism</b> <b>3</b> <b>(dual listing 6400)</b> Critical analysis of mass media content, emphasizing the media's social, cultural, and political impacts. Use of advanced research techniques. Senior standing required for enrollment in JCOM 4400; permission of instructor required for enrollment in JCOM 6400. (Sp)</p> <p><b>JCOM 4410 Gender and the Mass Media</b> <b>3</b> <b>(dual listing 6410)</b> Examines the nature of gender-based images in a variety of mass media, from advertising to magazines, television, and film. Analysis of gender stereotypes and portrayals in news and entertainment media, along with resulting social impacts. Prerequisites: Fulfillment of Communications Literacy CL2 requirement; junior standing or instructor permission. Also taught as WGS 4410/6410. (F)</p> <p><b>JCOM 4500 Projects in Communication</b> <b>1-5®</b> Individualized directed study in communication topics, based upon student proposal to instructor. Prerequisite: Permission of instructor. Repeatable for up to 6 credits. (F,Sp,Su)</p>	<p><b>JCOM 4510 Communication Internship</b> <b>1-3®</b> Supervised, real-world training and practice in communication work places, including news and business environments. Prerequisite: Permission of instructor. Maximum of 6 credits may count toward the student's major. (F,Sp,Su)</p> <p><b>JCOM 4520 Senior Thesis</b> <b>1-3</b> Planning and execution of an in-depth research paper or project, as approved by the instructor, culminating in a formal public presentation. Required of all journalism and communication students for graduation in Honors Program. Students must also complete HONR 4800. (F,Sp)</p> <p><b>JCOM 4530 Special Topics in Communication</b> <b>3®</b> Advanced study in specialized communication topic areas. A maximum of 5 credits may be applied toward the major. (F,Sp,Su)</p> <p><b>JCOM 5010 Mass Media Historiography</b> <b>3</b> <b>(dual listing 6010)</b> Survey of the history and development of the mass media, and their influence on other social institutions. Theory and practice of historical research, with heavy emphasis on use of databases, archival, and other primary sources to conduct original historical research. (F,Sp)</p> <p><b>JCOM 5020 Mass Communication Theory</b> <b>3</b> <b>(dual listing 6020)</b> Advanced study of major mass communication theories and issues, and their evidence in case studies. Application of theory to significant societal problems. (F)</p> <p><b>JCOM 5030 International Communications Problems</b> <b>3</b> <b>(dual listing 6030)</b> Study of mass communication influences and effects within and between nations. Systems and techniques of mass communication as functions of national identity and development. (F,Sp)</p> <p><b>JCOM 5110 CI Literary Journalism</b> <b>3</b> <b>(dual listing 6110)</b> In-depth analysis and practice of literary and stylistic elements of long-form journalistic and other nonfiction writers. (F)</p> <p><b>JCOM 5210 Website Design and Production</b> <b>3</b> <b>(dual listing 6210)</b> Principles and practice of planning, designing, and programming professional Web pages, including Internet communication analysis and planning, graphic design, and development using industry-standard programming languages and design applications. Prerequisite: Permission of instructor. (F,Sp)</p> <p><b>JCOM 5220 Advanced Video Production</b> <b>3</b> <b>(dual listing 6220)</b> Training and practice in advanced techniques of video production, including computer graphics generation, nonlinear video editing, and other specialized professional techniques for electronic video materials. Prerequisite: Minimum grade of C in JCOM 4220 or 4230; or permission of instructor. (F)</p> <p><b>JCOM 5230 Advanced Video Documentary Production</b> <b>3®</b> <b>(dual listing 6230)</b> Advanced production of long-form video productions and packages, including writing scripts, directing and production, control room applications, and advanced video production techniques. Prerequisite: Minimum grade of C in JCOM 4220 or 4230; or permission of instructor. (Sp)</p> <p><b>JCOM 5300 CI Case Studies in Public Relations</b> <b>3</b> <b>(dual listing 6300)</b> Advanced study and practice in public relations cases, processes, techniques, campaigns, and marketing communications strategies. Analysis of approaches to corporate reputation issues, organizational positioning, and use of mass media strategies. Prerequisite: Minimum grade of C in JCOM 3300. (F,Sp)</p> <p><b>JCOM 5310 Mass Media Management</b> <b>3</b> <b>(dual listing 6310)</b> Examines theories, methods, and practice of management of mass media businesses, including personnel, marketing, and market positioning. Prerequisite: Permission of instructor. (F,Sp)</p>
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# Course Descriptions

<p><b>JCOM 5320 Public Relations Agency 3<sup>®</sup></b> (dual listing 6320) Advanced hands-on experience in real-world workings of professional public relations agency, including client communications needs analysis, communications planning, strategies, market positioning, publicity, and campaign execution. Prerequisite: Permission of instructor. (F,Sp)</p> <p><b>JCOM 5420 The Mass Media and Politics 3</b> (dual listing 6420) Examination of the role of the mass media in the political process, including both campaigns and governance. Examination of political advertising, news coverage, polling, opinion formation strategies, and politicians' use of new media technologies. Also taught as POLS 5420/6420. (F)</p> <p><b>JCOM 6000 Introduction to Graduate Study in Mass Communication 3</b> Overview of mass communication theories and research methodologies designed to prepare the student for the graduate course of study and to assist in planning research agenda. (F)</p> <p><b>JCOM 6010 Mass Media Historiography 3</b> (dual listing 5010) Survey of the history and development of the mass media, and their influence on other social institutions. Theory and practice of historical research, with heavy emphasis on use of databases, archival, and other primary sources to conduct original historical research.</p> <p><b>JCOM 6020 Mass Communication Theory 3</b> (dual listing 5020) Advanced study of major mass communication theories and issues, and their evidence in case studies. Application of theory to significant societal problems. (F)</p> <p><b>JCOM 6030 International Communications Problems 3</b> (dual listing 5030) Study of mass communication influences and effects within and between nations. Systems and techniques of mass communication as functions of national identity and development. (F,Sp)</p> <p><b>JCOM 6040 Seminar in Mass Media Research Methods 3<sup>®</sup></b> Introduction to the major theoretical perspectives and methodologies in mass communication research. Repeatable for credit with departmental permission. (Sp)</p> <p><b>JCOM 6050 Seminar in Mass Media Issues and Problems 3<sup>®</sup></b> Variable topic seminar concerning research of issues and problems in mass media principles and practice. Repeatable for credit with departmental permission. (F,Sp)</p> <p><b>JCOM 6110 Literary Journalism 3</b> (dual listing 5110) In-depth analysis and practice of literary and stylistic elements of long-form journalistic and other nonfiction writers. (F)</p> <p><b>JCOM 6210 Website Design and Production 3</b> (dual listing 5210) Principles and practice of planning, designing, and programming professional Web pages, including Internet communication analysis and planning, graphic design, and development using industry-standard programming languages and design applications. Prerequisite: Permission of instructor. (F,Sp)</p> <p><b>JCOM 6220 Advanced Video Production 3</b> (dual listing 5220) Training and practice in advanced techniques of video production, including computer graphics generation, nonlinear video editing, and other specialized professional techniques for electronic video materials. Prerequisite: Minimum grade of C in JCOM 4220 or 4230; or permission of instructor. (F)</p>	<p><b>JCOM 6230 Advanced Video Documentary Production 3<sup>®</sup></b> (dual listing 5230) Advanced production of long-form video productions and packages, including writing scripts, directing and production, control room applications, and advanced video production techniques. Prerequisite: Minimum grade of C in JCOM 4220 or 4230; or permission of instructor. (Sp)</p> <p><b>JCOM 6300 Case Studies in Public Relations 3</b> (dual listing 5300) Advanced study and practice in public relations cases, processes, techniques, campaigns, and marketing communications strategies. Analysis of approaches to corporate reputation issues, organizational positioning, and use of mass media strategies. Prerequisite: Minimum grade of C in JCOM 3300. (F,Sp)</p> <p><b>JCOM 6310 Mass Media Management 3</b> (dual listing 5310) Examines theories, methods, and practice of management of mass media businesses, including personnel, marketing, and market positioning. Prerequisite: Permission of instructor. (F,Sp)</p> <p><b>JCOM 6320 Public Relations Agency 3<sup>®</sup></b> (dual listing 5320) Advanced hands-on experience in real-world workings of professional public relations agency, including client communications needs analysis, communications planning, strategies, market positioning, publicity, and campaign execution. Prerequisite: Permission of instructor. (F,Sp)</p> <p><b>JCOM 6400 Mass Media Criticism 3</b> (dual listing 4400) Critical analysis of mass media content, emphasizing the media's social, cultural, and political impacts. Use of advanced research techniques. Permission of instructor required for enrollment in JCOM 6400; senior standing required for enrollment in JCOM 4400. (Sp)</p> <p><b>JCOM 6410 Gender and the Mass Media 3</b> (dual listing 4410) Examines the nature of gender-based images in a variety of mass media, from advertising to magazines, television, and film. Analysis of gender stereotypes and portrayals in news and entertainment media, along with resulting social impacts. Enrollment in JCOM 6410 limited to graduate students <i>only</i>. Also taught as WGS 6410/4410. (F)</p> <p><b>JCOM 6420 The Mass Media and Politics 3</b> (dual listing 5420) Examination of the role of the mass media in the political process, including both campaigns and governance. Examination of political advertising, news coverage, polling, opinion formation strategies, and politicians' use of new media technologies. Also taught as POLS 6420/5420. (F)</p> <p><b>JCOM 6430 Mass Media Law 3</b> (dual listing 4030) Principles and theories of constitutional and case law governing the mass media, including libel and privacy, copyright, press freedom, broadcast regulation, and press responsibility. (F,Sp)</p> <p><b>JCOM 6440 Mass Communication Ethics 3</b> (dual listing 4010) Study of ethical systems and philosophies and their applications to the practice of mass communication. (Sp)</p> <p><b>JCOM 6500 Special Projects in Mass Communication Research and Practice 1-3<sup>®</sup></b> Directed study into specified research or real-world problems in the mass media and mass communication industries. Prerequisite: Departmental permission. Repeatable for credit with departmental permission. (F,Sp,Su)</p> <p><b>JCOM 6510 Directed Readings in Mass Communication 1-12<sup>®</sup></b> Directed readings, tutorial or experiential learning/project in mass communication. Prerequisite: Instructor and department head approval. (F,Sp,Su)</p> <p><b>JCOM 6600 Internship 1-6</b> Supervised training in selected communication work places. Prerequisite: Permission of graduate supervisory committee. (F,Sp,Su)</p>
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# Course Descriptions

**JCOM 6970 Thesis Research 1-3<sup>®</sup>**  
Prerequisite: Departmental permission. Graded Pass/Fail *only*. Repeatable for credit with departmental permission. (F,Sp,Su)

**JCOM 6990 Continuing Graduate Advisement 1-3<sup>®</sup>**  
Prerequisite: Departmental permission. Graded Pass/Fail *only*. Repeatable for credit with departmental permission. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Korean (KOR)

See *Department of Languages, Philosophy, and Speech Communication*, pages 334-346

**KOR 1010 Korean First Year I 5**  
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. (F)

**KOR 1020 Korean First Year II 5**  
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: KOR 1010 or equivalent. (Sp)

**KOR 2010 Korean Second Year I 5**  
Development of grammatical knowledge and writing skills. Prerequisite: KOR 1020 or equivalent. (F)

**KOR 2020 Korean Second Year II 5**  
Development of advanced reading comprehension skill through discussions and summaries of a variety of texts. Prerequisite: KOR 2010 or equivalent. (Sp)

**KOR 3010 Korean Third Year I 4**  
Development of advanced reading, writing, and conversational skills. Prerequisite: KOR 2020 or equivalent. (F)

**KOR 3020 Korean Third Year II 4**  
Continuous development of advanced reading, writing, and conversational skills. Prerequisite: KOR 3010 or equivalent. (Sp)

**KOR 3510 Business Korean 3**  
Designed to help students acquire a broad knowledge of business Korean and relevant Korean culture. Develops language skills and cultural knowledge useful for performing basic functions within the Korean business environment. Focuses on important business terms, phrases, and business etiquette. Prerequisite: KOR 2010 or equivalent language proficiency. (F)<sup>DE</sup>

**KOR 4920 Korean Language Tutoring 1<sup>®</sup>**  
Allows students to develop tutoring skills by assisting professors in lower-division courses or fulfilling instructional duties for a comparable amount of time in the language laboratory, public schools, or similar activities with departmental approval. May be repeated to a maximum of 3 credits. Prerequisite: Permission of instructor. (F,Sp,Su)

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Landscape Architecture and Environmental Planning (LAEP)

See *Department of Landscape Architecture and Environmental Planning*, pages 327-333

**LAEP 1030 BCA Introduction to Landscape Architecture 3**  
Environment as a basis for land use and design decisions. Topics discussed include environmental awareness, the planning and design process, and design

related to open space, communities, and the region. Three one-hour lectures per week. (F,Sp,Su)<sup>DE</sup>

**LAEP 1200 Basic Graphics in Landscape Architecture 4**  
Graphic techniques for landscape architectural drawings, including plans, elevations, isometrics, perspective, and rendering. Various media explored for preparing drawings and sketches for presentation. Two three-hour studios per week. (F)

**LAEP 1300 Computer Applications in Landscape Architecture 3**  
Includes instruction in three major areas of computer applications: computer-aided design, digital image editing and manipulation, and three-dimensional modeling. Focuses on AutoCAD, Photoshop, and Sketchup. (Sp)

**LAEP 1350 Theory of Design 4**  
Basic elements of design with emphasis upon their relationship to landscape architecture. Form and spatial relationships are stressed through student development of two- and three-dimensional design models. Design theory applied to materials of landform, vegetation, water, and architecture. Two three-hour studios per week. Prerequisite: LAEP 1200. (Sp)

**LAEP 2250 Internship and Cooperative Education 1-5<sup>®</sup>**  
Course credit for professional experience outside the classroom prior to graduation. A statement of professional goals and a summary report following the experience are required.

**LAEP 2300 History of Landscape Architecture 3**  
An examination of landscape change in the context of its history from ancient to present times, with a primary emphasis on the visual qualities of designed landscapes. Three one-hour lectures per week. (F,Sp)

**LAEP 2600 QI Landscape Construction I 4**  
Introduction to site engineering, grading, cut and fill calculation, stormwater drainage, and erosion control. Two one-hour lectures and two two-hour studios per week. Prerequisite: LAEP 1200 (may be taken concurrently). (F)

**LAEP 2650 Architecture and the Built Environment 4**  
Exploration of architectural form and structure in exterior environments. Emphasis placed on space created by architectural forms and their relationship to the surrounding landscape. Energy and water conservation measures with respect to the built environment. Prerequisite: LAEP 1200. (Sp)

**LAEP 2700 CI Site Analysis: Social, Behavioral, and Biophysical Dimensions 5**  
Site survey, analysis, and design synthesis. Focuses on human behavior and natural resources as design considerations for future land use planning. Introduces foundational site analysis methods and tools; and integrates Geospatial Information Systems (GIS) training for data interpretation. (F)

**LAEP 2720 Site Planning and Design 5**  
Serves as a lower-division capstone course, synthesizing lower-division landscape architecture coursework and applying that knowledge to site scale design projects. Includes units on design methodology, site planning and circulation, and creative problem solving. Three three-hour studios per week. Prerequisite: LAEP 2700 or 6270. (Sp)

**LAEP 3100 Recreation/Open Space 5**  
Focuses on regional and urban open space planning and design including project scale recreation design. Includes design seminars, field trips, and guest lecturers. Three three-hour studios per week. Prerequisites: Matriculation in Bachelor of Landscape Architecture (BLA) degree; LAEP 2720 or permission of instructor. (F)

**LAEP 3120 Residential Planning and Design 5**  
Focuses on residential projects, planned unit developments, transit-oriented development, and community facilities. Introduction to theory and methods of community and neighborhood design and planning. Three three-hour studios per week. Prerequisite: LAEP 3100. (Sp)

**LAEP 3300 Advanced Computer Applications in Landscape Architecture 4**  
Emphasizes the major analytical and technical components of resource planning and design using computer techniques. Two three-hour studios per week. Prerequisite: LAEP 2720 or instructor's permission. (F)

# Course Descriptions

<p><b>LAEP 3500 Planting Design 2-4</b> Emphasizes plant and environment relationships and plant community dynamics as they relate to planting design. In addition, basic planting design principles will be introduced. Involves application of planting design principles to a variety of project types. One segment will focus on land reclamation planting in nonirrigated landscapes. Two three-hour studios per week. Enrollment limited to students matriculated into the LAEP major. Prerequisites: LAEP 1200, 1300, 1350, PLSC 2620. (F)</p> <p><b>LAEP 3600 Landscape Materials 2</b> Introduction to materials used in landscape design, including paving, walls, street furnishings, landscape lighting, decking, etc. Two one-hour lectures per week. (F)</p> <p><b>LAEP 3610 Landscape Construction II 2</b> Design of landscape structures and surfaces, including wood construction, free-standing and retaining walls, pavement, etc. Must be taken in conjunction with PLSC 3420. Three two-hour studios per week, first half of semester only. Enrollment limited to students matriculated into the Landscape Architecture major. Prerequisites: LAEP 2600, 3600, MATH 1010. (Sp)</p> <p><b>LAEP 3700 City and Regional Planning 3</b> Introduction to historic and current theory and methods of city and regional planning. Includes legislative, administrative, and implementation practices of the general comprehensive plan. Three lectures per week. (Sp)</p> <p><b>LAEP 4100 Urban Theory, Systems, and Design 5</b> Focuses on urban environment for design expression and processes associated with the creation of cities. Explores different aspects of urban theories and design approaches (conceptual, perceptual, and analytical) as applied to large urban areas and site-specific spaces. Prerequisite: LAEP 3120. (F)</p> <p><b>LAEP 4110 Construction Document Preparation 4</b> Methods and procedures necessary for transforming a design idea into a set of construction drawings that are accurate, precise, and clearly understood. Two three-hour studios per week. Prerequisites: LAEP 3120 and 3610. (F)</p> <p><b>LAEP 4120 Emerging Areas in Landscape Architecture I 2</b> Exploration of new and emerging areas in the profession of landscape architecture. National and international issues in regional landscape planning, landscape restoration/bioengineering, and visual resource management are among several issues which may be examined. Three three-hour studios per week. Prerequisite: LAEP 3120. (F,Sp,Su)</p> <p><b>LAEP 4130 Emerging Areas in Landscape Architecture II 2</b> Exploration of new and emerging areas in the profession of landscape architecture. National and international issues in regional landscape planning, landscape restoration/bioengineering, and visual resource management are among several issues which may be examined. Three three-hour studios per week. Prerequisite: LAEP 3120. (F,Sp,Su)</p> <p><b>LAEP 4250 Internship and Cooperative Education 1-5®</b> Course credit for professional experience outside the classroom prior to graduation. Statement of professional goals and a summary report following the experience are required. (F,Sp,Su)</p> <p><b>LAEP 4350 Travel Course 1-3® (dual listing 6550)</b> Major field trip to examine a variety of projects in planning and design. (F,Sp,Su)</p> <p><b>LAEP 4810 Tutorial 1®</b> Directed readings and discussions of landscape issues. Prerequisite: Instructor's permission. (F,Sp,Su)</p> <p><b>LAEP 4900 Special Problems 1-5®</b> Selected problems to meet individual needs for students' completion of professional education. Hours arranged. Prerequisite: Instructor's permission. (F,Sp,Su)</p> <p><b>LAEP 4910 Professional Practice I 1 (dual listing 6160)</b> Introduction to different modes of professional practice, portfolio development, and preparation for entry into a professional office. Graduate students required</p>	<p>to develop a corporate structure and marketing plan for the mock company they established in LAEP 6100. (Sp)</p> <p><b>LAEP 4920 CI Professional Practice II 1 (dual listing 6170)</b> Exposure to legal and corporate aspects of professional practice, business ethics, and business planning. Graduate students required to develop a corporate structure and marketing plan for the mock company they established in LAEP 6100. (Sp)</p> <p><b>LAEP 4950 Seminar 1</b> Directed readings and reports on current and emerging areas of the profession. One recitation hour per week. (F,Sp,Su)</p> <p><b>LAEP 5400 Low Water Landscaping 3 (dual listing 6400)</b> Examines arid ecosystems, emphasizing the Intermountain West, and recreating such ecosystems in a range of amenity landscapes. Also covers procurement, propagation, establishment, and maintenance of plants appropriate for low water landscapes. Also taught as PLSC 5400/6400. (F)</p> <p><b>LAEP 6100 Regional Landscape Analysis and Planning 5</b> Focuses on the challenges and opportunities inherent in conducting landscape planning and analysis on a broad scale. Students integrate a variety of landscape planning project scales through literature review, selected case studies, and a major applied studio project. Prerequisites: LAEP 6740, 6750. (F)</p> <p><b>LAEP 6110 Landscape Planning for Wildlife 3</b> Applications of principles of landscape ecology, conservation biology, and wildlife management to planning for wildlife in urban, suburban, and exurban landscapes. Discussion of restoration of disturbed habitats in these environments. Includes real-world projects and field trips. Addresses issues of landscape restoration and bioengineering. (Sp)</p> <p><b>LAEP 6120 Regional Landscape Policy and Implementation 2</b> Case studies and/or implementation strategies for planning alternatives developed in LAEP 6100. (Sp)</p> <p><b>LAEP 6160 Professional Practice I 1 (dual listing 4910)</b> Introduction to different modes of professional practice, portfolio development, and preparation for entry into a professional office. Graduate students required to develop a corporate structure and marketing plan for the mock company they established in LAEP 6100. (Sp)</p> <p><b>LAEP 6170 Professional Practice II 1 (dual listing 4920)</b> Exposure to legal and corporate aspects of professional practice, business ethics, and business planning. Graduate students required to develop a corporate structure and marketing plan for the mock company they established in LAEP 6100. (Sp)</p> <p><b>LAEP 6230 History of Landscape Architecture 3</b> Examination of historic landscape change from ancient to present times, with a primary emphasis on the visual qualities of designed landscapes. Three one-hour lectures and a one-hour seminar per week. (F)</p> <p><b>LAEP 6250 Internship and Cooperative Education Program 1-5®</b> Course credit given for professional experience outside the classroom prior to graduation. Statement of professional goals and summary report following the experience are required. (F,Sp,Su)</p> <p><b>LAEP 6270 Site Analysis: Social, Behavioral, and Biophysical Dimensions 5</b> Site survey, analysis, and design synthesis. Focuses on human behavior and natural resources as design considerations for future land use planning. Introduces foundational site analysis methods and tools; and integrates Geospatial Information Systems (GIS) training for data interpretation. Graduate students evaluate, adapt, and apply methods for specific project analysis, as well as use GIS to analyze and create new data sets. (F)</p>
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# Course Descriptions

**LAEP 6310 Recreation and Open Space Planning and Design** 5  
Focuses on planning and design of open space and recreational areas, as well as facilities of various types and scales. Students develop skills in analysis, research, planning strategy, and design technique to create functional spaces based on client needs and site limitations. Prerequisite: LAEP 2720 or permission of instructor. (F)

**LAEP 6320 Residential Planning and Design** 5  
Studio course introducing methods for the planning and design of residential projects of various types and scales. Students develop skills in critical analysis, design technique, and planning strategy to create functional spaces based on client needs and site requirements. Prerequisite: LAEP 6310. (Sp)

**LAEP 6350 Planting Design for Sustainability** 4  
Emphasizes plant/environmental relationships, as well as plant community dynamics, aesthetics, function, and sustainability. Includes lectures, readings, projects, and papers. (F)

**LAEP 6370 City and Regional Planning** 3  
Introduction to historic and current theory and methods of city and regional planning. Includes legislative, administrative, and implementation practices within the planning process. Emphasizes public transportation and mobility issues. This course is not currently being taught. For information about when it may be taught, contact the department.

**LAEP 6400 Low Water Landscaping** 3  
**(dual listing 5400)**  
Examines arid ecosystems, emphasizing the Intermountain West, and recreating such ecosystems in a range of amenity landscapes. Also covers procurement, propagation, establishment, and maintenance of plants appropriate for low water landscapes. Also taught as PLSC 6400/5400. (F)

**LAEP 6410 Redefining the Urban Landscape** 5  
Focuses on urban environment for design expression and processes associated with the creation of cities. Explores different aspects of urban design theories and design approaches (conceptual, perceptual, and analytical), as applied to large urban areas and site-specific spaces. (F)

**LAEP 6550 Travel Course** 1-3®  
**(dual listing 4350)**  
Major field trip to examine a variety of projects in planning and design. (F,Sp,Su)

**LAEP 6740 Planning Theory and Implementation Issues** 3  
Explores theoretical underpinnings of planning and landscape theory, from the rational model to contemporary alternatives. Leads to discussions of issues of sprawl, sustainability, and transportation, including their effects on the built environment, agricultural lands, and open-space systems. (F)

**LAEP 6750 Implementation and Regulatory Techniques in Planning** 3  
Review and analysis of the legal basis and techniques for land use and resource planning, including historic and visual resources at the federal, state, and local levels. Relies on readings in case law and specific case studies, as well as research focused on the evaluation of planning processes and strategies. Prerequisite: Graduate standing. (F,Sp)

**LAEP 6860 Faculty/Interdisciplinary Seminar I** 1  
Landscape architecture and environmental planning program options and research potential presented by departmental faculty. Also introduces students to other interdisciplinary programs and faculty within the University. Prerequisite: Graduate standing. (F,Sp)

**LAEP 6862 Faculty/Interdisciplinary Seminar II** 1  
Landscape architecture and environmental planning program options and research potential presented by departmental faculty. Also introduces students to other interdisciplinary programs and faculty within the University. Second seminar in a two-seminar series. Graded Pass/Fail *only*. Prerequisite: Graduate standing. (Sp)

**LAEP 6890 Seminar on Thesis Proposals and Procedures** 1  
Explores preparation of thesis proposals and abstracts. Discussion of graduate degree completion requirements and procedures. Prerequisite: Graduate standing. (Sp)

**LAEP 6900 Special Problems** 1-5®  
Selected problems to meet individual student interests and areas of concentration. Registration by permission of departmental faculty. Prerequisite: Graduate standing. (F,Sp,Su)

**LAEP 6910 Reading Seminar I** 1  
Selected readings directed by department faculty. Prerequisite: Graduate standing. (F)

**LAEP 6930 Reading Seminar II** 1  
Selected readings directed by department faculty. Prerequisite: Graduate standing. (Sp)

**LAEP 6960 Master's Project** 1-6®  
Requires research, analysis, and production of a given subject area, including its final planning, design, and documentation. Prerequisite: Graduate standing. (F,Sp,Su)

**LAEP 6970 Thesis Research** 1-6®  
Graded Pass/Fail *only*. Prerequisite: Graduate standing. (F,Sp,Su)

**LAEP 6990 Continuing Graduate Advisement** 1-3®  
Graded Pass/Fail *only*. Prerequisite: Graduate standing. (F,Sp,Su)

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

ⒺThis course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Language (LANG)

See *Department of Languages, Philosophy, and Speech Communication*, pages 334-346

**LANG 3550 DHA Culture of East Asia** 3  
Helps students explore and appreciate the culture of three East Asian countries: China, Japan and Korea. Students gain sincere view and understanding of these East Asian cultures through readings, hands-on cultural activities, viewing video materials, writing, and discussions. Topics include: major historical and social events, customs and traditions, thoughts and beliefs, people, food, contemporary issues, art, literature, and film. Also taught as ANTH 3550 and HIST 3550. Ⓔ

**LANG 3990 Special Topics** 1-5®  
Additional readings or research done beyond the material covered in other language courses. May be repeated for credit if different topic is covered. Prerequisite: Instructor's permission.

**LANG 4200 Senior Honors Seminar** 1  
Credit for completing and presenting a senior honors thesis project. Requirement may be fulfilled by publishing the thesis in an academic journal, defending the thesis before a faculty committee, presenting the thesis at an academic conference, or presenting the thesis in the languages session during Scholar's Day.

**LANG 4210 Senior Honors Thesis** 1-4®  
Independent study research credits for preparation of a senior honors thesis to fulfill requirements for a degree in languages with departmental honors. Prerequisite: Permission of instructor prior to enrollment.

® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

ⒺThis course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

# Course Descriptions

## Latin (LATN)

See *Department of History, pages 304-309*

Also see *Classics Minor, page 211*

<b>LATN 1010</b>	<b>Beginning Latin I</b>	<b>5</b>
Basics of Latin grammar and vocabulary. Beginning readings. (F)		
<b>LATN 1020</b>	<b>Beginning Latin II</b>	<b>5</b>
Intermediate concepts of grammar and vocabulary. Intermediate readings. Prerequisite: Minimum grade of B in LATN 1010. (F)		
<b>LATN 3100</b>	<b>Intermediate Latin Prose</b>	<b>3</b>
Readings in Latin prose. Prerequisite: Minimum grade of B in LATN 1020. (F)		
<b>LATN 3130</b>	<b>Intermediate Latin Poetry</b>	<b>3</b>
Readings in Latin poetry. Prerequisite: Minimum grade of B in LATN 3100 (F).		
<b>LATN 4100</b>	<b>Advanced Latin Readings</b>	<b>3<sup>®</sup></b>
Readings in Latin poetry and/or prose. Prerequisites: Minimum grades of B in LATN 3100 and 3130. (F)		
<b>LATN 4860</b>	<b>Latin Pedagogy</b>	<b>3</b>
Prepares students to teach Latin at the secondary level. Students survey the most important issues in Latin pedagogy, and discuss the best teaching practices. Students also translate selections from core Latin authors, focusing on authors not previously studied. Prerequisites: LATN 3100 and 3130 with minimum grades of B or better. Taught during alternate years. (Sp)		
<b>LATN 4930</b>	<b>Directed Readings in Latin Poetry and Prose Authors</b>	<b>1-3</b>
Directed readings in advanced Latin poetry and prose authors. Prerequisite: Successful completion of at least three semesters of Latin. (F,Sp,Su)		
<b>LATN 6100</b>	<b>Special Topics: Latin</b>	<b>1-3<sup>®</sup></b>
Intensive readings and group discussions of selected Latin texts. Prerequisite: Minimum grade of B in LATN 4100 or permission of instructor. (F,Sp,Su)		

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

## Latin American Studies (LATS)

See *Latin American Studies Minor, page 347*

<b>LATS 2200</b>	<b>Introduction to Latin America</b>	<b>3</b>
Interdisciplinary course examining Latin American geography, culture, history, literature, music, society, politics, and economics. (Sp)		

## Linguistics (LING)

See *Department of Languages, Philosophy, and Speech Communication, pages 334-346*

<b>LING 2250</b>	<b>Cooperative Education</b>	<b>1-3<sup>®</sup></b>
Course credit for professional experience outside the classroom. Statement of professional goals and a summary report following the experience are required.		
<b>LING 3300</b>	<b>Clinical Experience I</b>	<b>1</b>
First clinical practicum in middle and secondary schools. Arranged by special methods instructor. Required at Level I. Graded Pass/Fail <i>only</i> . Corequisite: LING 4400 or 6400. Prerequisites set by Secondary Education Department. (F)		
<b>LING 4100</b>	<b>The Study of Language</b>	<b>3</b>
Investigates ways in which human languages are structured, how they change, how they reflect the cultures in which they are used, and how they are learned. Also taught as ANTH 4100. (F,Sp) <sup>DE</sup>		
<b>LING 4250</b>	<b>Cooperative Education</b>	<b>1-3<sup>®</sup></b>
Course credit for professional experience outside the classroom. Statement of professional goals and a summary report following the experience are required.		

<b>LING 4300</b>	<b>Clinical Experience II</b>	<b>1</b>
Second clinical practicum in middle and secondary schools. Arranged by special methods instructor. Required at Level II. Graded Pass/Fail <i>only</i> . Corequisite: LING 4400 or 6400. Prerequisites set by Secondary Education Department. (F)		

<b>LING 4400</b>	<b>Teaching Modern Languages</b>	<b>3</b>
Methods course for teaching majors or minors in any of the modern languages. Considers the context of the present secondary language classroom, effective teaching techniques that can be used in that context, and significant trends in teaching and learning languages. Taken concurrently with LING 4300. Prerequisite: Permission of instructor. (F)		

<b>LING 4520</b>	<b>Technology for Language Teaching**</b>	<b>3</b>
<b>(dual listing 6520)</b> Web- and disk-based technology for developing electronic course modules for the language learning classroom. (Su)		

<b>LING 4900</b>	<b>Analysis of Cross-Cultural Difference</b>	<b>3</b>
Develops awareness of what culture is and how it shapes perceptions and attitudes. Through interactive student-centered activities, students learn to analyze cultural differences. This course is not currently being taught. For information about when it may be taught, contact the Department of Languages, Philosophy, and Speech Communication.		

<b>LING 4920</b>	<b>Practicum in Language Tutoring</b>	<b>1<sup>®</sup></b>
Allows language students to develop tutoring skills by assisting professors daily in lower-division courses or fulfilling instructional duties for a comparable amount of time in the language laboratory, public schools, or similar activities with departmental approval. May be repeated for up to a maximum of 3 credits.		

<b>LING 5500</b>	<b>Student Teaching Seminar</b>	<b>2</b>
Capstone seminar focused upon student teaching issues, professional development, and principles of effective instruction, with emphasis on reflective teaching. Graded Pass/Fail <i>only</i> . (F,Sp)		

<b>LING 5630</b>	<b>Student Teaching in Secondary Schools</b>	<b>10</b>
Thirteen-week culminating practicum experience in which students assume full-time teaching responsibilities under direction of cooperating teachers in their major and minor fields. Graded Pass/Fail <i>only</i> . Prerequisites set by Secondary Education Department. (F,Sp)		

<b>LING 6010</b>	<b>Research in Second Language Learning</b>	<b>3</b>
Readings in current SLL literature evaluated in terms of their implications for classroom practice. (F)		

<b>LING 6300</b>	<b>Clinical Experience I</b>	<b>1</b>
First clinical practicum in middle and secondary schools for Master of Second Language Teaching students. Arranged by special methods instructor. Required at Level I. Corequisite: LING 6400. Prerequisites set by Secondary Education Department.		

<b>LING 6310</b>	<b>Clinical Experience II</b>	<b>1</b>
Second clinical practicum in middle and secondary schools for Master of Second Language Teaching students. Arranged by special methods instructor. Required at Level II. Corequisite: LING 6400. Prerequisites set by Secondary Education Department.		

<b>LING 6400</b>	<b>Second Language Teaching: Theory and Practice</b>	<b>3</b>
Survey of theories about memory, assigning meaning to recall, and methods L2 teachers and learners use to apply meaning to their teaching and learning. Central to all course topics are social dynamics in the L2 classroom and issues of schooling students of diverse backgrounds. (Sp)		

<b>LING 6410</b>	<b>Teaching Modern Languages</b>	<b>3</b>
Methods course for graduate students seeking teacher licensure in any of the modern languages. Considers the context of the present secondary language classroom, effective teaching techniques that can be used in that context, and significant trends in teaching and learning languages. Taken concurrently with LING 6310. Prerequisite: Permission of instructor. This course is not currently being taught. For information about when it may be taught, contact the department.		

# Course Descriptions

<b>LING 6510</b>	<b>Linguistic Analysis</b>	<b>3</b>
Comparative study of linguistic patterns across languages. Linguistic structures and language typology for teachers of modern languages. (Sp)		
<b>LING 6520</b> <b>(dual listing 4520)</b>	<b>Technology for Language Teaching**</b>	<b>3</b>
Web- and disk-based technology for developing electronic course modules for the language learning classroom. (Su)		
<b>LING 6800</b>	<b>Topics in Second Language Acquisition</b>	<b>3<sup>®</sup></b>
Advanced seminar in the acquisition and teaching of languages. (Sp)		
<b>LING 6900</b>	<b>Culture Teaching and Learning: Theory and Practice</b>	<b>3</b>
Examines culture learning and connection between development of communicative and cultural competence in the second language learner. Reviews theory, research, and practice in the field of intercultural communication as relating to second language learning and teaching. (Sp) <sup>DE</sup>		
<b>LING 6910</b>	<b>Exploring the Portfolio</b>	<b>1</b>
Investigation of the portfolio process, including distinguishing qualities of superior portfolios. Students write their teaching philosophy and gather artifacts for their portfolio. Must be taken during the first semester of the Master of Second Language Teaching program. First of a sequence of three required courses. (F,Sp)		
<b>LING 6920</b>	<b>Developing the Portfolio</b>	<b>1</b>
Further development of the portfolio including revision of the student's teaching philosophy, given insights from courses taken. Reexamination and revision of artifacts gathered, as well as addition of new artifacts. Prerequisite: LING 6910. (F,Sp,Su)		
<b>LING 6930</b>	<b>Finishing the Portfolio</b>	<b>1</b>
Further work toward completion of the portfolio, including careful development of main themes in the teaching philosophy and artifacts; addition of final artifacts; and revision for coherence, clarity, and brevity. Must be taken during the final semester of the Master of Second Language Teaching program. Prerequisite: LING 6920. (F,Sp,Su)		
<b>LING 6940</b>	<b>Independent Study</b>	<b>1-3<sup>®</sup></b>
Individually directed readings and conference. Departmental permission required before registration. Prerequisite: Approval of instructor. (F,Sp,Su)		
<b>LING 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Allows students access to faculty and facilities to complete graduate thesis, project, and papers. Graded Pass/Fail <i>only</i> . (F,Sp,Su)		

\*\*Taught 2009-2010.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Mechanical and Aerospace Engineering (MAE)

See Department of Mechanical and Aerospace Engineering, pages 369-375

<b>MAE 1200</b>	<b>Engineering Graphics</b>	<b>2</b>
Introduction to technical sketching, solid modeling, and engineering graphics. Concurrent engineering design process applied to a project. Students start with hand sketches, then move through variational geometry solid models, with tolerance analysis and control, until they have produced a complete set of manufacturing drawings conforming to the ASME standard. Prerequisite: MATH 1060 or ACT score of 27 or higher or AP Calculus score of 3 or higher. (F,Sp) <sup>DE</sup>		
<b>MAE 2160</b>	<b>Material Science</b>	<b>3</b>
Study of atomic and microscopic structures of metals, polymers, ceramics, and composite materials, and how these structures affect material properties. Prerequisites: CHEM 1210 and ENGR 2140 (both may be taken concurrently). (F,Sp)		
<b>MAE 2200</b>	<b>Engineering Numerical Methods I</b>	<b>2</b>
Introduction to computational methods, emphasizing software development using FORTRAN 95. Prerequisite: MATH 1220. (F)		

<b>MAE 2250</b>	<b>Cooperative Practice</b>	<b>3</b>
Planned work experience in industry. Detailed program must have prior approval. Written report required. (F,Sp,Su)		
<b>MAE 2300</b>	<b>Thermodynamics I</b>	<b>3</b>
First and second laws of thermodynamics; analysis of open and closed systems; equations of state; power and refrigeration cycles; and problem solving methodology. Prerequisites: MATH 1220; MATH 2210 (may be taken concurrently). (Sp,Su) <sup>DE</sup>		
<b>MAE 2450</b>	<b>Engineering Numerical Methods II</b>	<b>3</b>
Explores basic tools of numerical analysis, solution to ordinary and partial differential equations, software development using FORTRAN 95, and applications using computer algebra packages. Prerequisites: MAE 2200; MATH 2210, 2250 (may be taken concurrently). (Sp)		
<b>MAE 2650</b>	<b>Manufacturing Processes</b>	<b>3</b>
Introduction to manufacturing processes and CAD/CAM. Material forming, machining, finishing, and joining. Integration of manufacturing and CAD, plus the fundamentals and application of statistical process control. (Sp)		
<b>MAE 3040</b>	<b>Mechanics of Solids</b>	<b>3</b>
Stress, strain, and deflection due to flexure and shear. Combined stresses, instability, nonsymmetric bending, torsion, and energy methods. Prerequisite: ENGR 2140. (F)		
<b>MAE 3320</b>	<b>Advanced Dynamics</b>	<b>3</b>
Particle and rigid body dynamics. Work and kinetic energy, conservation of energy, impulse-momentum, conservation of linear and angular momentum. Kinematics and kinetics in 2-D and 3-D. Newtonian and Lagrangian Mechanics. Prerequisites: ENGR 2030; MAE 2200 (may be taken concurrently). (F)		
<b>MAE 3340</b>	<b>Instrumentation and Measurements</b>	<b>3</b>
Principles and application of mechanical instrumentation and experimentation. Sensing elements, signal conditioning, data acquisition, statistical analysis of data, and instrumentation system design. Prerequisites: ENGR 2140, ETE 2210, MAE 3400, 3420. (Sp)		
<b>MAE 3400</b>	<b>Thermodynamics II</b>	<b>3</b>
Second law analysis, power and refrigeration cycles, property relations, gas mixtures, psychrometrics, chemical reactions, chemical equilibrium, introduction to heat transfer, steady state and transient conduction. Prerequisites: MAE 2300; MAE 2200 (may be taken concurrently). (F)		
<b>MAE 3420</b>	<b>Fluid Mechanics</b>	<b>3</b>
Application of fluid dynamic theory to inviscid and viscous, incompressible and compressible, and external and internal fluid flows, with emphasis on laminar and turbulent boundary layers. Prerequisites: ENGR 2030, MAE 2200, 2300 (MAE 2200 may be taken concurrently). (F)		
<b>MAE 3440</b>	<b>QI Heat and Mass Transfer</b>	<b>3</b>
Introduction to convection, external flow, internal flow, free convection, boiling and condensation, heat exchangers, radiation and diffusion mass transfer. Includes design project. Prerequisites: MAE 3400, 3420; MAE 2450 (may be taken concurrently). (Sp)		
<b>MAE 3800</b>	<b>Design I</b>	<b>2</b>
First course in senior design sequence. Design process, teaming skills, engineering economics, project selection and management, proposal writing, technical writing, and technical presentations. Prerequisite: ENGR 2140. (Sp)		
<b>MAE 4300</b>	<b>Machine Design</b>	<b>3</b>
Computer-aided design and synthesis of mechanisms, mechanical linkages, cams, fasteners, welds, gears, bearings, power transmission components, and lubrication. Component failure analysis based on metal fatigue related to dynamic loading. Prerequisite: MAE 3040. (Sp)		
<b>MAE 4400</b>	<b>CI Fluids/Thermal Laboratory</b>	<b>2</b>
Laboratory experiences in observation and measurement of fundamental fluid and thermal phenomena. Prerequisites: MAE 3340, 3440. (F)		
<b>MAE 4800</b>	<b>CI Design II</b>	<b>3</b>
Senior design project, including a technical presentation and a critical design review. Prerequisites: MAE 3440, 3800, 4300. (F,Sp)		

# Course Descriptions

<p><b>MAE 5020</b>                    <b>Finite Element Methods in Solid Mechanics I</b>                    <b>3</b></p> <p>Introduction to finite element methods and their application to the analysis and design of mechanical engineering systems. Prerequisite: MAE 3040. Also taught as CEE 5020. (F)</p> <p><b>MAE 5060</b>                    <b>Mechanics of Composite Materials I</b>                    <b>3</b></p> <p>Stress-strain relations for nonisotropic composites, such as fiber-reinforced plastic laminates, properties and their uses, strength and life determination, and methods for design using composite materials. Prerequisite: MAE 3040 or CEE 3010. Also taught as CEE 5060. (Sp)</p> <p><b>MAE 5300</b>                    <b>Vibrations</b>                    <b>3</b></p> <p>Vibration of single and multiple degree of freedom, and discrete mass systems. Natural frequencies and mode shapes for free, damped, and undamped systems. Forcing functions and transient responses. Matrix methods, numerical solution, and random vibrations. Applications and design. Prerequisites: ENGR 2030, 2140. (F)</p> <p><b>MAE 5310</b>                    <b>Dynamic Systems and Controls</b>                    <b>3</b></p> <p>Study of continuous-time systems, classical and modern systems design methods, transfer function models, state space, dynamics of linear systems, and frequency domain analysis and design techniques. Introduction to controllability and observability, and full-state pole placement controller design. Laboratory work required. Prerequisite: MAE 3340. (F)</p> <p><b>MAE 5410</b>                    <b>Design and Optimization of Thermal Systems</b>                    <b>3</b></p> <p>Discussion of the basic considerations that occur in the design of thermal systems, including problem formulation, appropriate modeling and solution methodologies, optimization techniques, and economic analysis. Prerequisite: MAE 3440. (F)</p> <p><b>MAE 5420</b>                    <b>Compressible Fluid Flow</b>                    <b>3</b></p> <p>Application of conservation of mass, momentum, and energy to the design and analysis of compressible fluid systems. Prerequisites: MAE 3400, 3420. (F)<sup>DE</sup></p> <p><b>MAE 5440</b>                    <b>Computational Fluid Dynamics</b>                    <b>3</b></p> <p>Introduction to computational fluid dynamics and heat transfer using the finite-volume method. Extensive code development. Application of a commercial CFD solver to a problem of interest. Prerequisites: MAE 3420 and 3440. (Sp)</p> <p><b>MAE 5470</b>                    <b>Internal Combustion Engines</b>                    <b>3</b></p> <p>Thermodynamics of internal combustion engines; idealized cycles, fuels, fuel metering, engine characteristics, pressure measurement, and engine testing. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>MAE 5500</b>                    <b>Aerodynamics</b>                    <b>3</b></p> <p>Fundamentals of incompressible, inviscid flow; aerodynamic forces and moments; airfoil characteristics; incompressible flow around two-dimensional airfoils and finite wings; three-dimensional incompressible flow; and introduction to aircraft performance. Prerequisite: MAE 3420. (F)</p> <p><b>MAE 5510</b>                    <b>Dynamics of Atmospheric Flight</b>                    <b>3</b></p> <p>Aircraft equations of motion; aerodynamic forces and moments; aircraft stability and control in roll, pitch, and yaw; aircraft motion with six degrees of freedom; aircraft performance and design; and design project. Prerequisite: MAE 5500. (Sp)</p> <p><b>MAE 5520</b>                    <b>Elements of Space Flight</b>                    <b>3</b></p> <p>Introduction to astrodynamics and orbital design. Spacecraft systems engineering including spacecraft subsystems (e.g., attitude control, communications, power, structures). Introduction to propulsion and launch vehicles. Prerequisites: MAE 3320 or PHYS 3550; or both ECE 2250 and 2700. (F)</p> <p><b>MAE 5530</b>                    <b>Space System Design</b>                    <b>3</b></p> <p>Students in teams perform a space system design involving all aspects, including technical, cost, and schedule. Class is linked to national design competitions and/or current USU spacecraft design projects. Prerequisite: ECE 5230 or MAE 5520. Also taught as ECE 5240. (Sp)</p> <p><b>MAE 5540</b>                    <b>Propulsion Systems</b>                    <b>3</b></p> <p>Fundamentals of rocket and air breathing propulsion, including space flight dynamics, nozzle theory, combustion processes, and flight performance. Rocket</p>	<p>propulsion systems, including solid, liquid, hybrid, and combined cycles. Air breathing propulsion systems, including ramjet, scramjet, turbojet, and turbofan engine concepts. Prerequisite: MAE 5420 or consent of instructor. (Sp)<sup>DE</sup></p> <p><b>MAE 5560</b>                    <b>Dynamics of Space Flight</b>                    <b>3</b></p> <p>Fundamentals of spacecraft dynamics, including Keplerian orbits, orbital position as a function of time, three-dimensional orbits, orbital determination, orbital maneuvers, satellite attitude dynamics, and rocket vehicle dynamics. Prerequisite: MAE 3320 or permission of instructor. (F)<sup>DE</sup></p> <p><b>MAE 5580</b>                    <b>Aircraft Design</b>                    <b>3</b></p> <p>Design and optimization of aircraft systems. Students work in teams to design and optimize an aircraft to satisfy a specific set of mission requirements, including mission effectiveness, cost, and scheduling. Class is linked to national design competitions and/or current USU aircraft design projects. Prerequisite: Permission of instructor. (F)</p> <p><b>MAE 5600</b>                    <b>Reliability and Quality (dual listing 6600) of Engineering Systems</b>                    <b>3</b></p> <p>Develops and refines students' knowledge of engineering systems, statistical process control (SPC), and reliability of systems. Introduces principles of quality and reliability. Presents different types of probability and application of the distributions. Discusses applications of reliability and quality data. Introduces different types of testing and screening techniques for qualification and quality assurance. Students learn how to plot reliability distributions. Prerequisites: MATH 4700 and minimum grade of C- in MAE 2650. (F)</p> <p><b>MAE 5610</b>                    <b>Hydraulics and Pneumatics</b>                    <b>3</b></p> <p>Hydraulic and pneumatic circuit theory, components, and systems analysis and design. Efficiency and performance evaluation, based on steady and transient flow principles and force and energy transfer concepts. Introduction to electrohydraulic control systems. Prerequisite: MAE 3420. This course is not currently being offered. Contact department for information about when it may be offered.</p> <p><b>MAE 5620</b>                    <b>Manufacturing Automation</b>                    <b>3</b></p> <p>Principles of automation technology as applied to manufacturing systems. Topics include motion control, PLC, robotics, CNC, and system integration. Prerequisite: MAE 2650. This course is not currently being offered. Contact department for information about when it may be offered.</p> <p><b>MAE 5630</b>                    <b>Machining Theory and Applications</b>                    <b>3</b></p> <p>Introduces fundamental metal cutting theory (such as chip formation, cutting forces and temperatures, and tool wear) and its applications, including high-speed machining of aerospace and other difficult-to-machine alloys. Prerequisites: MAE 2650 and 3040. This course is not currently being offered. Contact department for information about when it may be offered.</p> <p><b>MAE 5640</b>                    <b>Design for Manufacturability</b>                    <b>3</b></p> <p>Product design for economic production. Manufacturing processes (especially primary processes), associated tooling cost and design, and resultant product design requirements. Prerequisites: MAE 2650 and 3800. (F)</p> <p><b>MAE 5650</b>                    <b>Nontraditional and Additive Manufacturing Processes</b>                    <b>3</b></p> <p>Introduction to nontraditional and additive manufacturing processes, including rapid prototyping, laser processing, and electrical discharge machining. Prerequisites: MAE 2160, 2650, and 3440. MAE 3440 may be taken concurrently. (Sp)</p> <p><b>MAE 5670</b>                    <b>Fracture Mechanics</b>                    <b>3</b></p> <p>Covers linear elastic and elastic-plastic fracture mechanics; micro-mechanisms of fracture in metals, polymers, ceramics, composites, and concrete; and failure analysis of engineering. Enrollment limited to students accepted into College of Engineering. Prerequisites: Grade of C- or better in MAE 2160 and grade of D or better in MAE 3040. (F)</p> <p><b>MAE 5680</b>                    <b>Manufacturing Planning and Simulation</b>                    <b>3</b></p> <p>Explores planning and simulation methods for process design issues in electronics manufacturing (EM) and discrete parts manufacturing. Students learn planning, modeling, and simulation methods at the process and system level. Prerequisite: MAE 5600. This course is not currently being offered. Contact department for information about when it may be offered.</p>
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# Course Descriptions

<b>MAE 5900</b>	<b>Cooperative Practice</b>	<b>3</b>	<b>MAE 6430</b>	<b>Boundary Layer Theory and Convection Heat Transfer</b>	<b>3</b>
Planned work experience in industry. Detailed program must have prior approval. Written report required. Student must be in professional program. (F,Sp)			Derivation of the boundary layer equations. Exact, approximate, and numerical solution techniques. Boundary layers in compressible flow. Separation. Unsteady boundary layers. Stability and transition. Turbulent boundary layers. Integral, differential, and numerical methods for solving problems associated with transfer of heat in a viscous fluid. Prerequisites: MAE 3440, 6410. (Sp)		
<b>MAE 5930</b>	<b>Special Problems</b>	<b>1-3<sup>®</sup></b>	<b>MAE 6440</b>	<b>Advanced Computational Fluid Dynamics</b>	<b>3</b>
Formulation and solution of practical or theoretical problems. Prerequisite: Permission of department head. (F,Sp,Su)			Advanced topics in computational fluid dynamics using the finite-volume method, compressible flow algorithms including body-fitted nonorthogonal grids, linear solvers, turbulence modeling, and parallel computing. Includes extensive code development. Prerequisite: MAE 5420. (F) <sup>DE</sup>		
<b>MAE 6010</b>	<b>Finite Element Methods in Solid Mechanics II***</b>	<b>3</b>	<b>MAE 6450</b>	<b>Thermodynamics***</b>	<b>3</b>
Advanced theory and applications of finite element methods to both static and dynamic solid mechanics problems. Prerequisite: MAE 5020. (Sp)			Topics in classical and statistical thermodynamics, including distribution functions, free molecular flow, electron and photon gas modeling, derived properties of solids, and thermodynamic applications in areas of current research interest. Prerequisite: MAE 3400. (F)		
<b>MAE 6040</b>	<b>Continuum Mechanics and Elasticity</b>	<b>3</b>	<b>MAE 6460</b>	<b>Conduction Heat Transfer***</b>	<b>3</b>
Mechanics of continuous media; tensors, stress, strain, deformation, rate equations, and constitutive equations. Plane stress, plane strain, torsion, and bending theories, as well as problem solutions, investigated for linear elastic materials. Prerequisites: MAE 3040 or CEE 3010; MATH 2210, 2250. (F) <sup>DE</sup>			Integral, differential, and numerical methods for solving engineering problems associated with the diffusion of heat in a rigid solid. Prerequisite: MAE 3440. (Sp)		
<b>MAE 6070</b>	<b>Mechanics of Composite Materials II***</b>	<b>3</b>	<b>MAE 6480</b>	<b>Radiation Heat Transfer***</b>	<b>3</b>
Second course in composite materials. Stress-strain states of laminated composite structures, including interlaminar stresses, failure criteria, and hygrothermal stresses. Prerequisite: MAE 5060. Also taught as CEE 6070. (F)			Radiation theory and applications. Includes utilization of computer software. Prerequisite: MAE 3440. (F)		
<b>MAE 6080</b>	<b>Boundary Element Method</b>	<b>3</b>	<b>MAE 6490</b>	<b>Turbulence***</b>	<b>3</b>
Presents introduction to boundary element method to solve fluid and solid mechanics problems. Prerequisites: FORTRAN programming skills, MAE 3040, 5020. (Sp)			Fundamentals of turbulent fluid flow, with emphasis on providing student with sufficient physical and mathematical background to critically evaluate current literature and make original research contributions. Topics include stochastic tools, the governing equations, transition to turbulence, isotropic turbulence, measurement techniques, and free and wall bounded turbulent shear flows. Prerequisite: MAE 6410 or instructor's consent. (Sp)		
<b>MAE 6090</b>	<b>Theory of Plates and Shells</b>	<b>3</b>	<b>MAE 6500</b>	<b>Potential Flow***</b>	<b>3</b>
Introduction to plate and shell theories. Development of bending and buckling of plates and shells through classical theory. Prerequisite: MAE 3040 or CEE 3010. Also taught as CEE 6090. (F)			Inviscid, irrotational fluid flow with emphasis on aircraft analysis and design. Exact solutions with complex variables and conformal mapping; perturbation methods; singularity elements and influence coefficients; lifting-line method; numerical vortex lattice method; numerical panel methods; and software design and development. Prerequisite: MAE 5500. (F)		
<b>MAE 6130</b>	<b>Structural Dynamics and Seismic Design</b>	<b>3</b>	<b>MAE 6510</b>	<b>Aircraft Dynamics and Flight Simulation**</b>	<b>3</b>
Development and solutions for equations of motion for single- and multi-degree of freedom systems. Dynamic analysis by Modal Superposition and Response Spectra. Design of structures for seismically active areas. Also taught as CEE 6130. (Sp)			Aircraft control and maneuverability, control response and transfer functions, nonlinear dynamics with gyroscopic and aerodynamic coupling, Euler angle formulations, direction cosine formulation, quaternion formulation, numerical integration methods, software design and development. Prerequisite: MAE 5510. (F)		
<b>MAE 6180</b>	<b>Dynamics and Vibrations***</b>	<b>3</b>	<b>MAE 6530</b>	<b>Propulsion Systems</b>	<b>3</b>
Fundamentals of two-dimensional and three-dimensional rigid body dynamics, including Newtonian, Lagrangian, and Leavit Energy Methods. Equations of motion, mode shapes, and natural frequencies for continuous media and multi degree-of-freedom systems. Prerequisite: MAE 5300 or CEE/MAE 6130. Also taught as CEE 6180. (Sp)			Fundamentals of turbine and rocket propulsion, including nozzle theory and thermodynamic relations, combustion processes, and flight performance. Rocket propulsion topics, including solid, liquid, and hybrid rocket engines; and advanced engine concepts. Turbine engine propulsion systems, including turbojets, turbofans, afterburners, and advanced ducted fan concepts. Prerequisite: MAE 5420. (Sp)		
<b>MAE 6320</b>	<b>Linear Multivariable Control</b>	<b>3</b>	<b>MAE 6540</b>	<b>Advanced Astrodynamics***</b>	<b>3</b>
Modeling, analysis, and design of multi-input, multi-output control systems, including both state space and transfer matrix approaches, with an emphasis on stability. Prerequisite: ECE 5310 or MAE 5310. Also taught as ECE 6320. (F)			Advanced topics in astrodynamics to include: general and special perturbations, universal variables, methods of orbit determination, Lambert's theorem, the restricted three-body problem, and space mission planning. Prerequisite: MAE 5560. (F) <sup>DE</sup>		
<b>MAE 6340</b>	<b>Spacecraft Attitude Control***</b>	<b>3</b>	<b>MAE 6550</b>	<b>Advanced Structural Analysis</b>	<b>3</b>
Spacecraft attitude dynamics and controls. Spin stabilized, three axis, and dual spin modes. Attitude determination techniques. Prerequisite: ECE 5310 or MAE 5310. Also taught as ECE 6340. (Sp) <sup>DE</sup>			Explores advanced structures in modern civil, mechanical, and aerospace systems. Emphasizes concepts through problem solving, and fosters an in-depth understanding of the subject. Provides understanding of the fundamental principles to analyze and design advanced structures. Prerequisite: MAE 6040. (Sp) <sup>DE</sup>		
<b>MAE 6350</b>	<b>Robotics</b>	<b>3</b>	<b>MAE 6560</b>	<b>Spacecraft Navigation</b>	<b>3</b>
Fundamentals of robotic systems, including kinetics, kinematics, sensors, actuators, control algorithms, motion planning, and computer systems. Integration of critical design components to develop complete systems. Robotic manipulator analysis and design. Applications in manufacturing. Mobile rockets, including wheeled, legged, and alternative locomotion robots. Prerequisite: ECE/MAE 6320 or instructor approval. Also taught as ECE 6350. (Sp)			Fundamentals of aircraft and spacecraft navigation systems. Techniques in celestial and inertial navigation. Global Positioning System (GPS) principles. Least squares estimation and Kalman filtering for optimal estimation of stochastic		
<b>MAE 6410</b>	<b>Fluid Dynamics</b>	<b>3</b>			
Basic laws of fluid motion, Navier Stokes equations, kinematics of the flow field, fundamental exact solutions of viscous flow, and elements of turbulence. Prerequisite: MAE 3420 or CEE 3500. (F)					
<b>MAE 6420</b>	<b>Mechanical Engineering Experiments</b>	<b>3</b>			
Topics include experimental design, digital data acquisition, Fourier transforms, uncertainty analysis, writing and presentation, and some specific measurement techniques of interest to mechanical engineers. Prerequisite: MAE 3340. (Sp)					



# Course Descriptions

systems. Prerequisite: MAE 5310 or ECE 5310 or equivalent. Also taught as ECE 6560. (Sp)<sup>DE</sup>

**MAE 6600 Reliability and Quality of Engineering Systems** **3**  
(dual listing 5600)  
Develops and refines students' knowledge of engineering systems, statistical process control (SPC), and reliability of systems. Introduces principles of quality and reliability. Presents different types of probability and application of the distributions. Discusses applications of reliability and quality data. Introduces different types of testing and screening techniques for qualification and quality assurance. Students learn how to plot reliability distributions. Prerequisites: MATH 4700 and minimum grade of C- in MAE 2650. (F)

**MAE 6620 Advanced Topics in Metal Cutting** **3**  
Advanced topics in metal cutting mechanics, tool wear and tool life, chip control and breaking, high-speed and dry machining, surface roughness and integrity, and the optimization and monitoring of machining operations. Prerequisites: MAE 3800, 5630. (Sp)

**MAE 6630 Transport Phenomena in Materials Processing** **3**  
Analysis of various engineering processes through the development of physically-based mathematical models and associated experimental descriptions. Diffusion mass transfer, heat transfer, and fluid flow. Quantitative analysis and simulation of materials processing. Prerequisites: MAE 3420, 3440. (Sp)

**MAE 6800 Advanced Machine Design\*\*\*** **3**  
Advanced topics in fluid film and boundary lubrication. Dynamics and vibration consideration in design of machine systems and fatigue failure theories. Prerequisite: MAE 4300. (Sp)

**MAE 6900 Seminar** **0.5<sup>®</sup>**  
Overview of graduate program requirements, current research, and research opportunities. Presentations from graduate students, faculty, and outside speakers. Master's degree candidates must include 1 credit and doctoral degree candidates must include 2 credits of MAE 6900 in an approved program of study. Prerequisite: Graduate standing or approval of department head. (F,Sp)

**MAE 6930 Special Problems** **1-3<sup>®</sup>**  
Independent or group study of engineering problems not covered in regular course offerings. (F,Sp,Su)

**MAE 6950 Design Project** **3**  
Individual projects involving the design, development, and/or testing of components, devices, or systems. Formal report required. Taught Pass/Fail only. (F,Sp,Su)

**MAE 6970 Thesis Research** **1-9<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

**MAE 6990 Continuing Graduate Advisement** **1-12<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

**MAE 7040 Elasticity\*\*\*** **3**  
Energy theorems, variational techniques, complex variable solutions, and three-dimensional solutions for linear elastic materials. Prerequisite: MAE 6040 or instructor's consent. (Sp)

**MAE 7050 Plasticity\*\*\*** **3**  
Analysis of stresses, deformation, and collapse in devices constructed of plastic material. Prerequisite: MAE 6040 or CEE 6080/5080 or instructor's consent. Also taught as CEE 7050. (Sp)

**MAE 7080 Advanced Plate and Shell Theory** **3**  
Analysis of plate and shell structures by classical and numerical methods. Emphasis on numerical solutions. Prerequisite: Instructor's consent. Also taught as CEE 7080. (F)

**MAE 7330 Nonlinear and Adaptive Control** **3**  
Methods of nonlinear and adaptive control system design and analysis. Includes qualitative and quantitative theories, graphical methods, frequency domain methods, sliding surface design, linear parameter estimation methods, and direct and indirect adaptive control techniques. Prerequisite: ECE/MAE 6320. Also taught as ECE 7330. (Sp)

**MAE 7350 Intelligent Control Systems\*\*\*** **3**  
Intelligent control strategies, including neural network, fuzzy logic, associated memory networks, and rule-based control systems. Prerequisite: ECE/MAE 6320 or instructor approval. Also taught as ECE 7350. (Sp)

**MAE 7360 Optimal and Robust Control** **3**  
Advanced methods of control system analysis and design. Operator approaches to optimal control, including LQR, LQG, and L1 optimization techniques. Robust control theory, including QRT, H-infinity, and interval polynomial approaches. Prerequisite: ECE/MAE 6320 or instructor approval. Also taught as ECE 7360. (F)

**MAE 7380 Advanced Dynamics and Vibrations\*\*\*** **3**  
Advanced techniques in dynamics and vibrations. Prerequisite: CEE/MAE 6180. (F)

**MAE 7580 Advanced Finite Element Analysis in Fluid Mechanics** **3**  
Application of the finite element method of analysis to problems in fluid mechanics. Use of higher order element to two- and three-dimensional flows. Prerequisites: CEE 3510 or MAE 3420, CEE/MAE 5020. Also taught as CEE 7580. (Sp)

**MAE 7750 Distributed Control Systems\*** **3**  
Design and implementation issues concerning distributed control systems. Real-time processing, distributed stability methods, network techniques and standards, system development and management, smart sensors, and control actuators. Survey of current literature. Prerequisite: ECE/MAE 6320. Also taught as ECE 7750. (Sp)

**MAE 7930 Special Problems** **1-3<sup>®</sup>**  
Independent or group study of engineering problems not covered in regular course offerings. (F,Sp,Su)

**MAE 7970 Dissertation Research** **1-12<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

**MAE 7990 Continuing Graduate Advisement** **1-12<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

\*\*\*Taught alternate years. For further information, consult department.

## Mathematics (MATH)

See Department of Mathematics and Statistics, pages 359-368

**MATH 0900 Elements of Algebra** **3**  
Review of elementary algebra in preparation for MATH 1010. Remedial class not carrying USU or transfer credit. Remedial fee required. Graded Pass/Fail only. (F,Sp,Su)<sup>DE</sup>

**MATH 1010 Intermediate Algebra** **4**  
Linear equations and inequalities, polynomials and exponents, rational expressions, roots and radicals, quadratic equations, lines and systems of linear equations. Prerequisite: One of the following within the Math prerequisite acceptability time limit: (1) C- or better in MATH 0900, (2) Math ACT score between 18 and 22 (Math SAT score between 480 and 530) and satisfactory Math Placement Test score, (3) Math ACT score of at least 23 (Math SAT score of at least 540), or (4) satisfactory score on Math Placement exam. Course fee required. (F,Sp,Su)<sup>DE</sup>

**MATH 1030 QL Quantitative Reasoning** **3**  
Exploration of contemporary mathematical thinking, motivated by its application to problems in modern society. Emphasizes development of skill in analytical reasoning. Prerequisite: C or better in MATH 1010, or Math ACT score of at least 23 (Math SAT score of at least 540), or satisfactory score on Math Placement Test within the Math prerequisite acceptability time limit. (F,Sp)

# Course Descriptions

<p><b>MATH 1050 QL College Algebra</b> 4            Functions: graphs, transformations, combinations, and inverses. Polynomial, rational, exponential, logarithmic functions, and applications. Systems of equations and matrices. Partial fractions. Graphing calculator required. Prerequisite: C or better in MATH 1010, or Math ACT score of at least 23 (Math SAT score of at least 540), or AP calculus score of at least 3 on the AB exam, or satisfactory score on Math Placement Test within the Math prerequisite acceptability time limit. (F,Sp,Su)<sup>DE</sup></p> <p><b>MATH 1060 Trigonometry</b> 2            Trigonometric functions, equations, identities, and applications. Graphing calculator required. Prerequisite: C or better in MATH 1010 (or MATH 1050), or Math ACT score of at least 23 (Math SAT score of at least 540), or AP calculus score of at least 3 on the AB exam, or satisfactory score on Math Placement Test within the Math prerequisite acceptability time limit. May be taken concurrently with MATH 1050. (F,Sp,Su)<sup>DE</sup></p> <p><b>MATH 1100 QL Calculus Techniques</b> 3            Techniques of elementary calculus, differentiation, integration, elementary optimization, and introduction to partial derivatives. Applications in business, social science, and natural resources. Graphing calculator required. Prerequisite: C- or better in MATH 1050 or Math ACT score of at least 25 (Math SAT score of at least 580) or satisfactory score on Math Placement Test within the Math prerequisite acceptability time limit. (F,Sp,Su)<sup>DE</sup></p> <p><b>MATH 1210 QL Calculus I</b> 4            Analytic geometry, differential and integral calculus, transcendental functions, and applications. Graphing calculator required. Prerequisite: C- or better in MATH 1050 and 1060, or Math ACT score of at least 27 (Math SAT score of at least 620), or AP Calculus score of at least 3 on AB exam or satisfactory score on Math Placement Test within the Math prerequisite acceptability time limit. (F,Sp,Su)<sup>DE</sup></p> <p><b>MATH 1220 QL Calculus II</b> 4            Integration, infinite series, introduction to vectors, and applications. Graphing calculator required. Prerequisite: C- or better in MATH 1210, or AP score of at least 4 on Calculus AB exam or at least 3 on Calculus BC exam. (F,Sp,Su)<sup>DE</sup></p> <p><b>MATH 2020 QI Introduction to Logic and Geometry</b> 3            Logic; introduction to algebraic geometry and Euclidean geometry. MATH 2020 is a mathematics content course, not a methods course. Prerequisite: C- or better in MATH 1050 or Math ACT score of at least 25 (Math SAT score of at least 580) or satisfactory score on Math Placement Test within the Math prerequisite acceptability time limit. Course fee required. (F,Sp,Su)<sup>DE</sup></p> <p><b>MATH 2210 QI Multivariable Calculus</b> 3            Vector calculus, multiple integration, partial derivatives, line and surface integrals. The theorems of Green, Gauss, and Stokes. Prerequisite: C- or better in MATH 1220 or AP Calculus score of 5 on BC exam. (F,Sp,Su)<sup>DE</sup></p> <p><b>MATH 2250 QI Linear Algebra and Differential Equations</b> 4            Linear systems, abstract vector spaces, matrices through eigenvalues and eigenvectors, solution of ode's, Laplace transforms, first order systems. Prerequisites: C- or better in MATH 1220; or AP Calculus score of 5 on BC exam and C- or better in MATH 2210. (F,Sp,Su)<sup>DE</sup></p> <p><b>MATH 2260 Internship and Cooperative Studies</b> 1-6<sup>®</sup>            Lower-division internship/cooperative work experience. (F,Sp,Su)</p> <p><b>MATH 2270 QI Linear Algebra</b> 3            Solutions of linear systems, matrix operations, matrix factorization, vector spaces, subspaces, linear independence, bases, linear transformations, eigensystems, orthogonality, Gram-Schmidt orthogonalization, and projections. Prerequisites: C- or better in MATH 1220; or AP Math score of 5 on calculus BC exam and C- or better in MATH 2210. (F,Sp)</p> <p><b>MATH 2280 QI Ordinary Differential Equations</b> 3            Analytic solution techniques for ordinary differential equations. Initial value and boundary value problems and applications. Higher-order scalar equations, first-order linear systems, and Laplace transforms. Prerequisite: C- or better in MATH 2270. (F,Sp)</p> <p><b>MATH 2910 Directed Reading and Conference</b> 1-3<sup>®</sup>            Prerequisite: Prior arrangement with specific instructor. (F,Sp,Su)<sup>DE</sup></p>	<p><b>MATH 3110 Modern Geometry</b> 3            Euclidean and non-Euclidean geometry, with emphasis on historical significance of parallel postulate. Axiomatic development of geometry and theorems. Prerequisite: C- or better in MATH 1220. (Sp)<sup>DE</sup></p> <p><b>MATH 3300 School Laboratory for Mathematics Teachers Level I</b> 1            Provides preservice mathematics teachers with supervised experiences working with teachers and students in middle and secondary schools. Activities coordinated with other Level I professional education courses. Graded Pass/Fail only. (F,Sp)<sup>DE</sup></p> <p><b>MATH 3310 Discrete Mathematics</b> 3            Logic and axiomatics, sets, functions, counting methods, recurrence relations, graph theory, Boolean algebras, combinatorial circuits, automata, grammars, and languages. Prerequisite: C- or better in MATH 1220. (F,Sp,Su)<sup>DE</sup></p> <p><b>MATH 4200 CI Foundations of Analysis</b> 3            Fundamental concepts of analysis studied from a rigorous point of view. Rigorous development of the real number system and calculus. Emphasis on learning how to construct proofs. Prerequisites: C- or better in MATH 2210, 2250; or C- or better in MATH 2210, 2270, 2280. (F,Sp)<sup>DE</sup></p> <p><b>MATH 4230 QI Applied Mathematics in Biology***</b> 3            Formulation, analysis, and experimental tests of mathematical models in biology. Combines mathematics, computing, experimental design, and statistical analysis while applying the scientific method to biological systems. Lectures, recitations, and a laboratory. Prerequisites: C- or better in BIOL 1620 and MATH 2250; or permission of instructor. Programming experience recommended. Also taught as BIOL 4230. (Sp)</p> <p><b>MATH 4250 Advanced Internship/Co-op</b> 1-6<sup>®</sup>            An internship/cooperative work experience which has been determined by the department to be at the 4000-level. (F,Sp,Su)</p> <p><b>MATH 4300 School Laboratory for Mathematics Teachers Level II</b> 1            Provides preservice mathematics teachers with supervised experiences working with teachers and students in middle and secondary schools. Activities coordinated with other Level II professional education courses. Graded Pass/Fail only. (F,Sp)<sup>DE</sup></p> <p><b>MATH 4310 CI Introduction to Algebraic Structures</b> 3            First course in theory of algebraic structures. Topics include elementary group and ring theory. Prerequisites: C- or better in MATH 2210, 2270, 2280; or C- or better in MATH 2210, 2250. (F,Sp)<sup>DE</sup></p> <p><b>MATH 4400 History of Mathematics and Number Theory</b> 3            Chronological parallel of math history with civilization, evolution of mathematical thought, historical foundations of numbers, computation, geometry, algebra, trigonometry, and calculus. Introduction to number theory. Prerequisites: At least one of MATH 4200 and 4310 with a C- or better, and concurrent enrollment in the other. (Sp)<sup>DE</sup></p> <p><b>MATH 4500 Methods of Secondary School Mathematics Teaching</b> 3            A teaching methods course required of all prospective secondary school mathematics teachers. Prerequisites: C- or better in MATH 3110; and one of MATH 4200 or 4310 with a C- or better. (F,Sp)<sup>DE</sup></p> <p><b>MATH 4700 Engineering Mathematics and Statistics</b> 3            Advanced engineering mathematics and statistics including: random variables; distributions; central limit theory; hypothesis testing; Anova; quality control; Fourier series; introductory analytic and numerical methods for elliptic, parabolic, and hyperbolic PDEs; and modern software packages. Prerequisites: C- or better in MATH 2210; C- or better in MATH 2250 or 2280. (F,Sp)</p> <p><b>MATH 4910 Directed Reading and Conference</b> 1-3<sup>®</sup>            Registration requires prior arrangement with specific instructor. (F,Sp,Su)<sup>DE</sup></p>
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# Course Descriptions

<p><b>MATH 5010</b>                    <b>Capstone Mathematics, Statistics, and Technology for Teachers</b>                    <b>3</b> Builds on competencies gained from prior courses and incorporates technologies available for teaching and learning mathematics to analyze and interrelate mathematical concepts. Applications in secondary school mathematics curricula. Prerequisites: C- or better in MATH 3310; and successful completion of, or concurrent enrollment in, MATH 3110, 4200, 4310, 4400, and 5710. (F)<sup>DE</sup></p> <p><b>MATH 5110</b>                    <b>Differential Geometry</b>                    <b>3</b> Introduction to geometry of curves and surfaces in three dimensions, using graphic and symbolic software. Prerequisites: C- or better in MATH 2210, 2250; or C- or better in MATH 2210, 2270, 2280. (Alt F)</p> <p><b>MATH 5210</b>                    <b>Introduction to Analysis I</b>                    <b>3</b> One and several variable calculus from an advanced point of view. Proofs of all main theorems in calculus. Prerequisite: C- or better in MATH 4200 or 5510. (F)</p> <p><b>MATH 5220</b>                    <b>Introduction to Analysis II</b>                    <b>3</b> Continuation of MATH 5210. Rigorous development of multivariable advanced calculus. Prerequisite: C- or better in MATH 5210. (Sp)</p> <p><b>MATH 5270</b>                    <b>Complex Variables</b>                    <b>3</b> Basic theory and applications of complex variables for mathematics, physics, and engineering students. Topics include analytic functions, contour integration, and residue theorem conformal mappings. Prerequisites: C- or better in MATH 2210, 2250; or C- or better in MATH 2210, 2270, 2280. (Sp)<sup>DE</sup></p> <p><b>MATH 5310</b>                    <b>Introduction to Modern Algebra***</b>                    <b>3</b> Continuation of MATH 4310. Topics include: Sylow theory for finite groups, factorization theory for commutative rings, and Galois theory. Prerequisite: C- or better in MATH 4310. (Sp)</p> <p><b>MATH 5340</b>                    <b>Theory of Linear Algebra**</b>                    <b>3</b> Vector space theory, linear transformations and matrices, eigenvalues and eigenvectors, inner product spaces, orthogonality, canonical forms, and Hermitian matrices. Prerequisite: C- or better in MATH 2250 or 2270; or consent of instructor. (F)</p> <p><b>MATH 5410</b>                    <b>Methods of Applied Mathematics</b>                    <b>3</b> Basic modeling and qualitative understanding, including dimensional analysis (Buckingham Pi theorem). Asymptotic solutions, perturbation approaches, boundary layers in differential equations, variational calculus, Hamilton's principle, and conservation of energy. Emphasizes practical approaches to science and engineering problems. Prerequisites: C- or better in MATH 2210, 2250; or C- or better in MATH 2210, 2270, 2280. (F)</p> <p><b>MATH 5420</b>                    <b>Partial Differential Equations</b>                    <b>3</b> Modeling with partial differential equations, diffusion, and wave equations. Classical solution techniques including: maximum principles, separation of variables (eigenfunctions), method of characteristics, Fourier and Laplace transforms, and singularity methods (Green's Functions). Emphasizes understanding and solving physical equations. Prerequisite: C- or better in MATH 2250 or 2280. (Sp)</p> <p><b>MATH 5460</b>                    <b>Introduction to the Theory and Application of Nonlinear Dynamical Systems</b>                    <b>3</b> Qualitative behavior of nonlinear maps and ordinary differential equations. Stability of solutions, bifurcation theory, chaos, and applications. Prerequisite: C- or better in MATH 2250 or 2280. (Sp)</p> <p><b>MATH 5510</b>                    <b>Introduction to Topology</b>                    <b>3</b> Elementary point-set topology, topological spaces, separation axioms, metric spaces, compactness, connectedness, order topology, countability axioms, continuity, and homeomorphisms. Prerequisite: C- or better in MATH 4200. (Alt F)</p> <p><b>MATH 5570</b>                    <b>Actuarial Math I***</b>                    <b>3</b> Introduction to theory of risk and its application to construction and analysis of models for insurance systems. Prerequisites: C- or better in MATH 5710, STAT 3000, and permission of instructor. (F)</p> <p><b>MATH 5580 CI</b>                    <b>Actuarial Math II***</b>                    <b>3</b> Continuation of MATH 5570. Prerequisite: C- or better in MATH 5570. (Sp)</p>	<p><b>MATH 5610</b>                    <b>Computational Linear Algebra and Solution of Systems of Equations</b>                    <b>3</b> Numerical solutions of systems of linear and nonlinear equations, methods for eigensystems, least squares problems, finding roots of functions and nonlinear systems, constrained and unconstrained optimization. Prerequisites: C- or better in MATH 2210, C- or better in MATH 2250 or 2270, and a high-level programming language. (F)</p> <p><b>MATH 5620</b>                    <b>Numerical Solution of Differential Equations**</b>                    <b>3</b> Numerical solution of differential equations, initial and boundary value problems, finite difference, finite element, and spectral methods (FFT) applied to ODEs and PDEs. Prerequisites: C- or better in MATH 2210; C- or better in MATH 2250 or 2270; C- or better in MATH 2280; and a high-level programming language. (Sp)</p> <p><b>MATH 5640</b>                    <b>Optimization***</b>                    <b>3</b> One-semester introductory survey of optimization, including both continuous and combinatorial problems. Topics include: linear programming, constrained and unconstrained optimization, network models, dynamic programming, and integer programming. Prerequisites: C- or better in MATH 2210; C- or better in MATH 2250 or 2270; and a high-level programming language. (Sp)</p> <p><b>MATH 5710</b>                    <b>Introduction to Probability</b>                    <b>3</b> Discrete and continuous probability, random variables, distribution and density function, joint distributions, conditional probabilities and expectations, Bayes' theorem, moments, moment generating functions, inequalities, convergence in probability and distribution, and central limit theorem. Prerequisites: C- or better in MATH 2210; and C- or better in MATH 2250 or 2270. (F,Sp)</p> <p><b>MATH 5720</b>                    <b>Introduction to Mathematical Statistics</b>                    <b>3</b> Basic theory of point and interval estimation and hypothesis testing. Topics include: sufficiency and completeness; method-of-moments, best unbiased, maximum likelihood, Bayes', and empirical Bayes' estimators; Neyman-Pearson lemma; and likelihood ratio tests. Prerequisite: C- or better in MATH 5710. (Sp)</p> <p><b>MATH 5740</b>                    <b>Actuarial Financial Mathematics**</b>                    <b>3</b> Introduces fundamental concepts of financial mathematics, focusing on applications to non-life insurance. Topics include interest theory, cash flows and yield rates, annuities, portfolio insurance, and derivatives. Also includes discussion of probability models for underlying assets. Prerequisites: MATH 1220 and STAT 3000. (Sp)</p> <p><b>MATH 5760</b>                    <b>Stochastic Processes*</b>                    <b>3</b> Application of stochastic processes to engineering and science. Topics include Markov chains, Poisson processes, renewal theory, and Brownian motion. Prerequisite: C- or better in MATH 5710. (F)</p> <p><b>MATH 5810</b>                    <b>Topics in Mathematics</b>                    <b>1-3<sup>®</sup></b> <b>MATH 5820</b>                    <b>Topics in Mathematics</b>                    <b>1-3<sup>®</sup></b> Prerequisite: Permission of instructor. (F,Sp,Su)<sup>DE</sup> (F,Sp,Su)</p> <p><b>MATH 5910</b>                    <b>Directed Reading and Conference</b>                    <b>1-3<sup>®</sup></b> Prerequisite: Prior arrangement with a specific instructor. (F,Sp,Su)</p> <p><b>MATH 5950</b>                    <b>Honors Senior Project</b>                    <b>1-4</b> A senior project required for completion of the departmental honors program. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>MATH 6110</b>                    <b>Differential Geometry*</b>                    <b>3</b> <b>MATH 6120</b>                    <b>Differential Geometry*</b>                    <b>3</b> Topics include manifolds, calculus on manifolds, tensor calculus and differential forms, Lie groups, Riemannian geometry, deRham's Theorem, and Hodge theory. Prerequisite: C- or better in MATH 5110 or 5220; MATH 6110 must be completed prior to MATH 6120. (F) (Sp)</p> <p><b>MATH 6210</b>                    <b>Real Analysis*</b>                    <b>3</b> <b>MATH 6220</b>                    <b>Real Analysis*</b>                    <b>3</b> Measure theory, abstract integration, differentiation, introduction to functional analysis, Hilbert and Banach spaces. Prerequisite: C- or better in MATH 5210; MATH 6210 must be completed prior to 6220. (F) (Sp)</p> <p><b>MATH 6250</b>                    <b>Graduate Internship/Cooperative Studies*</b>                    <b>1-6<sup>®</sup></b> Graduate internship/cooperative work experience. (F,Sp,Su)</p>
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# Course Descriptions

<b>MATH 6270</b>	<b>Complex Variables*</b>	<b>3</b>
Analytic functions, singular points, conformal maps, harmonic functions, analytic continuation, Residue theory. Prerequisite: C- or better in MATH 5210 or 5270. (Sp)		
<b>MATH 6310</b>	<b>Modern Algebra*</b>	<b>3</b>
<b>MATH 6320</b>	<b>Modern Algebra*</b>	<b>3</b>
Algebraic structures, including vector spaces, groups, rings, algebras, and modules. Topics include: category theory, elementary commutative ring theory, and algebraic geometry. Prerequisite: C- or better in MATH 5310; MATH 6310 must be completed prior to 6320. (F) (Sp)		
<b>MATH 6340</b>	<b>Multilinear Algebra and Matrix Theory*</b>	<b>3</b>
<b>MATH 6350</b>	<b>Multilinear Algebra and Matrix Theory*</b>	<b>3</b>
Permutation groups and representations, tensor spaces, symmetry classes of tensors, generalized matrix functions, matrices and graphs, and combinatorial matrix algebra. Prerequisite: C- or better in MATH 5340; MATH 6340 must be completed prior to 6350. (F) (Sp)		
<b>MATH 6410</b>	<b>Ordinary Differential Equations I*</b>	<b>3</b>
Existence-uniqueness theory, linear equations and systems, nonlinear equations, and stability. Prerequisite: C- or better in MATH 5210. (F)		
<b>MATH 6420</b>	<b>Partial Differential Equations I*</b>	<b>3</b>
Introduction to the theory of partial differential equations, including existence and uniqueness. Prerequisite: C- or better in MATH 5220 or 6410. (Sp)		
<b>MATH 6440</b>	<b>Ordinary Differential Equations II*</b>	<b>3</b>
Asymptotic behavior, periodicity, boundary value problems, and perturbation methods. Prerequisite: C- or better in MATH 6410. (Sp)		
<b>MATH 6450</b>	<b>Partial Differential Equations II*</b>	<b>3</b>
Advanced existence and uniqueness theorems, behavior of solutions, Sobolev spaces. Prerequisites: C- or better in MATH 6210; and C- or better in MATH 5420 or 6420. (Sp)		
<b>MATH 6470</b>	<b>Advanced Asymptotic Methods*</b>	<b>3</b>
Theory of asymptotics and perturbations. Boundary layers for ordinary and partial differential equations. Free boundary problems, shocks, multiple-scale methods, and WKB methods. Prerequisite: C- or better in MATH 5420. (Sp)		
<b>MATH 6510</b>	<b>Topology*</b>	<b>3</b>
<b>MATH 6520</b>	<b>Topology*</b>	<b>3</b>
Homotopy theory, fundamental groups, covering spaces, singular homology with applications to spheres and Euclidean spaces, CW complexes, cohomology ring, and Poincare duality. Prerequisites: C- or better in MATH 4310, 5510; and C- or better in MATH 5310 or consent of instructor. MATH 6510 must be completed prior to 6520. (F) (Sp)		
<b>MATH 6610</b>	<b>Numerical Analysis*</b>	<b>3</b>
Linear and nonlinear equations, large scale problems, and eigenvalues. Prerequisites: C- or better in MATH 5210, 5610, or consent of instructor. (F)		
<b>MATH 6620</b>	<b>Numerical Analysis*</b>	<b>3</b>
Numerical solution of ordinary and partial differential equations. Prerequisite: C- or better in MATH 6610 or consent of instructor. (Sp)		
<b>MATH 6640</b>	<b>Optimization*</b>	<b>3</b>
Unconstrained problems, smooth function methods, linearly constrained problems, linear and quadratic programming, nonlinearly constrained methods, and practicalities. Prerequisite: C- or better in MATH 5220 or consent of instructor. (Sp)		
<b>MATH 6750</b>	<b>Probability Theory*</b>	<b>3</b>
<b>MATH 6760</b>	<b>Probability Theory*</b>	<b>3</b>
Probability spaces, random variables, distribution functions, expectations, independence, modes of convergence, limit theorems, and applications. Prerequisite: C- or better in MATH 5210; MATH 6750 must be completed prior to 6760. (F) (Sp)		
<b>MATH 6810</b>	<b>Topics in Mathematics (Topic)*</b>	<b>3<sup>®</sup></b>
<b>MATH 6820</b>	<b>Topics in Mathematics (Topic)*</b>	<b>3<sup>®</sup></b>
Prerequisite: Consent of instructor. (F) (Sp)		

<b>MATH 6910</b>	<b>Directed Reading and Conference*</b>	<b>1-3<sup>®</sup></b>
Prerequisite: Prior arrangement with specific instructor. (F,Sp,Su)		
<b>MATH 6970</b>	<b>Thesis</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>MATH 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>MATH 7110</b>	<b>Geometry (Topic)*</b>	<b>3<sup>®</sup></b>
<b>MATH 7120</b>	<b>Geometry (Topic)*</b>	<b>3<sup>®</sup></b>
(F) (Sp)		
<b>MATH 7210</b>	<b>Analysis (Topic)*</b>	<b>3<sup>®</sup></b>
<b>MATH 7220</b>	<b>Analysis (Topic)*</b>	<b>3<sup>®</sup></b>
(F) (Sp)		
<b>MATH 7310</b>	<b>Algebra (Topic)*</b>	<b>3<sup>®</sup></b>
<b>MATH 7320</b>	<b>Algebra (Topic)*</b>	<b>3<sup>®</sup></b>
(F) (Sp)		
<b>MATH 7410</b>	<b>Differential Equations (Topic)*</b>	<b>3<sup>®</sup></b>
<b>MATH 7420</b>	<b>Differential Equations (Topic)*</b>	<b>3<sup>®</sup></b>
(F) (Sp)		
<b>MATH 7510</b>	<b>Topology (Topic)*</b>	<b>3<sup>®</sup></b>
<b>MATH 7520</b>	<b>Topology (Topic)*</b>	<b>3<sup>®</sup></b>
(F) (Sp)		
<b>MATH 7610</b>	<b>Numerical Analysis (Topic)*</b>	<b>3<sup>®</sup></b>
<b>MATH 7620</b>	<b>Numerical Analysis (Topic)*</b>	<b>3<sup>®</sup></b>
(F) (Sp)		
<b>MATH 7750</b>	<b>Probability (Topic)*</b>	<b>3<sup>®</sup></b>
<b>MATH 7760</b>	<b>Probability (Topic)*</b>	<b>3<sup>®</sup></b>
(F) (Sp)		
<b>MATH 7810</b>	<b>Topics in Mathematics (Topic)*</b>	<b>3<sup>®</sup></b>
<b>MATH 7820</b>	<b>Topics in Mathematics (Topic)*</b>	<b>3<sup>®</sup></b>
(F) (Sp)		
<b>MATH 7910</b>	<b>College Teaching Internship</b>	<b>3<sup>®</sup></b>
(F,Sp,Su)		
<b>MATH 7970</b>	<b>Dissertation Research</b>	<b>1-15<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>MATH 7990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>®E</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*This course will be taught as needed. For information about availability, contact the Department of Mathematics and Statistics.

\*\*Taught 2010-2011.

\*\*\*Taught 2009-2010.

## Management (MGT)

See *Department of Management, pages 349-355*

**Note:** Effective Fall Semester 2009, the courses previously listed under the Management and Human Resources (MHR) prefix will be listed under the MGT prefix. Also, some of the courses previously listed under the Business Administration (BA) prefix will be taught under the MGT prefix, while other courses previously listed under the BA prefix will be taught under the Finance (FIN) prefix. (FIN courses are shown on pages 565-566.) Students registering for Summer Semester 2009 Management and Human Resources or Business Administration courses can find them under the MHR or BA prefix by logging into Access at: <http://www.usu.edu/myusu/>

# Course Descriptions

<p><b>MGT 1160</b>                    <b>Developing Self-Management Skills</b>                    <b>1</b> A practical course designed to provide basic self-management skills contributing to personal effectiveness. For freshmen and sophomores <i>only</i>. (F,Sp,Su)</p> <p><b>MGT 1350</b>                    <b>Introduction to Business</b>                    <b>3</b> Investigation of the role of business in contemporary society, including an introduction to the general problems of business operation. (F)<sup>DE</sup></p> <p><b>MGT 2050</b>                    <b>Legal and Ethical Environment of Business</b>                    <b>3</b> Surveys the legal and ethical environment of business. Introduction to elementary legal research and writing and critical thinking techniques. Lecture and laboratory. Prerequisites: STAT 1040 or MATH 1030 or 1050 (MATH 1050 or equivalent is required for Huntsman School of Business majors); and GPA of 2.5 or higher. (F,Sp,Su)<sup>DE</sup></p> <p><b>MGT 2160</b>                    <b>Student Applied Leadership Training</b>                    <b>1-3<sup>®</sup></b> Available to students involved in structured leadership training provided as part of their role and responsibility at the University. For details, contact the Office of University Advising (TSC 304). Prerequisite: Approval of course coordinator. (F,Sp,Su)</p> <p><b>MGT 2350</b>                    <b>Small Business Management</b>                    <b>3</b> Provides practical overview of management principles and practices as they apply to the small business enterprise. For nonbusiness majors.<sup>1</sup></p> <p><b>MGT 3080</b>    <b>QI</b>                    <b>Operations Research</b>                    <b>3</b> Quantitative methods for resource allocation: linear programming, queuing theory, simulation, project management, etc. Prerequisites: STAT 2300 or 3000; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p> <p><b>MGT 3110</b>    <b>DSS</b>                    <b>Managing Organizations and People</b>                    <b>3</b> Overview of the role of management, and an introduction to leadership theory and practice. Includes defining of mission and goals, organizing work, and managing human performance. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp,Su)<sup>DE</sup></p> <p><b>MGT 3300</b>                    <b>Contemporary Issues in International Trade</b>                    <b>3</b> Examines interrelated economic, political, and social issues faced by institutions and individuals at various points in the trade process. Prerequisite: Admission to Huntsman Scholars Junior Year Program. Also taught as ECN 3300. (F)</p> <p><b>MGT 3500</b>                    <b>Fundamentals of Marketing</b>                    <b>3</b> Overview of marketing function, emphasizing concepts and terminology. Includes basic marketing activities of product management, pricing, distribution, promotion, marketing research, and consumer behavior. Prerequisites: Admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp,Su)<sup>DE</sup></p> <p><b>MGT 3510</b>                    <b>Fundamentals of Entrepreneurship</b>                    <b>3</b> Introduction to entrepreneurship and the processes of new ventures. The objective is to help students become familiar with entrepreneurship and ascertain the degree to which it represents a viable career path. Focuses on identifying, analyzing, and developing business opportunities. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)</p> <p><b>MGT 3520</b>                    <b>Relationship and Organizational Competencies for Entrepreneurs</b>                    <b>3</b> Development of the relationship and organizational competencies for entrepreneurs. Focuses on the development of persuasion, delegation, and organizational skills for individuals who launch businesses and/or play a key role in their growth. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)</p> <p><b>MGT 3550</b>                    <b>Entrepreneurial Executive Lecture Series</b>                    <b>3<sup>®</sup></b> Discussion of the discovery, evaluation, and exploitation of entrepreneurial opportunities. Each week, an active or harvested entrepreneur is invited to share his or her story of new venture creation. Through discussion and a question and answer session, students interact with the entrepreneurs. (Sp)</p>	<p><b>MGT 3700</b>                    <b>Operations Management</b>                    <b>3</b> Covers the concepts and tools related to managing a business operation. Topics include demand forecasting, operations strategy and resource planning, process layout, lean systems, inventory and quality, and project management. Prerequisites: STAT 2300 or 3000; MATH 1100; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp,Su)<sup>DE</sup></p> <p><b>MGT 3710</b>                    <b>Developing Team and Interpersonal Skills</b>                    <b>3</b> Experientially-driven course focusing on the role of teams in organizations and on developing skills which individuals and teams need to be effective. Topics include self-awareness, supportive communication, problem solving, and conflict management. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)</p> <p><b>MGT 3720</b>    <b>DSS</b>                    <b>Leading Organization Change</b>                    <b>3</b> Explores the topic of organizational change and transformation, with special emphasis on the role of leadership, vision, and organization culture in change programs. Extensive use of case studies and experiential exercises. Also covers the history of organization development, change facilitation, and dealing with resistance to change. Prerequisites: MGT 3110; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits.<sup>1</sup></p> <p><b>MGT 3810</b>    <b>DSS</b>                    <b>Employment Law and Policy Development</b>                    <b>3</b> Examines laws related to employment, labor relations, civil rights, compensation, safety, health, and retirement. Provides hands-on experience in drafting and reviewing human resource policies in a business setting. Addresses implementing and influencing public policy. Prerequisites: MGT 2050; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)<sup>1</sup></p> <p><b>MGT 3820</b>    <b>DSS</b>                    <b>International Management</b>                    <b>3</b> Exploration of international culture and context of management, the impact of globalization on businesses today, and the pressures and complexities of operating in global markets, including the processes of managing multi-cultural human resources. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)</p> <p><b>MGT 4050</b>                    <b>International Retailing</b>                    <b>3</b> <b>(dual listing 6050)</b> Issues related to retailing in international markets, such as motivations, cultural influence on consumer behavior, and entry strategies. Prerequisites: Grade of B- (2.67) or better in MGT 3500; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (Prerequisites <i>do not apply</i> to students taking MGT 6050.)</p> <p><b>MGT 4070</b>    <b>CI</b>                    <b>Retail Management</b>                    <b>3</b> <b>(dual listing 6070)</b> Basic issues related to retail management, such as merchandising, location, promotion, store management, and retail image. Prerequisites: Grade of B- (2.67) or better in MGT 3500; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (Prerequisites <i>do not apply</i> to students taking MGT 6070.) (Sp)</p> <p><b>MGT 4240</b>                    <b>Merchandise Planning and Control</b>                    <b>3</b> Issues related to pricing, budgeting, open-to-buy, and planning inventory. Prerequisites: Grade of B- (2.67) or better in MGT 3500; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits.</p> <p><b>MGT 4510</b>                    <b>Buyer Behavior</b>                    <b>3</b> Marketing analysis of the decision processes of individuals, households, businesses, and not-for-profit institutions. Builds on concepts from psychology, sociology, anthropology, and economics. Prerequisites: Grade of B- (2.67) or better in MGT 3500; PSY 1010 or SOC 1010 or USU 1340; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)<sup>DE</sup></p> <p><b>MGT 4520</b>                    <b>New Venture Planning</b>                    <b>3</b> Theoretical and practical aspects of starting or buying a business. Includes development of a business plan, as well as conducting due diligence for buying a business or extensive consulting with a start-up or growth business. Prerequisites: MGT 3510, 3520; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F)</p>
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# Course Descriptions

<p><b>MGT 4530 Marketing Research 3</b> Management of marketing research function. Basic vs. decisional research, survey research, cost vs. value of information, research design, experimentation, and analysis techniques. Prerequisites: Grade of B- (2.67) or better MGT 3500; choose one of the following statistics courses: STAT 1040, 2300, 3000, or PSY 2800; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>	<p>design. Prerequisites: Grade of B- (2.67) or better in MGT 3700; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>
<p><b>MGT 4540 Marketing Institutions 3</b> Examination of strategic decision-making by institutions involved in the marketing channel. Primary emphasis on retail institutions. Explores types of marketing intermediaries, vertical integration, channel member power and conflict, and international channel management issues. Prerequisites: Grade of B- (2.67) or better in MGT 3500; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F) <sup>DE</sup></p>	<p><b>MGT 4800 Independent Research and Readings 1-3<sup>®</sup></b> Provides opportunity for student to pursue special interests under tutorship of faculty. Prerequisite: Approval of faculty member and department head. (F,Sp,Su) <sup>DE</sup></p>
<p><b>MGT 4550 Promotion Management 3</b> Examines role of promotion concepts in development of a communication strategy. Based on an introduction to the nature of communications, course covers advertising, personal selling, and sales promotion, emphasizing the competitive and strategic value of communications in both the marketplace and society. Prerequisites: Grade of B- (2.67) or better in MGT 3500; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>	<p><b>MGT 4880 CI Business Strategy in an Entrepreneurial Context 3</b> Integrative capstone course dealing with processes, methods, and steps involved in starting and growing small to mid-size business ventures. Emphasizes cross-functional challenges of market entry, finance, operations, managing business growth, and entrepreneurs' responsibilities to society. Prerequisites: Senior standing; FIN 3400; MGT 3110, 3500, 3700; admittance to a USU major; cumulative GPA of 2.67 or higher. (F,Sp,Su)</p>
<p><b>MGT 4590 Global Marketing Strategy 3</b> Analytical approach to strategic marketing problems facing the firm competing in global markets. Emphasizes key analytical and decision-making frameworks concerning the global marketing environment and the marketing mix and their impact on the firm's performance. Prerequisites: Grade of B- (2.67) or better in MGT 3500; MGT 4540, 4550; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>	<p><b>MGT 4890 CI Business Strategy in a Global Context 3</b> Integrative capstone course dealing with challenges and strategies associated with international business. Students develop global business judgment and perspective through addressing problems related to global market entry and growth, finance, operations, strategic alliances, social responsibility, and business-government relationships. Prerequisites: Senior standing; FIN 3400; MGT 3110, 3500, 3700; admittance to a USU major; cumulative GPA of 2.67 or higher. (F,Sp,Su)</p>
<p><b>MGT 4630 Human Resource Management 3</b> Introduces the process of managing human resources, including human resource planning, recruitment, selection, training, performance evaluation, compensation, career management, and labor relations. Also discusses diversity, human resource strategy, and related ethical issues. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)</p>	<p><b>MGT 4950 Senior Honors Thesis/Project 3</b> Creative project that will then be written up, and presented, as a Senior Thesis as required for an Honors Plan. (Sp)</p>
<p><b>MGT 4710 Senior Leadership Project 3</b> Students plan and complete advanced leadership projects, present results, and document accomplishments. Students gain practical experience and demonstrate ability to manage complex projects, contributing to organizational goals and their own career objectives. Prerequisite: Permission of instructor.<sup>1</sup></p>	<p><b>MGT 5640 Selected Topics in Management (dual listing 6640) and Human Resources 1-3<sup>®</sup></b> Selected topics in management and/or human resources are pursued in depth. Topics and instructor may vary.<sup>1</sup></p>
<p><b>MGT 4720 Production Planning and Control 3</b> Examines concepts and tools used in the planning and control of production activity and material flow. Topics include production scheduling, capacity analysis, and push versus pull production. Prerequisites: Grade of B- (2.67) or better in MGT 3700; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (Sp)</p>	<p><b>MGT 5730 Continuous Improvement (dual listing 6730) 3</b> Application of continuous improvement concepts, systems, and techniques throughout the organization. Analysis of contemporary methods of management and continuous improvement. Topics include: continuous flow, scientific thinking and the continuous improvement cycle, value stream mapping, root cause analysis, mistake proofing, and creative problem-solving. Prerequisites: STAT 2300 or 3000; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 90 credits. (Prerequisites <i>do not apply</i> to students taking MGT 6730.) (F)</p>
<p><b>MGT 4730 Business and Society 3</b> Examines the relationship of business enterprises with their external environment and helps students to develop an analytical framework for addressing the business and society relationship over one's career in business or government. Helps students recognize, formulate, and analyze moral issues, as well as trace decisions forward to personal, cultural, and societal consequences. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits.<sup>1</sup></p>	<p><b>MGT 6010 Advanced Business Law 3</b> Detailed investigation of business law, including law of contracts, torts, property, secured transactions, commercial paper, and business organizations. Prerequisite: MGT 2050.<sup>1</sup></p>
<p><b>MGT 4750 Production Simulation 3</b> Computer simulation of production environment, including scheduling, routing, labor capacity, inventory, and delivery. Emphasizes just-in-time concepts. Prerequisites: Grade of B- (2.67) or better in MGT 3700; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (Sp)</p>	<p><b>MGT 6050 International Retailing (dual listing 4050) 3</b> Issues related to retailing in international markets, such as motivations, cultural influence on consumer behavior, and entry strategies.</p>
<p><b>MGT 4790 Supply Chain Management 3</b> Analysis of the concept of supply chains and how managing them supports operations strategy and organizational competitiveness. Topics include supply management, supply chain alliances, distribution planning, and logistics systems</p>	<p><b>MGT 6055 Management Principles 1.5</b> Introduction of management principles for students entering a master's degree program in the Huntsman School of Business. Prerequisite: Acceptance into a Huntsman School of Business master's degree program. (Su)</p>
	<p><b>MGT 6070 Retail Management (dual listing 4070) 3</b> Basic issues related to retail management, such as merchandising, location, promotion, store management, and retail image. (Sp)</p>
	<p><b>MGT 6075 Fundamentals of Business Law 1.5</b> Introduction of business law principles for students entering a master's degree program in the Huntsman School of Business. Prerequisite: Acceptance into a Huntsman School of Business master's degree program. (Su)</p>
	<p><b>MGT 6180 Intrasession MBA Workshop 0.5-1<sup>®</sup></b> Intensive workshops designed to enhance the MBA experience.</p>

# Course Descriptions

<p><b>MGT 6300 Leadership and Operational Excellence</b> 3</p> <p>Introduces the principles of leadership consistent with the philosophy of operational excellence. Presents a framework for leading balanced and comprehensive efforts toward achieving organizational objectives. Topics include: humility in leadership, respect for the individual and ethics, continuous improvement as a strategy, corporate culture as a control mechanism, and measurement principles. (F)</p> <p><b>MGT 6310 Career and Professional Development</b> 1-3®</p> <p>Explores theory and literature of careers, including orientation, as well as early-, mid-, and late-career issues. Students evaluate interests and capabilities, implement a personal development plan, get feedback on career development, and receive an objective outsider assessment of career readiness. (F,Sp,Su)</p> <p><b>MGT 6330 Applied Human Resources Research</b> 3</p> <p>Provides applied research for selected human resource topics. (F)</p> <p><b>MGT 6370 Project Management</b> 3</p> <p>Teaches concepts of project management, while intensively involving students in production and operations related projects. Requires integrative organizational and industry research and a professional report.<sup>1</sup></p> <p><b>MGT 6410 New Venture Creation</b> 3</p> <p>Focuses on development of new ventures, including entrepreneurial competencies, venture teams, recognizing business opportunities, gathering resources, new venture finance, entry strategies, legal structure, licensing and regulatory requirements, patents, copyrights, and product liability.<sup>1</sup></p> <p><b>MGT 6430 New Venture Growth and Expansion</b> 3</p> <p>Analyzes the growth phase of business development. Topics include organizational competencies and systems, growth strategies, growth finance and staging, cash-flow, franchising, estate and family business issues, harvest strategies including buyouts and public offerings, and employment law for small employers.<sup>1</sup></p> <p><b>MGT 6470 Entrepreneurship Project</b> 3</p> <p>Teaches concepts of project management, while intensively involving students in entrepreneurship-related projects such as initiating a start-up or consulting with management of an emerging business. Requires integrative organizational and industry research and a professional report.<sup>1</sup></p> <p><b>MGT 6500 Managing Individuals and Groups</b> 3</p> <p>Focuses on development of interpersonal and team skills. Includes development of organizational systems supporting effective use of human resources, including performance management, motivation, selection, training, rewards, and career development. (F) <sup>DE</sup></p> <p><b>MGT 6510 Marketing Techniques</b> 1.5</p> <p>Introduction of marketing principles for students entering a master's degree program in the Huntsman School of Business. Prerequisite: Acceptance into a Huntsman School of Business master's degree program. (Su)</p> <p><b>MGT 6520 Marketing Strategy</b> 3</p> <p>Advanced case approach to current marketing management problems. Emphasizes concepts, research, techniques, decision making, and marketing strategy development. (Sp) <sup>DE</sup></p> <p><b>MGT 6540 Special Topics in Marketing</b> 3</p> <p>Selected topics in marketing pursued in depth. Topics and instructors vary semester to semester. Current topics include: Marketing Communications and Supplemental Aspects of Electronic Commerce, The Changing Environment of Marketing Institutions, and Buyer Behavior. Prerequisite: MGT 6520. (Sp)</p> <p><b>MGT 6550 Talent Acquisition and Retention</b> 3</p> <p>Focuses upon creation of competitive advantage through strategic human resources planning and staffing. Topics include job analysis, preparing candidate specifications, recruitment, assessment, and placement. Also covers pertinent laws/regulations and applicable descriptive/inferential statistics. (F)</p> <p><b>MGT 6560 Market Analysis and Decision Making</b> 3</p> <p>Develops skills necessary to plan and implement an effective marketing strategy. Focuses on role of marketing information in managerial decision making. Uses marketing cases and/or simulation games throughout the course. (F,Sp)</p>	<p><b>MGT 6620 Training and Organizational Development</b> 3</p> <p>Provides advanced treatment of employee, management, and organizational development. Specific topics include: historical background, needs assessment, program design and implementation, outcomes evaluation, and how individuals and organizations change. (Sp)</p> <p><b>MGT 6630 Total Rewards and Employee Performance</b> 3</p> <p>Strategic analysis and design of compensation, benefits, and performance management systems. Key topics include performance assessment; employee motivation, discipline, and performance improvement; and design and implementation of compensation and benefit systems to attract and retain talent, while facilitating achievement of the strategic objectives of the organization. (Sp)</p> <p><b>MGT 6640 Selected Topics in Management (dual listing 5640) and Human Resources</b> 1-3®</p> <p>Selected topics in management and/or human resources are pursued in depth. Topics and instructor may vary.<sup>1</sup></p> <p><b>MGT 6650 Team and Interpersonal Effectiveness</b> 3</p> <p>Experiential course designed to develop team effectiveness, and specific managerial and leadership skills contributing to interpersonal competence and effectiveness in work groups and organizations. (F)</p> <p><b>MGT 6670 Employee Relations and the Labor Movement</b> 3</p> <p>Comprehensive survey of union-management relationships, including labor markets and the labor movement, labor history and law, union organization and government, and contract negotiation and administration. Includes exercises and cases in negotiations and grievance processes. (Sp)</p> <p><b>MGT 6680 Human Capital Management</b> 3</p> <p>Introduction to human capital management practices. Specific objectives include developing a working understanding of the links between HRM and firm outcomes, gaining a working knowledge of HR database technologies, and achieving an ability to develop and use fundamental HR costing techniques.<sup>1</sup></p> <p><b>MGT 6690 Human Resource Strategy</b> 3</p> <p>Capstone course in Human Resource Management, designed to integrate concepts learned in specialized courses to the management of a total Human Resource function, with integration from both strategic and tactical perspectives. Covers domestic and international issues, as well as organizational change and development. (F)</p> <p><b>MGT 6710 Essentials of Operations Management</b> 1.5</p> <p>Introduction of operations management principles for students entering a master's degree program in the Huntsman School of Business. Prerequisite: Acceptance into a Huntsman School of Business master's degree program. (Su)</p> <p><b>MGT 6720 Operations Management</b> 3</p> <p>Study of basic process functions in managing a production or service organization, such as inventory control, production control, procurement, quality control, production planning, forecasting, etc. (F)</p> <p><b>MGT 6730 Continuous Improvement (dual listing 5730)</b> 3</p> <p>Application of continuous improvement concepts, systems, and techniques throughout the organization. Analysis of contemporary methods of management and continuous improvement. Topics include: continuous flow, scientific thinking and the continuous improvement cycle, value stream mapping, root cause analysis, mistake proofing, and creative problem-solving. (F)</p> <p><b>MGT 6740 Decision Making in Operations Management</b> 3</p> <p>Selected topics in operations management pursued in depth. Topics and instructors vary from semester to semester. Prerequisite: MGT 6720. (Sp)</p> <p><b>MGT 6760 Employment Law</b> 3</p> <p>Examines laws related to employment, labor relations, civil rights, compensation, safety, health, and retirement. Provides experience in dispute resolution techniques in a nonunion employment setting, including negotiation, mediation, and arbitration. (F)</p>
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**MGT 6770 Ethics for the Business Professional 1.5**

Taking a stakeholder perspective on business, this course introduces students to several moral and ethical frameworks. Current case analyses and experiential activities allow students to confront ethical dilemmas and work through acceptable alternatives. (F)

**MGT 6780 The Role of Business in Society 1.5**

Considers relationship between business and its societal context, including a discussion of how business enterprises maintain their legitimacy and mandate. Helps students develop an analytical framework for addressing issues at the intersection of business and society, including the personal, cultural, and societal consequences of business decisions. (F,Sp,Su)

**MGT 6860 Business Research Methods 3**

Explores the fundamentals of qualitative and quantitative data collection and analysis. Students design and implement small, integrated research activities, then use the results to make business strategy recommendations. (Sp)

**MGT 6890 Global Business Strategy 3**

Integrative capstone course, taking a CEO's perspective, addressing global competitiveness, strategic assessment, policy development, and strategy execution. Must be taken at end of advanced MBA program. (Su)<sup>DE</sup>

**MGT 6900 Independent Research and Readings 1-3<sup>®</sup>**

Provides opportunity for students to pursue special interests under tutorship of the faculty. Prerequisite: Approval of faculty member and department head. (F,Sp,Su)<sup>DE</sup>

**MGT 6960 Professional Paper 3**

Preparation of paper of professional quality, designed to demonstrate ability to complete a major project and effectively present the results.

**MGT 6970 Thesis 1-4<sup>®</sup>**

Designed for students preparing a master's degree thesis. Graded Pass/Fail only. (F,Sp,Su)

**MGT 6990 Continuing Graduate Advisement 1-3<sup>®</sup>**

Graded Pass/Fail only. (F,Sp,Su)

<sup>1</sup>This course will be taught as needed. For information about availability, check with the Management Department.

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Management and Human Resources (MHR)

See *Department of Management*, pages 349-355

**Note:** Effective Fall Semester 2009, the courses previously listed under the Management and Human Resources (MHR) prefix will be listed under the Management (MGT) prefix. (MGT courses are shown on pages 603-607.) Students registering for Summer Semester 2009 Management and Human Resources courses can find them under the MHR prefix by logging into Access at: <http://www.usu.edu/myusu/>

## Management Information Systems (MIS)

See *Department of Management Information Systems*, pages 356-358

**MIS 2100 Principles of Management Information Systems 3**

Covers principles of management information systems including how to use and manage information technology to improve business processes, improve decision making, and gain competitive advantage. Includes MIS concepts and vocabulary, as well as information technology. (F,Sp,Su)<sup>DE</sup>

**MIS 2200 CI Business Communication 3**

Development and application of effective oral and written business communication skills. Language/mechanics, grammar, and document formatting. Prerequisites: STAT 1040 or MATH 1030, 1050, or 1100 (or Math ACT score of at least 25 or Math SAT score of at least 580); GPA of 2.5 or higher, and one of the following: (1) passing score on Huntsman School of Business English Usage Exam, (2) ACT English Section score of at least 25, (3) English AP score of 3 or better, or (4) completion of OSS 1550 with a B or better grade. (F,Sp,Su)<sup>DE</sup>

**MIS 3330 Database Management 3**

Theory and application of designing, developing, and maintaining database systems. Principles of management of data resources to support effective information systems in organizations. Prerequisites: Admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits, and MIS 2100 or OSS 2450. (F,Sp)

**MIS 3450 Designing Graphical User Interfaces for Electronic Commerce 3**

Application of current web standards, techniques, and web design principles to develop graphical user interfaces using an integrated development environment (IDE). Prerequisites: Admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits, and MIS 2100 or OSS 2450. (F)

**MIS 3500 Introduction to Business Applications Programming 3**

Creation of applications to solve business problems or support business functions related to financial, personnel, sales, and information systems management. Students create working systems using widely used Windows software and standard programming principles. Prerequisites: Admittance to a USU major, cumulative GPA of 2.67 or higher, and completion of at least 40 credits. (F,Sp)

**MIS 3800 Information Technology Hardware and System Software 3**

Principles and application of computer hardware and software. Includes topics related to theoretical underpinnings, setup, installation, configuration, and management of computer hardware and system software. Prerequisites: MIS 2100, admittance to a USU major, cumulative GPA of 2.67 or higher, and completion of at least 40 credits. (F,Sp)

**MIS 4330 Database Implementation (dual listing 6330) 3**

Application of advanced database concepts using enterprise-wide database products. Includes advanced structured query language (SQL) development, database programming development, database administration basics, integration of database tools within a project context, introduction of data mining and data warehousing, reporting tools, and database and XML integration. Prerequisite: MIS 3330 or equivalent. (F,Sp)

**MIS 4350 Introduction to Performance Improvement Projects (dual listing 6350) 3**

Introductory course in performance improvement projects. Includes analysis of current business processes in order to devise appropriate training and development programs or information systems applications. Students learn the systems approach to designing and implementing programs or applications in business. Prerequisites: Admittance to a USU major, cumulative GPA of 2.67 or higher, and completion of at least 40 credits. (Sp)

**MIS 4550 CI Principles of International Business Communications 3**

Culture-general and culture-specific study of business communication in the diverse world of international business from both theoretical and applied perspectives. Prerequisites: Admittance to a USU major, cumulative GPA of 2.67 or higher, and completion of at least 40 credits. (Sp)

**MIS 4800 Security of Business Information Systems (dual listing 6800) 3**

In-depth exploration of security issues in business information systems. Includes workstation, work-groups, intranet, and wide-area network security. Covers development of security policies and procedures. Prerequisites: Admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits, and MIS 2100 or OSS 2450. (Sp)



# Course Descriptions

<b>MIS 4950</b>	<b>Senior Honors Thesis/Project</b>	<b>3</b>			
Creative project that will then be written up and presented as a Senior Thesis as required for an Honors Plan. (Sp)					
<b>MIS 5050</b> <b>(dual listing 6050)</b>	<b>Advanced Web-Based Management Information Systems Development</b>	<b>3</b>			
Students learn how to design, develop, and implement an Internet commerce website. Includes instruction in modeling and building an advanced management website system. Prerequisites: CS 1400 or MIS 3500; and MIS 3330. (F)					
<b>MIS 5150</b>	<b>Special Topics: Emerging Technologies in Management Information Systems</b>	<b>3<sup>®</sup></b>			
Special topics in Management Information Systems not covered in regular course offerings. Course is repeatable for credit <i>only</i> when students enroll for a topic for which they have not previously received credit. Prerequisites: Admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits, and MIS 3330. (F)					
<b>MIS 5300</b>	<b>Advanced Data Communications</b>	<b>3</b>			
Principles of data communications, local and wide-area networks, hardware, software, media standards, management, and business applications. Management and strategic use of local-area networks (LANs) and wide-area networks (WANs) to solve business problems. Prerequisites: Admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits, and MIS 2100 or OSS 2450. (F)					
<b>MIS 5350</b>	<b>Quantitative Financial Modeling and Applications</b>	<b>3</b>			
Introduction to quantitative methods and computer applications applicable in financial modeling. Covers financial statement modeling, asset allocation, risk analysis, scenario generation, and option pricing through the introduction and proper uses of spreadsheet modeling, decision analysis, simulation, and optimization techniques. Prerequisites: FIN 3400 and MIS 2100. Also taught as FIN 5350. (Sp)					
<b>MIS 5650</b> <b>(dual listing 6650)</b>	<b>Advanced Website Development</b>	<b>3</b>			
Creating e-commerce websites using a combination of the following technologies: XHTML, PHP, JavaScript, and DBMSs such as Oracle, MySQL, SQL server 2005, etc. This technical course maintains a business focus as a transaction-oriented commercial site. Prerequisites: CS 1400 or MIS 3500; and MIS 3330. (Sp)					
<b>MIS 5700</b>	<b>DSS Internet Management and Electronic Commerce</b>	<b>3</b>			
Familiarizes students with concepts and technologies relating to business and the Internet. Focuses on the new business environment that has evolved through the Internet, as well as associated technologies and strategies. Prerequisites: OSS 1400 or Computer and Information Literacy (CIL) Exam, admittance to a USU major, cumulative GPA of 2.67 or higher, and completion of at least 40 credits. Some programming experience is helpful. (Sp) <sup>DE</sup>					
<b>MIS 5900</b>	<b>Systems Design and Implementation</b>	<b>3</b>			
Management, evaluation, documentation, maintenance, and reengineering of business information systems projects. Prerequisites: Admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits, MIS 3330, and MIS 3500 or CS 1400. (F,Sp)					
<b>MIS 5910</b>	<b>Systems Design Laboratory</b>	<b>1</b>			
Required laboratory for MIS 5900, allowing students to complete assigned team projects. Must be taken concurrently with MIS 5900. (F,Sp)					
<b>MIS 5950</b>	<b>Independent Readings</b>	<b>1-5<sup>®</sup></b>			
Designed for individual student projects as approved by the department. (F,Sp,Su)					
<b>MIS 6050</b> <b>(dual listing 5050)</b>	<b>Advanced Web-Based Management Information Systems Development</b>	<b>3</b>			
Students learn how to design, develop, and implement an Internet commerce website. Includes instruction in modeling and building an advanced management website system. Prerequisites: CS 1400 or MIS 3500; and MIS 3330. (F)					
<b>MIS 6110</b>	<b>Workshop</b>	<b>1-3<sup>®</sup></b>			
Intensive workshops. (F,Sp,Su)					
<b>MIS 6120</b>	<b>Business Information Systems Development</b>	<b>3</b>			
Business information systems development, including analysis, design, and implementation. Students develop a working prototype to solve a real-world information systems problem. (Sp)					
<b>MIS 6150</b>	<b>Communication for Business</b>	<b>3</b>			
In-depth study of the process for preparing written business communications and related oral presentations. Preparation of reports relevant to student's major. Prerequisite: MIS 2200 or equivalent. (F)					
<b>MIS 6180</b>	<b>Intrasection MBA Workshop</b>	<b>0.5-1<sup>®</sup></b>			
Intensive workshops designed to enhance the MBA experience.					
<b>MIS 6200</b>	<b>Business Data Communication Systems</b>	<b>3</b>			
Introduction to business data communications, including concepts, network architecture, data communication software and hardware, distributed information systems, and business communication system services. (F)					
<b>MIS 6230</b>	<b>Management of Database Systems</b>	<b>3</b>			
Theory and application of designing, developing, and maintaining database systems. Principles of management of data resources to support effective information systems in organizations. (F,Sp)					
<b>MIS 6250</b>	<b>Graduate Internship</b>	<b>1-6<sup>®</sup></b>			
Graduate-level internship in business, industry, or government position approved by department. Requires written learning objectives, performance evaluation, and a final internship written report. Requires 75 hours internship per 1 semester credit. (F,Sp,Su)					
<b>MIS 6330</b> <b>(dual listing 4330)</b>	<b>Database Implementation</b>	<b>3</b>			
Application of advanced database concepts using enterprise-wide database products. Includes advanced structured query language (SQL) development, database programming development, database administration basics, integration of database tools within a project context, introduction of data mining and data warehousing, reporting tools, and database and XML integration. Prerequisite: MIS 3330 or equivalent. (F,Sp)					
<b>MIS 6350</b> <b>(dual listing 4350)</b>	<b>Introduction to Performance Improvement Projects</b>	<b>3</b>			
Introductory course in performance improvement projects. Includes analysis of current business processes in order to devise appropriate training and development programs or information systems applications. Students learn the systems approach to designing and implementing programs or applications in business. (Sp)					
<b>MIS 6400</b>	<b>Local Area Network Management for Business</b>	<b>3</b>			
Application of networking concepts related to the management of local area networks. Includes topics related to setup, management, and maintenance of local area networks and installation of electronic mail-handling systems. (F,Sp)					
<b>MIS 6410</b>	<b>Human-Computer Interface Design</b>	<b>3</b>			
Integrates aspects of industrial psychology, work physiology, human environments, job analysis, and hardware/software engineering in the study of designing effective, efficient input/output interfaces for business information systems.					
<b>MIS 6440</b>	<b>Information and Decision Making</b>	<b>3</b>			
Case-based approach to learning role of information technology when making quantitative and qualitative analyses, including statistical techniques to solve business problems through the use of information technology. Prerequisite: At least one graduate or undergraduate class in statistics. (Sp,Su)					
<b>MIS 6450</b>	<b>Human-Computer Interface Design</b>	<b>3</b>			
Application of human-computer interface design principles for e-commerce projects using an integrated development environment (IDE). (F)					
<b>MIS 6500</b>	<b>Developing Business Information Systems with Advanced Software Concepts</b>	<b>3</b>			
Creation of custom applications to solve typical business problems or support common functions using Visual Basic programming and OLE Automation with MS Office software. Prerequisite: Knowledge of database and spreadsheet software.					

# Course Descriptions

<b>MIS 6510</b>	<b>Information Systems for Business</b>	<b>3</b>
Introduction to information systems at general management level. Includes strategic look at needs of an organization and how the function of information systems can help the organization become more effective. (Su) <sup>DE</sup>		
<b>MIS 6550</b>	<b>International Business Communication</b>	<b>3</b>
Culture-general and culture-specific study of business communication in the diverse world of international business from both theoretical and applied perspectives.		
<b>MIS 6640</b>	<b>E-Commerce Data Interchange Using XML</b>	<b>3</b>
Designed to build e-commerce applications using XML (Extensible Markup Language) as the underlying technology. Students will also learn to parse XML documents, use Extensible Style Sheet language, and use XSQL (an Oracle technology) to tie XML with its database. Prerequisites: MIS 3100, 3330, and 3500.		
<b>MIS 6650</b>	<b>Advanced Website Development</b>	<b>3</b>
<b>(dual listing 5650)</b>		
Creating e-commerce websites using a combination of the following technologies: XHTML, PHP, JavaScript, and DBMSs such as Oracle, MySQL, SQL server 2005, etc. This technical course maintains a business focus as a transaction-oriented commercial site. Prerequisites: CS 1400 or MIS 3500; and MIS 3330. (Sp)		
<b>MIS 6660</b>	<b>The Adult Business Learner</b>	<b>3</b>
Focuses on the adult business learner, the concept of the "learning organization," and the different types of postsecondary institutions that provide adult training and education in business.		
<b>MIS 6700</b>	<b>Information Systems Strategies for Electronic Commerce</b>	<b>3</b>
A management-oriented treatment of general information systems principles and topics relating to information systems strategies for electronic commerce, such as business models, mass customization, market research, security and assurance, entrepreneurship, intelligent agents, virtual corporations, electronic payments, and customer service. (Sp)		
<b>MIS 6750</b>	<b>Business Process Reengineering Using Information Technology</b>	<b>3</b>
Examines methodologies and state-of-the-art thinking in the area of business process reengineering. Designed to help students understand how organizations manage change in contemporary global business environments by utilizing the latest information systems and technology techniques.		
<b>MIS 6770</b>	<b>Competency-based Instruction</b>	<b>3</b>
Business teachers learn how to develop competency-based instruction by completing a CBI project.		
<b>MIS 6800</b>	<b>Security of Business Information Systems</b>	<b>3</b>
<b>(dual listing 4800)</b>		
In-depth exploration of security issues in business information systems. Includes workstation, work-groups, intranet, and wide-area network security. Covers development of security policies and procedures. Includes information necessary to pass Certified Information Systems Security Professionals exam. Prerequisite: MIS 3500 or graduate admission. (Sp)		
<b>MIS 6810</b>	<b>Introduction to the Research Process</b>	<b>3<sup>®</sup></b>
Essential scientific research concepts of theory development and data collection and the technology of research, including writing and funding proposals, experimental and study design, and project management. Includes a hands-on research project conducted by the student. (F)		
<b>MIS 6950</b>	<b>Independent Readings</b>	<b>1-3<sup>®</sup></b>
Specialized projects for graduate students. (F,Sp,Su)		
<b>MIS 6970</b>	<b>Master's Paper</b>	<b>1-6<sup>®</sup></b>
Master's-level thesis or Plan B research credit. Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>MIS 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-3<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>MIS 7250</b>	<b>Graduate Research Internship</b>	<b>1-3<sup>®</sup></b>
For doctoral students desiring to improve their research capability. Prior approval required. Repeatable to a maximum of six credits. (F,Sp,Su)		

<b>MIS 7600</b>	<b>Historical Foundations of Information Systems</b>	<b>3</b>
Provides in-depth analysis and review of foundation literature, important topics, latest results, and emerging areas of information systems research. (Sp)		
<b>MIS 7610</b>	<b>Critical Analysis of Issues</b>	<b>3</b>
Examines critical analysis/thinking techniques, creative problem solving, and the identification of issues and trends in the field.		
<b>MIS 7950</b>	<b>Independent Readings</b>	<b>1-3<sup>®</sup></b>
Independent readings for graduate students. Repeatable to a maximum of 6 credits. (F,Sp,Su)		
<b>MIS 7970</b>	<b>Doctoral Dissertation</b>	<b>1-12<sup>®</sup></b>
Doctoral-level dissertation research credit. Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>MIS 7990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail <i>only</i> . Enrollment restricted to doctoral-level students only. Signature of department head required. (F,Sp,Su)		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.  
<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Military Science Leadership (MSL)

See Department of Military Science, pages 376-377

### Basic Course

<b>MSL 1010</b>	<b>Leadership and Personal Development</b>	<b>2<sup>®</sup></b>
Presents students with personal challenges and competencies that are critical for effective leadership. Students learn how personal development of life skills, such as goal setting, time management, physical fitness, and stress management, relate to leadership, officership, and the Army profession. Focuses on developing basic knowledge of Army Leadership Dimensions, while gaining a big-picture understanding of the ROTC program, its purpose in the Army, and its advantages for students. (F,Sp,Su)		
<b>MSL 1020</b>	<b>Foundation in Leadership</b>	<b>2<sup>®</sup></b>
Overview of leadership fundamentals, such as setting direction, problem-solving, listening, presenting briefs, providing feedback, and using effective writing skills. Explores dimensions of leadership values, attributes, skills, and actions in context of practical, hands-on, and interactive exercises. Promotes building of stronger relationships among cadets through common experiences and practical interaction. (F,Sp,Su)		
<b>MSL 2010</b>	<b>Innovative Tactical Leadership</b>	<b>2<sup>®</sup></b>
Explores dimensions of creative and innovative tactical leadership strategies and styles by studying historical case studies and engaging in interactive student exercises. Students practice aspects of personal motivation and team building. Focuses on continued development of knowledge of leadership values and attributes through understanding of rank, uniform, customs, and courtesies. Leadership case studies provide tangible context for learning the Soldier's Creed and Warrior Ethos. (F,Sp,Su)		
<b>MSL 2020</b>	<b>Leadership in Changing Environments</b>	<b>2<sup>®</sup></b>
Examines challenges of leading in complex contemporary operational environments. Highlights dimensions of cross-cultural challenges as applied to practical Army leadership tasks and situations. As they practice communication and team-building skills, students should develop greater self-awareness. (F,Sp,Su)		
<b>MSL 2110</b>	<b>BSS Foundations of Leadership</b>	<b>3</b>
Considers functional and dysfunctional behavior in leadership roles. Focuses on ethical/moral, historical, and social influences. Examines outlook, styles, skills, and behavior essential for providing successful leadership. (F,Sp)		

# Course Descriptions

**MSL 2400 Physical Readiness 1<sup>®</sup>**  
Physical conditioning course employing U.S. Army principles of fitness. Subjects include: body composition, nutrition, cardiorespiratory fitness, muscle endurance and strength, circuit training, and drills. (F,Sp,Su)

**MSL 2420 Ranger Preparation 2<sup>®</sup>**  
Participation in Army ROTC Ranger Challenge program. Advanced military training with practical application of skills taught in MSL 1010 and 4020. (F,Sp)

**MSL 2430 Air Assault 2**  
Two-week course conducted at an Army installation in the continental U.S. Provides students with training in helicopter operations, including sling loading and rappelling. Prerequisite: Instructor's approval. (F,Su)

**MSL 2440 Airborne Operations 2**  
Three-week course conducted at Fort Benning, Georgia. Provides students with training in military skydiving techniques with practical applications. Prerequisite: Instructor's approval. (F,Su)

**MSL 2510 Leader's Training Course 1-6**  
Four-week training held at Fort Knox, Kentucky. Combines intense classroom learning with hands-on field training. This course is an accelerated version of the two years of leadership development training cadets receive in the Basic Course. Students completing this course qualify for enrollment in the Advanced Course. Prerequisites: Passing score on APFT exam and instructor's approval. (F,Sp,Su)

## Advanced Course

**MSL 3010 Adaptive Team Leadership 3**  
Cadets study, practice, and evaluate leadership skills as they are presented with the demands of the ROTC Leader Development Assessment Course (LDAC). Challenging scenarios related to small-unit tactical operations are used to develop self-awareness and critical thinking skills. Cadets receive systematic and specific feedback on their leadership abilities. Cadets begin to analyze and evaluate their own leadership values, attributes, skills, and actions. Primary attention given to preparation for LDAC. (F,Sp)

**MSL 3020 Leadership Under Fire 3**  
Cadets experience increasingly intense situational leadership challenges. Skills in decision-making, persuading, and motivating team members when "under fire" are explored, evaluated, and developed. Aspects of military operations are reviewed as a means of preparing for LDAC. Cadets are expected to apply basic principles of the Law of Land Warfare, Army training, and motivation to troop leading procedures. Emphasizes conducting military briefings and developing proficiency in Garrison operations orders. (F,Sp)

**MSL 3110 Staff Organization and Operations 1-3<sup>®</sup>**  
Special project staff work for joint Army/Air Force campus ceremonies, leadership labs, field training exercises, and training camps. Prerequisite: Instructor's approval. (F,Sp,Su)

**MSL 3210 Independent Study 1-3<sup>®</sup>**  
Students select advanced topics of interest and arrange credit under program advisor supervision in areas related to military science. Prerequisite: Instructor's approval. (F,Sp,Su)

**MSL 4010 Developing Adaptive Leaders 3**  
Cadets develop proficiency in planning, executing, and assessing complex operations; functioning as a member of a staff; and in providing leadership-performance feedback to subordinates. They analyze, evaluate, coach, and instruct less-experienced cadets. Both their classroom and battalion leadership experiences are designed to prepare them for their first unit of assignment. Cadets identify responsibilities of key staff, coordinate staff roles, and use situational opportunities to teach, train, and develop subordinates. (F,Sp)

**MSL 4020 Leadership in a Complex World 3**  
Explores dynamics of leading in complex situations of current military operations. Examines customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. Significant emphasis placed on preparing cadets for their first unit of assignment. Case studies, scenarios, and "What Now, Lieutenant?" exercises used to prepare cadets to face complex ethical and practical demands of leading as commissioned officers in the United States Army. (F,Sp)

**MSL 4110 Advanced Staff Operations 1-3<sup>®</sup>**  
Special project staff work for joint Army/Air Force campus ceremonies, leadership labs, field training exercises, and training camps. Students in this course provide mentoring and guidance to students in MSL 3110. Prerequisite: Instructor's approval. (F,Sp,Su)

**MSL 4400 Advanced Physical Readiness 1<sup>®</sup>**  
Provides advanced instruction in physical fitness employing Army techniques and procedures. Students assist Military Science faculty in the planning/conduct of physical fitness training activities performed by lower-division students. Prerequisite: Instructor's approval. (F,Sp)

**MSL 4510 ROTC Leader Development and Assessment Course 1-10<sup>®</sup>**  
The most important training event for an Army ROTC cadet, this 33-day training event incorporates a wide range of subjects designed to develop and evaluate leadership ability. The challenges are rigorous and demanding, both mentally and physically. Warrior Forge tests intelligence, common sense, ingenuity, and stamina. These challenges provide a new perspective on an individual's ability to perform exacting tasks and make difficult decisions in demanding situations. Prerequisite: Successful completion of basic course requirements and instructor's approval. (F,Sp,Su)

**MSL 4520 Cadet Troop Leadership Training 2**  
Two-week course conducted at an Army installation in the continental U.S. or overseas. Provides firsthand experience in an Army unit. Students learn about military life and the duties of a lieutenant. Prerequisites: MSL 3010, 3020, 4510, and instructor's approval. (F,Sp,Su)

**MSL 4610 DHA Military History Seminar 1-3<sup>®</sup>**  
In this class, students research, travel to, and report on significant Civil War sites in the Eastern United States. Students also become familiar with joint operations. Class is available to all students. Purchase of airfare and some meals is required. Prerequisite: Instructor's approval. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

## Music (MUSC)

See *Department of Music*, pages 378-385

**MUSC 1010 BCA Introduction to Music 3**  
Nontechnical course to develop understanding and enjoyment of music. Through study of musical elements, as well as historical, cultural, and social influences, an awareness of the relationship between techniques and aesthetic values in world music can be developed. (F,Sp,Su)<sup>DE</sup>

**MUSC 1100 BCA Fundamentals of Music 3**  
In-depth look at the basic elements of music. Notes, rhythm, scales, intervals, key signatures, chords, cadences, and chord progressions. Includes basic ear training. (F,Sp)<sup>DE</sup>

**MUSC 1110 Music Theory I 3**  
Fundamentals of music. Traditional diatonic harmony in four parts, using triads in root position, first inversion, and second inversion. Prerequisite: Knowledge of music notation. (F)

**MUSC 1120 Music Theory II 3**  
Traditional harmony in four parts, using nonchord tones, seventh chords, and secondary dominant functions. Prerequisite: MUSC 1110. (Sp)

**MUSC 1130 Aural Skills I 1**  
First in a four-semester sequence of aural skills (ear training) courses which develop the skills of sight singing, dictation, and the composite skill of critical listening. (F)

**MUSC 1140 Aural Skills II 1**  
Second in a four-semester sequence of aural skills (ear training) courses which develop the skills of sight singing, dictation, and the composite skill of critical listening. Prerequisite: MUSC 1130. (Sp)

**MUSC 1150 Beginning Group Piano 1**  
Group piano instruction for nonmusic majors. (Sp)

# Course Descriptions

<p><b>MUSC 1160 Intermediate Group Piano</b> 1 Group piano instruction for nonmusic majors. (Sp)</p> <p><b>MUSC 1170 Keyboard Harmony I</b> 1 Development of keyboard skills, in conjunction with MUSC 1110, for music majors and minors. (F)</p> <p><b>MUSC 1180 Keyboard Harmony II</b> 1 Development of keyboard skills, in conjunction with MUSC 1120, for music majors and minors. Prerequisite: Completion of MUSC 1170 with a C- or better, or faculty authorization. (Sp)</p> <p><b>MUSC 1200 Teaching Piano I</b> 3 Shows pianist how to set up an independent studio, acquire and set up equipment, schedule students, set fees, bill parents, and keep the books. Students learn how to write a studio policy and how to audition and interview prospective students. Survey of different methods and piano series affords opportunity for students to evaluate teaching materials. Includes teaching of basic music concepts to beginning piano students. (F,Sp)<sup>DE</sup></p> <p><b>MUSC 1220 Individual Harp Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private harp instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1310 Introduction to Music Therapy</b> 2 Introduces students to the field of music therapy through lectures, readings, and experiential work. Prerequisite: Enrollment in a pre-music major. (F)</p> <p><b>MUSC 1320 Music Therapy Ensemble</b> 1<sup>®</sup> Intended for music therapy majors. Designed to help students increase their performance skills in the areas of accompanying, improvisation, and popular music styles. (F,Sp)</p> <p><b>MUSC 1420 Pedagogy Practicum</b> 3<sup>®</sup> Provides piano students with actual teaching situations for the practical application of principles studied in piano pedagogy. Supervised planning, presentation, and evaluation of lessons. (F,Sp)</p> <p><b>MUSC 1430 Piano Pedagogy I</b> 3 Designed to prepare qualified pianists to teach piano effectively and to acquaint them with new materials and techniques from the beginning to intermediate levels. (F)</p> <p><b>MUSC 1440 Piano Pedagogy II</b> 3 Designed to prepare qualified pianists to teach piano effectively and to acquaint them with new materials and techniques from the intermediate to early advanced levels. (Sp)</p> <p><b>MUSC 1460 CI Organ Literature I**</b> 3 Examines the history of the organ, as well as composers and literature from the Romantic Period through the end of the Twentieth Century. (F)</p> <p><b>MUSC 1470 CI Organ Literature II**</b> 3 Examines the history of the organ, as well as composers and literature from the Middle Ages through the Baroque Period. (Sp)</p> <p><b>MUSC 1480 Individual Piano Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private piano instruction at any and all stages of advancement. (F,Sp,Su)<sup>DE</sup></p> <p><b>MUSC 1490 Individual Organ Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private organ instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1500 String Techniques I</b> 1 Designed to give prospective music teachers a basic playing experience and theoretical understanding of the string instruments. (F,Sp)</p>	<p><b>MUSC 1520 Individual Viola Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private viola instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1530 Individual Violin Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private violin instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1540 Individual String Bass Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private string bass instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1550 Beginning Group Guitar</b> 1 Fundamentals of guitar; basic chords, note reading, tablature reading, and accompaniment styles, including strumming and fingerpicking. (F,Sp)<sup>DE</sup></p> <p><b>MUSC 1560 Intermediate Group Guitar</b> 1 Intermediate-level strumming and fingerpicking techniques, barre chords, and solos written in standard notation and tablature will be presented. (F,Sp)</p> <p><b>MUSC 1580 Individual Guitar Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private guitar instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1600 Voice Techniques</b> 1 Acquaints the nonvocal major with the vocal instrument; its mechanism, terminology, and techniques. (F,Sp)</p> <p><b>MUSC 1610 Introduction to Musical Theatre</b> 2 Survey course dealing with history, evolution, influence, practice, and production of the American Musical Theatre. (Sp)</p> <p><b>MUSC 1620 Introduction to Opera</b> 2 Survey course tracing history and style of opera from Peri and Caccini's "Euridice" of 1594 to contemporary works of John Eaton and Phillip Glass. (F)<sup>DE</sup></p> <p><b>MUSC 1630 Individual Vocal Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private vocal instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1700 Individual Flute Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private flute instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1710 Individual Oboe Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private oboe instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1720 Individual Clarinet Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private clarinet instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1730 Individual Bassoon Instruction for Nonmusic Majors</b> 1-2<sup>®</sup> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private bassoon instruction at any and all stages of advancement. (F,Sp,Su)</p>
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# Course Descriptions

<p><b>MUSC 1740</b>            <b>Individual Saxophone Instruction for Nonmusic Majors</b>            <b>1-2<sup>®</sup></b> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private saxophone instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1800</b>            <b>Percussion Techniques</b>            <b>1</b> Provides basic playing experience and theoretical understanding of percussion instruments. Designed for music majors. (F)</p> <p><b>MUSC 1810</b>            <b>Individual Trumpet Instruction for Nonmusic Majors</b>            <b>1-2<sup>®</sup></b> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private trumpet instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1820</b>            <b>Individual Trombone Instruction for Nonmusic Majors</b>            <b>1-2<sup>®</sup></b> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private trombone instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1830</b>            <b>Individual French Horn Instruction for Nonmusic Majors</b>            <b>1-2<sup>®</sup></b> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private French horn instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1840</b>            <b>Individual Tuba/Euphonium Instruction for Nonmusic Majors</b>            <b>1-2<sup>®</sup></b> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private tuba/euphonium instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 1850</b>            <b>Individual Percussion Instruction for Nonmusic Majors</b>            <b>1-2<sup>®</sup></b> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private percussion instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 2110</b>            <b>Music Theory III</b>            <b>3</b> Traditional chromatic harmony in four parts, using modulation, mode mixture, and neapolitan and augmented sixth chords. Prerequisites: MUSC 1110 and 1120. (F)</p> <p><b>MUSC 2120</b>            <b>Music Theory IV</b>            <b>3</b> Study of Twentieth Century tonal, atonal, and avante garde harmonies and compositional techniques. Prerequisites: MUSC 3110 and 3120. (Sp)</p> <p><b>MUSC 2130</b>            <b>Aural Skills III</b>            <b>1</b> Third in a four-semester sequence of aural skills (ear training) courses which develop the skills of sight singing, dictation, and the composite skill of critical listening. Prerequisites: MUSC 1130 and 1140. (F)</p> <p><b>MUSC 2140</b>            <b>Aural Skills IV</b>            <b>1</b> Fourth in a four-semester sequence of aural skills (ear training) courses which develop the skills of sight singing, dictation, and the composite skill of critical listening. Prerequisites: MUSC 1130, 1140, and 2130. (Sp)</p> <p><b>MUSC 2210</b>            <b>Instrumental Conducting Ensemble</b>            <b>1<sup>®</sup></b> Lab group for MUSC 4240. Music and nonmusic majors play major and secondary instruments in two concerts per semester. (F)</p> <p><b>MUSC 2220</b>            <b>Individual Harp Instruction (Second Instrument) for Music Majors</b>            <b>1<sup>®</sup></b> Designed to give music majors private harp instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2310</b>            <b>Introduction to Observational and Behavioral Methods in Music Therapy</b>            <b>2</b> Basic behavioral terminology and methods, including systematic observations and recording methods for use in music therapy. Students conduct observations in clinical settings in the community. (F)</p>	<p><b>MUSC 2320</b>            <b>Music Therapy Methods and Materials</b>            <b>2</b> Music interventions and techniques appropriate for a wide range of patient populations, including hospitalized children, older adults, and individuals with orthopedic handicaps. Prerequisites: MUSC 1310 and 2310. (Sp)</p> <p><b>MUSC 2350</b>            <b>Conducting</b>            <b>2</b> Designed to provide students with basic conducting techniques. Prerequisites: MUSC 2110 and must be a pre-music or music major. (F)</p> <p><b>MUSC 2410</b>            <b>Individual Organ Instruction (Second Instrument) for Music Majors</b>            <b>1<sup>®</sup></b> Designed to give music majors private organ instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2420</b>            <b>Piano Literature I**</b>            <b>3</b> Acquaints pianists with the standard piano composers and keyboard literature from the 14th Century to the Classical Period. (F)</p> <p><b>MUSC 2430</b>            <b>Piano Literature II**</b>            <b>3</b> Acquaints pianists with the standard piano composers and keyboard literature from the Classical Period to the Romantic Period. (Sp)</p> <p><b>MUSC 2440</b>            <b>Piano Literature III*</b>            <b>3</b> Acquaints pianists with the standard piano composers and keyboard literature from the Romantic Period to Impressionism. (F)</p> <p><b>MUSC 2450</b>            <b>Piano Literature IV*</b>            <b>3</b> Acquaints pianists with the standard piano composers and keyboard literature from the Impressionist Period to the present day. (Sp)</p> <p><b>MUSC 2460</b>            <b>Individual Jazz Piano Instruction for Nonmusic Majors</b>            <b>1-2<sup>®</sup></b> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private jazz piano instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 2470</b>            <b>Individual Jazz Piano Instruction (Second Instrument) for Music Majors</b>            <b>1<sup>®</sup></b> Designed to give music majors private jazz piano instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2490</b>            <b>Individual Piano Instruction (Second Instrument) for Music Majors</b>            <b>1<sup>®</sup></b> Designed to give music majors private piano instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2500</b>            <b>Individual String Bass Instruction (Second Instrument) for Music Majors</b>            <b>1<sup>®</sup></b> Designed to give music majors private string bass instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2510</b>            <b>Individual Cello Instruction for Nonmusic Majors</b>            <b>1-2<sup>®</sup></b> Variable credit offered, depending upon lesson time (1 credit equals 30 minutes). Designed to give nonmusic majors private cello instruction at any and all stages of advancement. (F,Sp,Su)</p> <p><b>MUSC 2520</b>            <b>Individual Cello Instruction (Second Instrument) for Music Majors</b>            <b>1<sup>®</sup></b> Designed to give music majors private cello instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2530</b>            <b>Individual Viola Instruction (Second Instrument) for Music Majors</b>            <b>1<sup>®</sup></b> Designed to give music majors private viola instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p>
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# Course Descriptions

<p><b>MUSC 2540</b>      <b>Individual Violin Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private violin instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2550</b>      <b>Guitar Styles (Blues/Bluegrass)*</b>      <b>2</b> Designed to teach students to play blues and bluegrass guitar styles. Presentation of musical form and repertoire. Prerequisite: Knowledge of basic chords and some standard notation and/or tablature reading. (F)</p> <p><b>MUSC 2560</b>      <b>Guitar Styles (Jazz/Classical)*</b>      <b>2</b> Designed to teach students to play jazz and classical guitar styles. Presentation and analysis of pieces which have become "standard" repertoire. Prerequisite: Knowledge of basic chords and some experience reading standard notation and/or tablature. (Sp)</p> <p><b>MUSC 2570</b>      <b>Fingerboard Theory I</b>      <b>2</b> Basic music theory course in which students use the guitar as a tool for learning the fundamentals of music. (F)</p> <p><b>MUSC 2580</b>      <b>Fingerboard Theory II</b>      <b>2</b> Follow-up to MUSC 2570. Examination of theoretical concepts of music and how they can be visualized and played on the guitar. (Sp)</p> <p><b>MUSC 2590</b>      <b>Individual Guitar Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private guitar instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2600</b>      <b>Women's Choir</b>      <b>1<sup>®</sup></b> Performance of choral works in a large choral organization open to all women without auditions. (F,Sp)</p> <p><b>MUSC 2610</b>      <b>American Festival Chorus</b>      <b>1<sup>®</sup></b> Large select mixed choir performing major works for chorus and orchestra. Admission by audition only. (F,Sp)</p> <p><b>MUSC 2640</b>      <b>Individual Vocal Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private vocal instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2660</b>      <b>Italian Diction for Singers</b>      <b>2</b> Study of singing diction in Italian using International Phonetic Alphabet in spoken, sung, and written drills. (Sp)</p> <p><b>MUSC 2670</b>      <b>German Diction for Singers</b>      <b>2</b> Study of singing diction in German using International Phonetic Alphabet in spoken, sung, and written drills. (F)</p> <p><b>MUSC 2680</b>      <b>French Diction for Singers</b>      <b>2</b> Study of singing diction in French using International Phonetic Alphabet in spoken, sung, and written drills. (Sp)</p> <p><b>MUSC 2700</b>      <b>Woodwind Techniques I: Flute, Clarinet</b>      <b>1</b> Provides music education major with an introduction to performance and pedagogy of the flute and clarinet. Enrollment limited to majors, or with permission of instructor. (F)</p> <p><b>MUSC 2710</b>      <b>Woodwind Techniques II: Saxophone, Oboe, Bassoon</b>      <b>1</b> Provides music education major with an introduction to performance and pedagogy for the saxophone, oboe, and bassoon. Enrollment limited to majors or with permission of instructor. Prerequisite: MUSC 2700. (Sp)</p> <p><b>MUSC 2720</b>      <b>Marching Band</b>      <b>2<sup>®</sup></b> Preparation of musical entertainment and marching drills for football games. Prerequisite: Consent of director. (F)</p> <p><b>MUSC 2730</b>      <b>Basketball Band</b>      <b>1<sup>®</sup></b> Preparation of "pops" type music for basketball games. Audition necessary. Prerequisite: MUSC 2720. (Sp)</p>	<p><b>MUSC 2740</b>      <b>Recorder Techniques</b>      <b>1</b> Provides music majors with introduction to performance and pedagogy of the recorder, including solo repertoire and ensembles. (Sp)</p> <p><b>MUSC 2750</b>      <b>Individual Flute Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private flute instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2760</b>      <b>Individual Oboe Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private oboe instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2770</b>      <b>Individual Clarinet Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private clarinet instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2780</b>      <b>Individual Bassoon Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private bassoon instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2790</b>      <b>Individual Saxophone Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private saxophone instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2800</b>      <b>Brass Techniques I: Trumpet, French Horn</b>      <b>1</b> Designed to give prospective music teachers a basic playing experience and theoretical understanding of the high brass instruments. (F)</p> <p><b>MUSC 2810</b>      <b>Brass Techniques II: Trombone, Tuba, Euphonium</b>      <b>1</b> Designed to give prospective music teachers a basic playing experience and theoretical understanding of the low brass instruments. (Sp)</p> <p><b>MUSC 2850</b>      <b>Individual Trumpet Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private trumpet instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2860</b>      <b>Individual Trombone Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private trombone instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2870</b>      <b>Individual French Horn Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private French horn instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 2880</b>      <b>Individual Tuba/Euphonium Instruction (Second Instrument) for Music Majors</b>      <b>1<sup>®</sup></b> Designed to give music majors private tuba/euphonium instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p>
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# Course Descriptions

<p><b>MUSC 2890 Individual Percussion Instruction (Second Instrument) for Music Majors</b> 1<sup>®</sup> Designed to give music majors private percussion instruction at any and all stages of advancement. One credit given for 30-minute lessons. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 3010 DHA Masterpieces of Music</b> 3 Acquaints students with great masterpieces of music representing all periods of music history. Examines lives and times of various composers. (F,Sp)</p> <p><b>MUSC 3020 DHA History of Jazz</b> 3 Designed to give students an understanding of the development of jazz, popular music, and contemporary idioms, and their contributions to music and culture. (Sp)</p> <p><b>MUSC 3100 Motivation and Classroom Management Strategies in Secondary Classroom Music</b> 3 Provides experience in current materials, methods, and management of general music education program in secondary (grades 6-12) public schools. Designed for music education majors. (Sp)</p> <p><b>MUSC 3110 Music History I: Origins through Baroque</b> 3 History and literature of early, Renaissance, and Baroque periods. Prerequisite: MUSC 2110. (Sp)</p> <p><b>MUSC 3120 Music History II: Classical and Romantic Periods</b> 3 History and literature of the music of the classical and romantic periods. Prerequisites: MUSC 3110 and 3140. (F)</p> <p><b>MUSC 3140 Musical Form and Analysis</b> 3 Study of imitative, cantus firmus, ostinato, and free contrapuntal procedures of Western music. Explores techniques of Sixteenth Century counterpoint. Also includes study of phrase and period structure, small part forms, theme and variations, rondo and sonata forms, and vocal forms. Prerequisite: MUSC 2110. (Sp)</p> <p><b>MUSC 3160 World Music</b> 2 Explores music traditions of non-Western cultures throughout the world. Prerequisites: MUSC 2110. (Sp)</p> <p><b>MUSC 3180 Scoring and Arranging</b> 2 Theoretical and practical study of scoring for orchestral instruments in various combinations, ranging from small ensembles to full orchestra. Prerequisite: MUSC 2140 or permission of instructor. (F,Sp)</p> <p><b>MUSC 3190 CI Music History III: Music of the Twentieth Century</b> 3 Explores historical and cultural context of important composers and works of the modern and postmodern eras, including the influence of non-Western musical traditions. Prerequisites: MUSC 3110 and 3120. (Sp)</p> <p><b>MUSC 3210 Individual Harp Instruction for Music Majors</b> 1-2<sup>®</sup> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private harp instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 3220 Choral Methods and Materials</b> 2 Investigates factors relating to administration and teaching of choral music in middle and secondary schools. (F)</p> <p><b>MUSC 3230 Choral Literature</b> 2 Survey of choral music from the Renaissance, Baroque, Classical, Romantic, and Twentieth Century suitable for middle and secondary school choirs. (Sp)</p> <p><b>MUSC 3240 Instrumental Methods and Materials</b> 2 Examination of teaching methods and materials related to wind and percussion pedagogy. Study of literature, organization and administration, and teaching techniques. (Sp)</p>	<p><b>MUSC 3260 Elementary School Music</b> 2 Methods and materials in singing, rhythms, creating music, listening, using classroom instruments, fundamentals of music, and movement skills, with emphasis on contemporary approaches to music education. Recommended: MUSC 1010. Enrollment limited to students who have earned at least 45 credits and who have been accepted into one of the following majors: Pre-music, music education, music therapy, pre-early childhood education, pre-elementary education, early childhood education, special education, composite early childhood education/special education, composite early childhood education/elementary education, communicative disorders and deaf education, composite early childhood education/deaf education, elementary education, composite elementary education/special education, composite elementary education/early childhood education, or composite elementary education/deaf education. (F,Sp,Su)<sup>DE</sup></p> <p><b>MUSC 3310 Music Therapy and the Exceptional Child</b> 3 Effects of music on physical, social, cognitive, and communication skills of children with disabilities. (F)</p> <p><b>MUSC 3320 Psychology of Music I**</b> 2 Psychological foundations of musical behavior, including psychoacoustics, rhythmic, melodic, and harmonic foundations; affective behaviors and music; musical preferences; functional music; musical ability; and music learning. (Sp)</p> <p><b>MUSC 3330 Music Therapy Practicum</b> 1-3<sup>®</sup> Supervised practicum experience in a community setting with disabled adults, children, older adults, or individuals in a medical setting. Prerequisite: MUSC 2320. (F,Sp)</p> <p><b>MUSC 3360 MIDI Studio Techniques</b> 2 Elements of synthesizer sound production and basic studio techniques. (Sp)</p> <p><b>MUSC 3370 Sound Recording and Reinforcement Techniques</b> 2<sup>®</sup> Explores techniques of studio recording, including microphones, mixing, and signal processing. (Sp)</p> <p><b>MUSC 3400 Individual Piano Instruction for Music Majors</b> 1-2<sup>®</sup> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private piano instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 3410 Ensemble and Accompanying</b> 1-2<sup>®</sup> Accompanying vocal and instrumental works. Ensemble music for two pianos and four hands. Sight reading and repertoire development. Admission by audition only, with 16 students per section. (F,Sp)</p> <p><b>MUSC 3420 Keyboard Skills I</b> 3 Study of sightreading, transposing, improvising, figured bass, scales, chords, and score rendering. (F)</p> <p><b>MUSC 3430 Keyboard Skills II</b> 3 Continuation of MUSC 3420, with further study of sightreading, transposing, improvising, figured bass, scales, chords, and score reading. (Sp)</p> <p><b>MUSC 3440 Individual Jazz Piano Instruction for Music Majors</b> 1-2<sup>®</sup> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private jazz piano instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 3460 Church Music for Organists I*</b> 3 Teaches students to read open scores, transpose hymns, and read scores using alto and tenor clefs. Explores history of hymnody, as well as history of church worship services. (F)</p> <p><b>MUSC 3470 Church Music for Organists II*</b> 3 Teaches students to read open scores, transpose hymns, and read scores using alto and tenor clefs. Explores history of hymnody, as well as history of church worship services. (Sp)</p>
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# Course Descriptions

<b>MUSC 3480</b>	<b>Individual Organ Instruction for Music Majors</b>	<b>1-2<sup>®</sup></b>
Provides 60-minute lessons, for either 1 or 2 credits. Number of credits granted depends upon practice time and extent of literature required. Flexible course of study leading to enhanced musical and technical skills on the instrument. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)		
<b>MUSC 3500</b>	<b>DHA Symphony Orchestra</b>	<b>1<sup>®</sup></b>
Provides experience in performing standard orchestral literature. Admission by audition only. (F,Sp)		
<b>MUSC 3510</b>	<b>Orchestra Literature</b>	<b>2</b>
Survey of materials, methods, and literature appropriate for elementary school, junior high/middle school, or high school level orchestra programs. (Sp)		
<b>MUSC 3520</b>	<b>String Pedagogy and Solo Literature**</b>	<b>2<sup>®</sup></b>
For qualified string players whose interest is primarily in teaching stringed instruments. Materials and teaching techniques via actual teaching experience. Prerequisite: Permission of instructor. (F,Sp)		
<b>MUSC 3530</b>	<b>Cache Chamber Orchestra</b>	<b>1<sup>®</sup></b>
Provides experience for nonmusic majors in performing standard orchestral literature. (F,Sp)		
<b>MUSC 3540</b>	<b>Guitar Performance Practicum</b>	<b>1<sup>®</sup></b>
On a weekly basis, students required to perform for other class members. Repertoire selected in consultation with the instructor. Community performances also required. (F,Sp)		
<b>MUSC 3550</b>	<b>Individual Guitar Instruction for Music Majors</b>	<b>1-2<sup>®</sup></b>
Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private guitar instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)		
<b>MUSC 3560</b>	<b>Guitar History and Literature**</b>	<b>3</b>
Development of guitar from its earliest ancestors to the present, including study of composers of music for guitar, guitarists, and changes to the instrument itself. (Sp)		
<b>MUSC 3570</b>	<b>Guitar Pedagogy I**</b>	<b>2</b>
Prepares qualified guitarists to teach beginning and intermediate level students. Familiarizes participants with "business" aspects of teaching, how to set up a private studio, available materials, and teaching techniques. (F)		
<b>MUSC 3580</b>	<b>Guitar Pedagogy II**</b>	<b>2</b>
Instruction in teaching various guitar styles. Experience in teaching class guitar and in private instruction. Review of available methods and materials. (Sp)		
<b>MUSC 3590</b>	<b>Electric Guitar Ensemble</b>	<b>1<sup>®</sup></b>
Offers opportunity for guitarists to rehearse and perform ensemble music written for electric guitar. Ensemble includes bass and drums. (F,Sp)		
<b>MUSC 3600</b>	<b>Opera Theatre Production</b>	<b>1-3<sup>®</sup></b>
Techniques of musical theater, including participation as cast or crew in musical or operatic stage productions or excerpts. (F,Sp)		
<b>MUSC 3610</b>	<b>Vocal Repertory I*</b>	<b>2</b>
Survey of German Lieder and French Melodie, including styles, history, and performance practice. (F)		
<b>MUSC 3620</b>	<b>CI Vocal Repertory II*</b>	<b>2</b>
Survey of Italian, American, and British song, including styles, history, and performance practice. (Sp)		
<b>MUSC 3630</b>	<b>Vocal Pedagogy I**</b>	<b>2</b>
Theoretical course studying anatomy and function of the voice, methods for teaching techniques, respiration, phonation, articulation, and support and health of the voice. (F)		
<b>MUSC 3640</b>	<b>Vocal Pedagogy II**</b>	<b>2</b>
Application of vocal theory to teaching of young, post-pubescent, and mature male and female voices, including challenges of teaching each particular type. Includes practicum in which students teach individual vocal lessons under instructor's supervision. (Sp)		
<b>MUSC 3660</b>	<b>Opera by Children</b>	<b>3</b>
Creative process of developing opera in a classroom for fine-arts and language-arts core instruction. Instruction in opera history, music, drama, art and dance elements, and necessary facilitation skills to build on individual's natural curiosity and creativity utilized in the process. (F,Sp,Su) <sup>PE</sup>		
<b>MUSC 3670</b>	<b>Individual Vocal Instruction for Music Majors</b>	<b>1-2<sup>®</sup></b>
Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private vocal instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)		
<b>MUSC 3700</b>	<b>Woodwind Ensemble</b>	<b>1-2<sup>®</sup></b>
Helps students gain knowledge and understanding of literature for woodwind ensemble, to gain knowledge of rehearsal techniques for perfecting chamber music, and to demonstrate mastery of these skills through performance. Prerequisite: Permission of instructor. (F,Sp)		
<b>MUSC 3710</b>	<b>Individual Flute Instruction for Music Majors</b>	<b>1-2<sup>®</sup></b>
Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private flute instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)		
<b>MUSC 3720</b>	<b>Individual Oboe Instruction for Music Majors</b>	<b>1-2<sup>®</sup></b>
Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private oboe instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)		
<b>MUSC 3730</b>	<b>Individual Clarinet Instruction for Music Majors</b>	<b>1-2<sup>®</sup></b>
Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private clarinet instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)		
<b>MUSC 3740</b>	<b>Individual Bassoon Instruction for Music Majors</b>	<b>1-2<sup>®</sup></b>
Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private bassoon instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)		
<b>MUSC 3750</b>	<b>Individual Saxophone Instruction for Music Majors</b>	<b>1-2<sup>®</sup></b>
Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private saxophone instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)		
<b>MUSC 3760</b>	<b>Jazz Ensemble</b>	<b>1<sup>®</sup></b>
Select ensemble performing big band jazz music. Admission by audition only. (F,Sp)		
<b>MUSC 3770</b>	<b>Jazz Orchestra</b>	<b>1<sup>®</sup></b>
Preparation and performance of big band jazz music. Admission by audition only. (F,Sp)		



# Course Descriptions

<p><b>MUSC 3780 Flute Ensemble 1®</b> Helps students gain knowledge and understanding of flute ensemble, to gain knowledge of rehearsal techniques for perfecting chamber music, and to demonstrate mastery of these skills through performance. Enrollment limited to music majors and music therapy majors <i>only</i>. (F)</p> <p><b>MUSC 3790 DHA Symphonic Band 1®</b> Performance of significant works from symphonic band repertoire. Admission by audition or consent of instructor. (F,Sp)</p> <p><b>MUSC 3800 Trombone Ensemble 1®</b> Intended for trombone majors and nonmajors interested in performing music specifically written and/or arranged for four to twelve trombones. (F,Sp)</p> <p><b>MUSC 3810 Individual Trumpet Instruction for Music Majors 1-2®</b> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private trumpet instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp)</p> <p><b>MUSC 3820 Individual Trombone Instruction for Music Majors 1-2®</b> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private trombone instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp)</p> <p><b>MUSC 3830 Individual French Horn Instruction for Music Majors 1-2®</b> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private French horn instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp)</p> <p><b>MUSC 3840 Individual Tuba/Euphonium Instruction for Music Majors 1-2®</b> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private tuba/euphonium instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp)</p> <p><b>MUSC 3850 Brass Ensemble 1®</b> Helps students gain knowledge and understanding of brass ensemble, gain knowledge of rehearsal techniques for perfecting chamber music, and demonstrate mastery of these skills through performance. Prerequisite: Permission of instructor. (F,Sp)</p> <p><b>MUSC 3860 Individual Percussion Instruction for Music Majors 1-2®</b> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private percussion instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 3870 Percussion Ensemble 1®</b> Provides opportunity for percussionists to perform select percussion literature in a chamber music setting. (F,Sp)</p> <p><b>MUSC 3900 Jazz Improvisation 2</b> Study of techniques of jazz improvisation applicable to all instruments. Prerequisites: MUSC 2110 and 2130; or permission of instructor. (F,Sp)</p> <p><b>MUSC 3910 Individual Composition Instruction 1-12®</b> Individual study of techniques and procedures of music composition, emphasizing assistance in completing individual compositional projects, building composition portfolio, and preparing for composition recitals. Prerequisite: Permission of instructor. (F,Sp)</p>	<p><b>MUSC 3920 Marching Band Techniques 2</b> Reviews methods and materials necessary for directing high school marching bands, including administration, music selection, drill design, and computer-assisted instruction. Prerequisite: Instructor's permission. (F)</p> <p><b>MUSC 3930 Band Literature 2</b> Study of literature appropriate for beginning, intermediate, and advanced level band programs. Prerequisite: Instructor's permission. (F)</p> <p><b>MUSC 3950 Jazz Choir 1®</b> Emphasizes vocal ability, harmonic ear training, and rhythmic understanding. Ability to vocally improvise is helpful, though not a necessary prerequisite. Auditions held during the first week of fall semester. (F,Sp)</p> <p><b>MUSC 4210 Advanced Music Form and Analysis 3</b> Expands the contents and helps further develop the skills acquired in MUSC 3140, Musical Form and Analysis. Large and small sectional forms and contrapuntal procedures are further explored in works from the Classical, Romantic, and Modern eras. (F)</p> <p><b>MUSC 4240 Advanced Conducting 2</b> Covers techniques, procedures, materials, and philosophies appropriate to the motor skill of conducting and the pedagogy of rehearsal techniques with a band/choir/string ensemble. Students will be able to demonstrate techniques in music selection, score analysis, conducting gesture, and pedagogy. (F—instrumental) (Sp—Choral)</p> <p><b>MUSC 4310 Music Therapy with Adult Populations 3</b> Music therapy methods for adults with major mental illness. Overview of DSM-IV criteria. Psychotherapy models, including cognitive-behavioral and person-centered approaches to treatment. (F)</p> <p><b>MUSC 4320 CI Psychology of Music II 2</b> Research and laboratory course, emphasizing design, methods, and statistical procedures appropriate to research in music education and music therapy. Prerequisites: STAT 1040 and permission of instructor. (Sp)</p> <p><b>MUSC 4330 Clinical and Professional Issues in Music Therapy 3</b> Ethical considerations and issues related to private practice, marketing, and reimbursement, as well as continued exploration of psychotherapeutic models and MT methods with adults, specifically anxiety disorders and personality disorders. Prerequisites: MUSC 4310 and 4320. (Sp)</p> <p><b>MUSC 4340 Internship in Music Therapy 2</b> Six-month resident internship in affiliated, approved clinical setting. Graded Pass/Fail <i>only</i>. Prerequisite: Successful completion of senior year in music therapy. (F,Sp,Su)</p> <p><b>MUSC 4410 Advanced Piano Pedagogy I 1-2®</b> Continuation of MUSC 1430 and 1440, with analysis, performance, and teaching of basic repertoire at intermediate to advanced levels. Prerequisites: MUSC 1430, 1440. (F)</p> <p><b>MUSC 4420 Advanced Piano Pedagogy II 1-2®</b> Continuation of MUSC 4410, with analysis, performance, and teaching of basic repertoire at intermediate to advanced levels. Prerequisite: MUSC 4410. (Sp)</p> <p><b>MUSC 4500 String Ensemble 1®</b> Offers opportunity for capable string players to study and perform music written for variety of small ensemble combinations. Prerequisite: Enrollment in music or pre-music major, or special permission of instructor for nonmajors. (F,Sp)</p> <p><b>MUSC 4510 Individual Violin Instruction for Music Majors 1-2®</b> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private violin instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p>
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# Course Descriptions

<p><b>MUSC 4520 Individual Viola Instruction for Music Majors</b> 1-2<sup>®</sup> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private viola instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 4530 Individual Cello Instruction for Music Majors</b> 1-2<sup>®</sup> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private cello instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 4540 Individual String Bass Instruction for Music Majors</b> 1-2<sup>®</sup> Provides 60-minute lessons, for either 1 or 2 credits, for music majors only. Number of credits granted depends upon practice time and extent of literature required. Designed to give music majors private string bass instruction at any and all stages of advancement. Must be a pre-music major, music major, music education major, or music therapy major. (F,Sp,Su)</p> <p><b>MUSC 4550 Acoustic Guitar Ensemble</b> 1<sup>®</sup> Offers opportunity for guitarists to rehearse and perform intermediate and advanced music written for acoustic guitar. (F,Sp)</p> <p><b>MUSC 4600 DHA University Chorale</b> 1<sup>®</sup> Select mixed choir performing a wide range of choral literature. Admission by audition only. (F,Sp)</p> <p><b>MUSC 4610 National Standards Choir</b> 1<sup>®</sup> Choral ensemble focusing on music education through choral performance. Explores methods for teaching music through performance to middle and high school students. Special attention paid to National Standards in Music. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>MUSC 4620 Choral Conducting Practicum</b> 1<sup>®</sup> Application of principles of choral music education in public school setting. (F,Sp)</p> <p><b>MUSC 4650 DHA Chamber Singers</b> 1<sup>®</sup> Select small ensemble performing a wide range of choral literature. Admission by audition only. (F,Sp)</p> <p><b>MUSC 4700 DHA Wind Orchestra</b> 1<sup>®</sup> Highly-selective group, performing important traditional and contemporary works from the wind band repertoire. Entrance by audition only. (F,Sp)</p> <p><b>MUSC 4710 Jazz Combo</b> 1-2<sup>®</sup> Study and performance of the finest literature for the small jazz ensemble. Prerequisites: Audition and permission of instructor. (F,Sp)</p> <p><b>MUSC 4720 Saxophone Quartet</b> 1-2<sup>®</sup> Study and performance of the finest classical, jazz, and popular music for the saxophone quartet. Prerequisites: Audition and permission of instructor. (F,Sp)</p> <p><b>MUSC 4730 CI Directed Project in Instrumental Pedagogy</b> 2<sup>®</sup> Acquaints students with curricular and business issues of private music teaching. Through written assignments, reviews of literature, and interviews with professionals, students develop strategies for setting up, marketing, and maintaining a private studio. (F,Sp,Su)</p> <p><b>MUSC 4900 Baroque Counterpoint</b> 2 Writing and analysis of tonal counterpoint in two, three, and four parts. Prerequisites: MUSC 1110, 1120, 2110, 3140. (F)</p> <p><b>MUSC 4910 Music Composition</b> 2<sup>®</sup> Instruction in principles of music composition, and guidance in completing individual composition projects. Also, analysis of selected Twentieth Century masterworks. Prerequisites: MUSC 1110, 1120, 2110, 3140. (Sp)</p>	<p><b>MUSC 4920 Individual Recital</b> 1-6<sup>®</sup> Performance of pieces selected by the student and approved by the instructor, for performance in accordance with specific music area requirements. (F,Sp,Su)</p> <p><b>MUSC 4930 Readings and Conference</b> 1-6<sup>®</sup> Undergraduate course designed to provide special interest study. (F,Sp,Su)</p> <p><b>MUSC 4940 Senior Thesis</b> 1-6<sup>®</sup> As partial fulfillment of Honors Program requirements, students design and complete a major paper/project. Examples of projects include performance, composition, and musical analysis. (F,Sp,Su)</p> <p><b>MUSC 5420 Piano Literature I</b> 2 Provides comprehensive examination of piano literature, the history of the instrument, and performance practice. (F,Sp)</p> <p><b>MUSC 5980 Introduction to Music Research</b> 3 Acquaints graduate students with music research, information science, and technical writing. Topics addressed include print and electronic resources, historical editions, manuscripts and holographs, period recordings, performance practice resources, writing styles, and bibliographic resources. (F,Sp)</p> <p><b>MUSC 6100 Graduate Performance Ensemble</b> 1-2<sup>®</sup> Designed to give students opportunity for a high-level music experience in choral and instrumental performance ensembles. (F,Sp)</p> <p><b>MUSC 6110 Advanced Conducting</b> 2 Students master manual technique of conducting and improve score study procedures, resulting in analysis and communication of musical ideas. (F,Su)</p> <p><b>MUSC 6120 Advanced Rehearsal Techniques</b> 2<sup>®</sup> Provides students with conducting experience within their major performance areas; i.e., chorale, band, orchestra. This is accomplished through observation of rehearsal techniques and procedures, and by conducting rehearsals at the instructor's discretion. (F,Sp)<sup>DE</sup></p> <p><b>MUSC 6130 Music History Seminar</b> 3<sup>®</sup> Close study and discussion of a special topic in music history, emphasizing individual research and presentation. Since content differs each semester, course may be repeated for credit. Prerequisite: MUSC 5980. (F,Sp)</p> <p><b>MUSC 6140 Music Theory Seminar</b> 3<sup>®</sup> Close study and discussion of a special topic in music theory, emphasizing individual analysis and presentation. Since content differs each semester, course may be repeated for credit. Prerequisite: MUSC 5980. (F,Sp)</p> <p><b>MUSC 6410 Collaborative Artistry</b> 3<sup>®</sup> Helps graduate pianists to develop the skills needed for vocal and instrumental accompaniment. Addresses techniques in score analysis, transposition, ensemble skills, etc. Students receive coaching from piano, voice, and instrumental faculty. (F,Sp)</p> <p><b>MUSC 6420 Pedagogy Practicum</b> 2<sup>®</sup> Observation of master instructors, practice teaching (private and classroom), and supervised studio instruction. (F,Sp)</p> <p><b>MUSC 6430 Advanced Piano Pedagogy</b> 2 Pedagogy of beginning, intermediate, and advanced methods of teaching piano, as well as strategies for developing a private studio. (F,Sp)</p> <p><b>MUSC 6440 Piano Literature II</b> 2 Provides comprehensive examination of piano literature, the history of the instrument, and performance practice. (F,Sp)</p> <p><b>MUSC 6610 Practicum in Choral Performance</b> 1-4<sup>®</sup> Provides the graduate student with insight into advanced choral techniques and methods of preparing choirs for performance by rehearsing one of the University choirs on assigned choral selections while being critiqued by the ensemble director. (F,Sp)</p> <p><b>MUSC 6620 Seminar in Choral Literature</b> 2 Designed to study and internalize principal forms of choral music through discussion of historical evolution and stylistic characteristics of the periods of music. Embraces significant choral functions of every style period. (Sp,Su)</p>
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# Course Descriptions

**MUSC 6630 Individual Instruction for Graduates 1-2<sup>®</sup>**  
Includes 60-minute lessons for either 1 or 2 credits. Number of credits granted depends upon practice time and extent of literature required. Designed to give graduate students private instruction at any and all stages of advancement. Prerequisite: Instructor's permission. (F,Sp)

**MUSC 6900 Independent Study 1-6<sup>®</sup>**  
Advanced course designed to meet specific problems of the music educator and the applied music specialist. (F,Sp,Su)

**MUSC 6910 Individual Recital 1-3<sup>®</sup>**  
Preparation and presentation of graduate recital, under supervision of major professor. (F,Sp,Su)

**MUSC 6970 Research and Thesis 2-6<sup>®</sup>**  
Individual work in thesis writing with guidance and criticism. Graded Pass/Fail only. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

## Navajo (NAV)

See *Department of Languages, Philosophy, and Speech Communication*, pages 334-346

**NAV 3040 Navajo Literacy and Grammar for Native Speakers 3**  
Designed to develop advanced skills in the grammar, comprehension, reading, and writing of Navajo. Integrates Diné holistic teaching concepts in accordance with the "Hózhóogo liná" four-direction Diné philosophy of learning paradigm. Prerequisite: Permission of instructor. (Sp)

**NAV 3050 Navajo Descriptive and Narrative Writing 3**  
Presents reading and writing in the genres of Navajo narration and description. Prepares students to take the Navajo Language Proficiency Exam, and integrates holistic teachings in accordance with the "Hózhóogo liná" four-direction Diné philosophy of learning paradigm. Prerequisite: Permission of instructor. (F)

**NAV 4400 Teaching Navajo as a Second Language 3**  
Addresses major issues in the teaching/learning of second languages, with emphasis on Navajo as taught in the public schools. Integrates Diné holistic teaching concepts in accordance with the "Hózhóogo liná" four-direction Diné philosophy of learning paradigm. Prerequisite: Permission of instructor. (Sp)

**NAV 4410 Teaching Navajo to Native Speakers 3**  
Addresses major issues and methods in teaching Navajo literacy and Navajo language arts to native speakers of Navajo. Integrates Diné holistic teaching concepts in accordance with the "Hózhóogo liná" four-direction Diné philosophy of learning paradigm. Prerequisite: Permission of instructor. (F)

## National Environmental Policy Act (NEPA)

See *Certificate Program in National Environmental Policy Act (NEPA)*, pages 386-387

**NEPA 6200 How to Manage the NEPA Process and Write Effective NEPA Documents 2**  
Introduction to National Environmental Policy Act (NEPA) and the Council on Environmental Quality regulations. Explores various levels of NEPA documentation and the skills necessary to identify the actions needed for a thorough environmental analysis. <sup>DE</sup>

**NEPA 6210 Clear Writing for NEPA Specialists 2**  
Teaches how to identify the writing and editing requirements unique to NEPA documents, including making graphics, writing chapters, and reviewing documents for accuracy. <sup>DE</sup>

**NEPA 6220 Reviewing NEPA Documents 2**  
Focuses on how to review the full range of NEPA documents, including Environmental Impact Statements (EISs), Environmental Assessments (EAs), Findings of No Significant Impacts (FONSI)s, and Records of Decisions (RODs). <sup>DE</sup>

**NEPA 6230 Risk Communication for NEPA Specialists: Strategies and Implementation 2**  
Explains meaning and application of risk communication. Explores full range of response communication, including development of a communication plan and strategy, standing before an audience, and responding to comments in writing.

**NEPA 6260 Cultural and Natural Resource Management 2**  
Teaches how to manage cultural and natural resources on public lands. Addresses pertinent laws and associated executive orders and regulations pertaining to the preservations of these resources and budget issues. <sup>DE</sup>

**NEPA 6270 Environmental Compliance Overview 1**  
Explores why environmental compliance is not only desirable and necessary, but is also a personal responsibility. Identifies key laws and regulations, with associated penalties affecting environmental compliance.

**NEPA 6280 Interdisciplinary Team Building 1**  
Teaches general principles of interdisciplinary team building. Explores how information flows and how this can impact the success of a team. Students work as a team to apply the principles learned to scenarios of day-to-day actions. <sup>DE</sup>

**NEPA 6300 Effective Environmental Contracting 1**  
Presents a systematic approach to the writing and reviewing of environmental Statements of Works (SOWs). Providing hands-on experience, course includes case studies and examples applying to actual environmental projects.

**NEPA 6310 NEPA Writing for Technical Specialists 1**  
Designed to teach students how to use a "document management process" to become more efficient writers of NEPA documents.

**NEPA 6320 NEPA: Cumulative Impacts 1**  
Explores scoping and public involvement strategies leading to sound cumulative impact analysis. Students assess various impact methodologies and learn to record cumulative impact information in ways that support clear, legally sufficient EAs/EISs. <sup>DE</sup>

**NEPA 6330 Conflict Management in the NEPA Process 1**  
Trains students in NEPA conflict negotiation and management. Includes introduction to the nature of public conflict and management styles, along with environmental negotiation techniques.

**NEPA 6340 Content Analysis and Public Response Management 1**  
NEPA regulations require public participation on environmental documents. In this course, students learn how to establish a comprehensive database of respondents and a systematic method of sending and receiving documents. They also learn how to establish a coding structure reflecting demographic categories and subcategories. Since this course is not currently required for the Certificate Program in National Environmental Policy Act (NEPA), it may not be offered in the foreseeable future. For further information, contact the director of the NEPA Certificate Program.

**NEPA 6350 Socio-economic Impact Analysis for NEPA Specialists 1**  
Provides students with necessary tools (templates, checklists, and materials) and knowledge (including data analysis) for conducting socio-economic impact analysis, as required by NEPA and CEQ regulations.

**NEPA 6360 Overview of the Endangered Species Act 1**  
Explores history of the Endangered Species Act and various components of the Act. Examines requirements and procedures for complying with the Act. <sup>DE</sup>

**NEPA 6370 NEPA Capstone Experience 1**  
Consists of a project, internship, or comprehensive examination to be negotiated by the student, based upon opportunities available at the time and preferences of the student. Helps USU to certify that students receiving the certificate have basic mastery of the material presented in the program coursework. <sup>DE</sup>

# Course Descriptions

**NEPA 6380 NEPA Process Management 1**  
Focuses on teaching students to be effective team leaders by understanding how to control the process of project and plan development. Introduces students to various models on time management, project management, team management, and decision-making methods. Students also learn how to frame problems in such a way that they can more clearly identify alternative solutions and develop cause-and-effect models showing how their actions impact resources. <sup>DE</sup>

**NEPA 6390 NEPA Climate Change Analysis 1**  
Introduction to climate change in the NEPA analysis process. Discussion of science of climate change and impacts in regard to greenhouse gas emissions. Takes into account the effects of climate change on projects, as well as the resources that projects may impact. Students learn to use various methods for analyzing impacts and are exposed to several case studies and court decisions. Also includes guidance on preparation of legally adequate climate change analysis documents. <sup>DE</sup>

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Nutrition and Food Sciences (NFS)

See Department of Nutrition and Food Sciences, pages 394-405

**NFS 1000 Food Science from Farm to Fork 3**  
Explores the science and technology of food, including careers, disciplines, food commodities, food product development, and the future of food science. (F) <sup>DE</sup>

**NFS 1020 BLS Science and Application of Human Nutrition 3**  
Role of dietary choices in providing nutrients and their relationship to the social, mental, and physical well-being of people. How to evaluate nutritional status with personal data using computer diet analysis program. (F,Sp,Su) <sup>DE</sup>

**NFS 1050 Food Safety Manager Certification 0.5**  
Covers food safety information required by the Utah Food Safety Manager Certification Act. Includes role of food handlers in controlling food-borne disease, time-temperature, employee hygiene, sanitation methods, preventing contamination from time of purchase to time of serving, food service facilities/equipment, and HACCP. Graded Pass/Fail *only*. (F,Sp,Su) <sup>DE</sup>

**NFS 1240 Culinary Basics 3<sup>®</sup>**  
Develops fundamental skills specific to culinary arts. Investigates principles of ingredients and preparation methods. Practice provided in knife skills and cooking methods. Explores the effects of cooking on food quality. Enrollment limited to Nutrition and Food Sciences majors, Family and Consumer Sciences majors, and Family and Consumer Sciences Education majors *only*. (F,Sp)

**NFS 1250 Sanitation and Safety 3**  
Principles of sanitation and safety applied to food operations. Emphasizes personal hygiene habits and food handling practices that protect the health and safety of employees and consumers. (Sp) <sup>DE</sup>

**NFS 2020 Nutrition Throughout the Life Cycle 3**  
Application of nutrition principles to the human life cycle: nutrient functions, needs, sources, and alterations during pregnancy, lactation, growth, development, maturation, and aging. Prerequisite: NFS 1020. (Sp)

**NFS 2040 Introduction to Biotechnology 1**  
Introduces freshmen to the emerging field of biotechnology and the impact this technology has on society. Also taught as ADVS 2040, BIOL 2040, and PSC 2040. (Sp)

**NFS 3020 Nutrition and Physical Performance 2**  
Includes information on macro/micronutrient metabolism during exercise, specific problems experienced by athletes or highly active persons, myths, ergogenic aids, and current interests. Prerequisite: NFS 1020. (F)

**NFS 3070 Science of Food Preparation 4**  
Science principles underlying modern food theory and practice. Relation of physical and chemical properties of food components and their systems to food preparation. Prerequisite: CHEM 1120 or 2300 or 2310. (Sp)

**NFS 3100 QI Sensory Evaluation of Food 3**  
Design and implementation of sensory testing of foods. Emphasizes physiology of senses, testing methods, statistical analysis, and taste panel experience. Prerequisite: STAT 3000. (Sp)

**NFS 3110 DSC Food, Technology, and Health 3**  
Impact of food technology on food spoilage, food preservation, food quality, and foodborne diseases. Basic processing operations and regulations ensuring a safe food supply. Prerequisite: University Studies Breadth Life Sciences (BLS) course. (F) <sup>DE</sup>

**NFS 3600 Medical Terminology for Health Care Professionals 1**  
Internet-based course teaches medical terminology by focusing on medical word-building rules, prefixes, suffixes, and whole-body terminology related to human body systems. Also includes coverage of anatomy, pathological conditions, and diagnostic treatments and procedures. (F,Sp) <sup>DE</sup>

**NFS 4020 Advanced Nutrition 3**  
Structures, properties, and metabolism of protein, lipids, carbohydrates, vitamins, and minerals. Includes digestion, absorption, hormonal control, cellular biochemistry, metabolic interrelationships, excretion, etc. Prerequisites: NFS 1020, CHEM 3700, BIOL 2420. (F)

**NFS 4040 Dairy Foods 4**  
Explores manufacture of various dairy foods, including pasteurized milk, UHT milk, cream, cheddar cheese, cottage cheese, process cheese, yogurt, butter, and milk and whey powders. Three lectures and one lab. Prerequisite: Enrollment in Animal, Dairy and Veterinary Sciences major. (F)

**NFS 4050 CI Education and Counseling Methods in Dietetics I 2**  
Principles of education, counseling, and communication as applied to the field of nutrition education and clinical dietetics practice. Prerequisite: Junior level in Coordinated or Didactic Program in Dietetics. Corequisite: NFS 4550. (F)

**NFS 4060 CI Education and Counseling Methods in Dietetics II 2**  
Continuation of NFS 4050. Prerequisite: NFS 4050. Corequisite: NFS 4560. (Sp)

**NFS 4250 Culinary Skills and Management Rotation 3-9<sup>®</sup>**  
Internship experience in various food service settings. Specific locations and durations to be arranged by instructor. Prerequisite: Junior standing. Will not be offered after Summer 2009. (F,Sp,Su)

**NFS 4420 QI Nutrition Research Methodology 2**  
Development of experimental design, data collection, statistical analysis, interpretation, and presentation of results. Clinical, community, and management data analysis. Interpretation and presentation, including bench marking, cost/benefit analysis, and continuous quality improvement projects. Enrollment limited to seniors within the Coordinated Program in Dietetics (CPD) or Didactic Program in Dietetics (DPD). Prerequisites: STAT 1040, MATH 1050. (Sp)

**NFS 4440 QI Fundamentals of Food Engineering 4**  
Engineering concepts taught in a fundamental sense and applied to food processing. Concepts include: general problem solving techniques, material and energy balances, fluid dynamics, heat transfer, refrigeration, and kinetics of common biological processes used in food preparation. Prerequisite: PHYS 2110. (F)

**NFS 4450 Clinical Nutrition I Lab 1**  
Supplement to NFS 4550. Explores application of nutrition care process to medical case studies. (F)

**NFS 4460 Clinical Nutrition II Lab 1**  
Supplement to NFS 4560. Explores application of nutrition care process to medical case studies. (Sp)

**NFS 4480 Community Nutrition 3**  
Introduction to public health nutrition, food programs, and national nutrition monitoring. Prerequisite: NFS 1020. (F)

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<p><b>NFS 4550 Nutrition Assessment/Clinical Nutrition I</b> 4 Introduction to the profession of dietetics, assessment of nutrition status, and nutrition care planning. Pathophysiology of disease states and applied medical nutrition therapy. Prerequisite: CHEM 3700. Enrollment restricted to Nutrition and Food Sciences majors <i>only</i>. (F)</p> <p><b>NFS 4560 CI Clinical Nutrition II</b> 4 Continuation of NFS 4550. Prerequisite: NFS 4550. (Sp)</p> <p><b>NFS 4570 Clinical Nutrition Experience I</b> 1 Practical experience in health care facilities. Integration and application of material learned in NFS 4550. Corequisite: NFS 4550. Prerequisite: Acceptance into Coordinated Program in Dietetics. (F)</p> <p><b>NFS 4580 Clinical Nutrition Experience II</b> 2 Continuation of NFS 4570. Corequisite: NFS 4560. Prerequisite: NFS 4570. (Sp)</p> <p><b>NFS 4660 CI Medical Dietetics</b> 12 In-depth study of nutrition relationships in disease development and treatment with clinical experience in medical facilities in Salt Lake City. Prerequisites: NFS 4550, 4560, 4570, 4580. (F)</p> <p><b>NFS 4710 Quantity Food Preparation</b> 2 Principles of food preparation applied to large quantity production, menu planning, food selection, storage, and equipment. Prerequisites: NFS 1240, 1250, and 3070. (F)</p> <p><b>NFS 4720 QI Food Service Organization and Management</b> 2 Principles of organization, management theory, financial controls, human and labor relations, employee training, layout, and sanitation. Prerequisite: NFS 4710. (Sp)</p> <p><b>NFS 4730 Quantity Food Preparation Lab</b> 2 Practical experience in quantity food preparation. Integration and application of NFS 4710. Corequisite: NFS 4710. Prerequisites: NFS 1240 and acceptance into Coordinated Program in Dietetics. (F)</p> <p><b>NFS 4740 Food Service Organization and Management Lab</b> 2 Practical experience in food service management. Integration and application of NFS 4720. Prerequisite: NFS 4730. Corequisite: NFS 4720. (Sp)</p> <p><b>NFS 4750 Management of Dietetics</b> 3 Principles of management in dietetics and current practice issues. Prerequisite: Must be enrolled in final year in Coordinated Program in Dietetics (CPD) or Didactic Program in Dietetics (DPD). (Sp)</p> <p><b>NFS 4780 CI Maternal and Child Nutrition</b> 3-4 Normal and clinical nutritional requirements in pregnancy, lactation, and pediatrics. To be taken in Salt Lake City in conjunction with NFS 4660 or by Didactic Program in Dietetics (DPD) students in their final year. (F)</p> <p><b>NFS 4900 Special Problems</b> 1-4® Individual problems and research problems in Nutrition and Food Sciences. (F,Sp,Su)</p> <p><b>NFS 4990 Nutrition and Food Sciences Seminar</b> 1 Senior student paper and presentation on current topics in nutrition and food sciences. Prerequisite: Senior in NFS. (Sp)</p> <p><b>NFS 5020 Meat Technology and Processing (dual listing 6020)</b> 4 Emphasizes understanding the conversion of muscle to meat, fabrication of carcasses into primal and retail cuts, and principles underlying manufacture of processed meats. (F)</p> <p><b>NFS 5030 Dairy Technology and Processing (dual listing 6030)</b> 4 Covers biochemistry, microbiology, and technology of milk processing. Includes heat processing, fat separation, homogenization, concentration, drying, fermentation, freezing, and manufacture of dairy foods such as pasteurized milk, UHT milks, ice cream, cheeses, and yogurt. Prerequisites: NFS 5110/6110, 5560/6560. (F)</p>	<p><b>NFS 5110 CI Food Microbiology</b> 4 <b>(dual listing 6110)</b> Microorganisms in food spoilage, poisoning, preservation, and sanitation. Prerequisite: BIOL 2060 or 3300. (Sp)</p> <p><b>NFS 5150 Clinical Nutrition Practice</b> 1 Reinforces principles of medical nutrition therapy for preparation of dietetic internships. Includes detailed discussion of nutrition care process and its application in clinical settings. Reviews charting methods, education techniques, and various disease states commonly treated. Prerequisites: NFS 4550, 4560. Taught Pass/Fail <i>only</i>. (Sp)</p> <p><b>NFS 5160 Methods in Biotechnology: Cell Culture</b> 3 Techniques and fundamental knowledge for culturing mammalian and insect cells. Students will learn maintenance, growing, genetic engineering of cells, cytotoxicity, hybridoma creation, cloning, etc. Extensive laboratory experience is provided. Also taught as ADVS 5160, BIOL 5160, and PSC 5160. (Sp)</p> <p><b>NFS 5170 Principles of Food Safety and (dual listing 6170) Food Quality Assurance</b> 3 Explores modern issues and programs of safety and quality assurance used in the food industry, including Good Manufacturing Practices (GMP), sanitation, Hazard Analysis and Critical Control Points (HACCP), and Safe Quality Food (SQF). Prerequisite: NFS 5110. (Su)</p> <p><b>NFS 5200 Nutritional Epidemiology (dual listing 6200)</b> 2 Introduction to epidemiologic methods and their application to the study of nutrition, human health, and disease. Useful for students with career interests in nutrition, food sciences, dietetics, human health sciences, veterinary sciences, biology, public health, anthropology, social work, and public policy. Prerequisites: STAT 1040, NFS 1020. (F)</p> <p><b>NFS 5210 Advanced Public Health Nutrition (dual listing 6210)</b> 2 Effects of diet on development and prevention of disease. Conditions of public health significance, including birth defects, coronary heart disease, hypertension, stroke, Alzheimer's disease and other causes of dementia, cancer, osteoporosis, diabetes, and international health problems. Discussion of health concerns of minority populations, cross-cultural studies, government policy, and establishment of dietary recommendations. Prerequisites: STAT 1040 or higher, CHEM 3700 or higher. (Sp)</p> <p><b>NFS 5220 Endocrine Aspects of Nutrition (dual listing 6220)</b> 2 Provides physiological background into hormones involved in nutrient regulation, as well as mechanisms of hormone action at the cellular and molecular levels. Includes action of steroids in the nucleus and membrane-based signal transduction pathways. Course includes lectures and literature reviews/presentations. Prerequisite: CHEM 3700 or permission of instructor. Also taught as ADVS 5220/6220 and BIOL 5220/6220. (Sp)</p> <p><b>NFS 5240 Methods in Biotechnology: Protein Purification Techniques</b> 3 Reviews basic methods of protein purification, including scaled-up use of 100L fermenter, large-scale centrifugation, diafiltration, chromatography, and use of BioCAD. Prerequisite: CHEM 3700. Also taught as ADVS 5240, BIOL 5240, and PSC 5240. (Sp)</p> <p><b>NFS 5250 Occupational Experiences in Nutrition and Food Sciences</b> 1-3® On-the-job training. (F,Sp,Su)</p> <p><b>NFS 5260 Methods in Biotechnology: Molecular Cloning</b> 3 Laboratory-oriented course designed to teach molecular biology techniques such as DNA cloning, genetic probes, polymerase chain reaction, and DNA sequencing. Prerequisite: CHEM 3700 or 5710; or BIOL 3060; or permission of instructor. Also taught as ADVS 5260, BIOL 5260, and PSC 5260. (F)</p>
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# Course Descriptions

<p><b>NFS 5300</b>                    <b>Advanced Micronutrient Nutrition</b>                    <b>3</b>  <b>(dual listing 6300)</b>  Explores the function, interaction, and practical significance of micronutrients in human metabolism and the ability of the diet to meet these needs. Relates nutrient biochemical functions to specific deficiency symptoms. Prerequisite: NFS 4020. (Sp)</p>	<p><b>NFS 5410</b>                    <b>Nutrient Gene Interactions</b>                    <b>3</b>  <b>(dual listing 6410)</b>  Focuses on molecular interactions between nutrients and mechanisms of gene expression, including transcriptional regulation, post-transcriptional regulation, and epigenetics. Emphasizes nutrient/gene interactions involved in the etiology or prevention of chronic disease, such as cancer, cardiovascular disease, and metabolic syndrome. Prerequisite: CHEM 3700. (Sp)</p>	<p><b>NFS 5420</b>                    <b>Molecular Nutrition Laboratory</b>                    <b>2</b>  <b>(dual listing 6420)</b>  Explores modern molecular nutrition techniques for determining the influence of nutrients on gene regulation. Focuses on modern techniques commonly used in the field of molecular nutrition, including cell culture, mRNA isolation and quantification, western blotting, promoter cloning/mutation, and nutrient/trans factor interactions. (Sp)</p>	<p><b>NFS 5500</b>    <b>QI</b>                    <b>Food Analysis</b>                    <b>4</b>  <b>(dual listing 6500)</b>  Application and theory of physical, chemical, and instrumental techniques for determination of composition and quality of food. Prerequisite: NFS 5560/6560. (Sp)</p>	<p><b>NFS 5510</b>                    <b>Food Laws and Regulations</b>                    <b>2</b>  <b>(dual listing 6510)</b>  Provides background of federal/state laws and regulations and case law history affecting food production, processing, packaging, marketing, and distribution of food products. (Sp)</p>	<p><b>NFS 5560</b>                    <b>Food Chemistry</b>                    <b>4</b>  <b>(dual listing 6560)</b>  Chemical structure, properties, reactions, and interactions of the important chemical constituents of food. Prerequisites: CHEM 3700 and 3710, or NFS 3070. (F)</p>	<p><b>NFS 5610</b>                    <b>Food and Bioprocess Engineering</b>                    <b>3</b>  <b>(dual listing 6610)</b>  Standardization and compounding of biomaterials and food products; preservation processing using heat, refrigeration, concentration, and dehydration. Basic unit operations in the bioprocessing industry. Prerequisite: BIE 3200. Also taught as BIE 5610/6610. (F)</p>	<p><b>NFS 5750</b>                    <b>Advanced Dietetics Practicum</b>                    <b>1-6</b>  <b>(dual listing 6750)</b>  Advanced dietetics practicum in clinical nutrition, community nutrition, food service management, or research. Prerequisite: Must be enrolled in final year in Coordinated Program in Dietetics (CPD) or Didactic Program in Dietetics (DPD). (F,Sp,Su)</p>	<p><b>NFS 5830</b>                    <b>International Nutrition: Macronutrients</b>                    <b>3</b>  <b>(dual listing 6830)</b>  Explores principles and roles of macronutrients in causing malnutrition influencing health, survival, and developmental capacity of populations, especially in developing societies. Discussion of approaches implemented at household, community, national, and international levels to improve nutritional status. (F)</p>	<p><b>NFS 5920</b>    <b>CI</b>                    <b>Food Product Development</b>                    <b>3</b>  Capstone course that incorporates and unifies the principles of food chemistry, microbiology, engineering, processing, nutrition, sensory analysis, and statistics. Prerequisite: Senior standing. (F)</p>	<p><b>NFS 6020</b>                    <b>Meat Technology and Processing</b>                    <b>4</b>  <b>(dual listing 5020)</b>  Emphasizes understanding the conversion of muscle to meat, fabrication of carcasses into primal and retail cuts, and principles underlying manufacture of processed meats. (F)</p>	<p><b>NFS 6030</b>                    <b>Dairy Technology and Processing</b>                    <b>4</b>  <b>(dual listing 5030)</b>  Covers biochemistry, microbiology, and technology of milk processing. Includes heat processing, fat separation, homogenization, concentration, drying, fermentation, freezing, and manufacture of dairy foods such as pasteurized milk, UHT milks, ice cream, cheeses, and yogurt. Prerequisites: NFS 6110/5110, 6560/5560. (F)</p>	<p><b>NFS 6050</b>                    <b>Community Public Health Internship I</b>                    <b>3</b>  Supervised school nutrition education internship in elementary and secondary public schools developing child nutrition programs. Prerequisite: Acceptance into USU Extension Dietetic Internship Program. (F,Sp,Su)<sup>DE</sup></p>	<p><b>NFS 6060</b>                    <b>Community Public Health Internship II</b>                    <b>3</b>  Supervised public health nutrition internship with state and district supplemental food program for women, infants, and children. Prerequisite: Acceptance into USU Extension Dietetic Internship Program. (F,Sp,Su)<sup>DE</sup></p>	<p><b>NFS 6100</b>                    <b>Sensory Evaluation of Foods</b>                    <b>3</b>  Methods and practice in the sensory evaluation of foods. Testing facilities/ environment, statistical design, testing method selection, and data interpretation. Prerequisite: STAT 3000 or permission of instructor. (Sp)</p>	<p><b>NFS 6110</b>                    <b>Food Microbiology</b>                    <b>4</b>  <b>(dual listing 5110)</b>  Microorganisms in food spoilage, poisoning, preservation, and sanitation. Prerequisite: BIOL 2060 or 3300. (Sp)</p>	<p><b>NFS 6170</b>                    <b>Principles of Food Safety and</b>  <b>(dual listing 5170)</b>                    <b>Food Quality Assurance</b>                    <b>3</b>  Explores modern issues and programs of safety and quality assurance used in the food industry, including Good Manufacturing Practices (GMP), sanitation, Hazard Analysis and Critical Control Points (HACCP), and Safe Quality Food (SQF). Prerequisite: NFS 5110. (Su)</p>	<p><b>NFS 6200</b>                    <b>Nutritional Epidemiology</b>                    <b>2</b>  <b>(dual listing 5200)</b>  Introduction to epidemiologic methods and their application to the study of nutrition, human health, and disease. Useful for students with career interests in nutrition, food sciences, dietetics, human health sciences, veterinary sciences, biology, public health, anthropology, social work, and public policy. Prerequisites: STAT 1040, NFS 1020. (F)</p>	<p><b>NFS 6210</b>                    <b>Advanced Public Health Nutrition</b>                    <b>2</b>  <b>(dual listing 5210)</b>  Effects of diet on development and prevention of disease. Conditions of public health significance, including birth defects, coronary heart disease, hypertension, stroke, Alzheimer's disease and other causes of dementia, cancer, osteoporosis, diabetes, and international health problems. Discussion of health concerns of minority populations, cross-cultural studies, government policy, and establishment of dietary recommendations. Prerequisites: STAT 1040 or higher, CHEM 3700 or higher. (Sp)</p>	<p><b>NFS 6220</b>                    <b>Endocrine Aspects of Nutrition</b>                    <b>2</b>  <b>(dual listing 5220)</b>  Provides physiological background into hormones involved in nutrient regulation, as well as mechanisms of hormone action at the cellular and molecular levels. Includes action of steroids in the nucleus and membrane-based signal transduction pathways. Course includes lectures and literature reviews/ presentations. Prerequisite: CHEM 3700 or permission of instructor. Also taught as ADVS 6220/5220 and BIOL 6220/5220. (Sp)</p>	<p><b>NFS 6250</b>                    <b>Clinical Nutrition Internship I</b>                    <b>4</b>  Supervised clinical nutrition experience including medical, geriatric, long-term care, and oncology. Prerequisite: Acceptance into USU Extension Dietetic Internship Program. (F,Sp,Su)<sup>DE</sup></p>	<p><b>NFS 6260</b>                    <b>Clinical Nutrition Internship II</b>                    <b>4</b>  Supervised clinical nutrition experience including nutrition support, renal, pediatrics, intensive care units, outpatient care, and clinical staff experience. Prerequisite: Acceptance into USU Extension Dietetic Internship Program. (F,Sp,Su)<sup>DE</sup></p>
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# Course Descriptions

<p><b>NFS 6300</b>                      <b>Advanced Micronutrient Nutrition</b>                      <b>3</b>  <b>(dual listing 5300)</b>            Explores the function, interaction, and practical significance of micronutrients in human metabolism and the ability of the diet to meet these needs. Relates nutrient biochemical functions to specific deficiency symptoms. Prerequisite: NFS 4020. (Sp)</p>	<p><b>NFS 6660</b>                      <b>Cheese Science**</b>                      <b>2</b>            Studies application of chemistry and microbiology to the manufacture of cheese. (Su)</p>
<p><b>NFS 6350</b>                      <b>Food Service Systems Management Internship I</b>                      <b>6</b>            Supervised school food service internship. Includes purchasing, inventory control, food service, and food production. Prerequisite: Acceptance into USU Extension Dietetic Internship Program. (F,Sp,Su)<sup>DE</sup></p>	<p><b>NFS 6670</b>                      <b>Food Biosecurity and Crisis Management*</b>                      <b>1</b>            Food biosecurity addresses the intentional contamination of a food product. Crisis management focuses on how a food company deals with a crisis situation; including product recalls, dealing with the media, and damage control. (F)</p>
<p><b>NFS 6360</b>                      <b>Food Service Systems Management Internship II</b>                      <b>6</b>            Supervised school food service internship. Includes administration and food service staff supervision experience. Prerequisite: Acceptance into USU Extension Dietetic Internship Program. (F,Sp,Su)<sup>DE</sup></p>	<p><b>NFS 6680</b>                      <b>Food Enzymes**</b>                      <b>2</b>            Covers topics in food enzymes, including enzyme classification and nomenclature, reaction kinetics, food applications, and immobilization technology. (F)</p>
<p><b>NFS 6410</b>                      <b>Nutrient Gene Interactions</b>                      <b>3</b>  <b>(dual listing 5410)</b>            Focuses on molecular interactions between nutrients and mechanisms of gene expression, including transcriptional regulation, post-transcriptional regulation, and epigenetics. Emphasizes nutrient/gene interactions involved in the etiology or prevention of chronic disease, such as cancer, cardiovascular disease, and metabolic syndrome. Prerequisite: CHEM 3700. (Sp)</p>	<p><b>NFS 6690</b>                      <b>Genetics of Lactic Acid Bacteria**</b>                      <b>1</b>            Describes structural and functional characteristics of four major genetic elements described in lactic acid bacteria: plasmid DNA, transposable elements, bacteriophages, and the chromosome. Prerequisites: BIOL 3300 and CHEM 5700. (Sp)</p>
<p><b>NFS 6420</b>                      <b>Molecular Nutrition Laboratory</b>                      <b>2</b>  <b>(dual listing 5420)</b>            Explores modern molecular nutrition techniques for determining the influence of nutrients on gene regulation. Focuses on modern techniques commonly used in the field of molecular nutrition, including cell culture, mRNA isolation and quantification, western blotting, promoter cloning/mutation, and nutrient/transport factor interactions. (Sp)</p>	<p><b>NFS 6700</b>                      <b>Dairy Chemistry*</b>                      <b>1</b>            Students gain an understanding of the chemical structure, properties, biosynthesis, and reactions of the main constituents in milk. Students apply this knowledge to the development and processing of dairy foods. (Sp)</p>
<p><b>NFS 6500</b>                      <b>Food Analysis</b>                      <b>4</b>  <b>(dual listing 5500)</b>            Application and theory of physical, chemical, and instrumental techniques for determination of composition and quality of food. Prerequisite: NFS 6560/5560. (Sp)</p>	<p><b>NFS 6720</b>                      <b>Lipid Analysis and Metabolism*</b>                      <b>1</b>            Focuses on lipid analysis and metabolism. Discusses biological roles of lipid classes, as well as appropriate methods for their analysis. Additionally, covers biological role lipids play in health and disease. (F)</p>
<p><b>NFS 6510</b>                      <b>Food Laws and Regulations</b>                      <b>2</b>  <b>(dual listing 5510)</b>            Provides background of federal/state laws and regulations and case law history affecting food production, processing, packaging, marketing, and distribution of food products. (Sp)</p>	<p><b>NFS 6730</b>                      <b>Understanding Crystallization in Food Systems*</b>                      <b>1</b>            Introduces basic concepts of crystallization mechanisms, including theories governing the crystallization process and their applications in food systems. Emphasizes the importance of controlling crystallization and its influence on final product quality and stability. (Sp)</p>
<p><b>NFS 6560</b>                      <b>Food Chemistry</b>                      <b>4</b>  <b>(dual listing 5560)</b>            Chemical structure, properties, reactions, and interactions of the important chemical constituents of food. Prerequisites: CHEM 3700 and 3710, or NFS 3070. (F)</p>	<p><b>NFS 6740</b>                      <b>Waste and Energy Management*</b>                      <b>1</b>            Explores energy and waste management, including waste treatment methods and ways to reduce energy, or substitute with less-costly energy, in the food processing industry. Students learn through lectures, cooperative learning, site visits, and example problems. (F)</p>
<p><b>NFS 6610</b>                      <b>Food and Bioprocess Engineering</b>                      <b>3</b>  <b>(dual listing 5610)</b>            Standardization and compounding of biomaterials and food products; preservation processing using heat, refrigeration, concentration, and dehydration. Basic unit operations in the bioprocessing industry. Prerequisite: BIE 3200. Also taught as BIE 6610/5610. (F)</p>	<p><b>NFS 6750</b>                      <b>Advanced Dietetics Practicum</b>                      <b>1-6</b>  <b>(dual listing 5750)</b>            Advanced dietetics practicum in clinical nutrition, community nutrition, food service management, or research. Prerequisite: Must be enrolled in final year in Coordinated Program in Dietetics (CPD) or Didactic Program in Dietetics (DPD). (F,Sp,Su)<sup>DE</sup></p>
<p><b>NFS 6620</b>                      <b>Microbiology of Fermented Dairy Foods**</b>                      <b>1</b>            Explores the microbiology and physiology of dairy starter and nonstarter bacteria. Particular emphasis placed on important metabolic functions and biochemical pathways used by these microorganisms in food fermentations and their influence on product attributes. (Sp)</p>	<p><b>NFS 6760</b>                      <b>Special Topics in Nutrition and Food Science</b>                      <b>1-3</b>            Selected topics in nutrition and food science, based on individual faculty interests. (F,Sp,Su)</p>
<p><b>NFS 6640</b>                      <b>Food Proteins**</b>                      <b>1</b>            Covers topics in protein structure, folding, functional properties, allergens, and purification. (F)</p>	<p><b>NFS 6780</b>                      <b>Advanced Institutional Food Service Management</b>                      <b>3</b>            Principles of management applied to institutional food services and advanced professional certification curriculum. To enroll, student must be an MS candidate in dietetics or be eligible to take the national SFNS (School Food and Nutrition Service) exam. (Sp)</p>
<p><b>NFS 6650</b>                      <b>Meat Science*</b>                      <b>2</b>            Structure of muscle tissue, chemistry of contraction and relaxation, factors affecting meat tenderness, and postmortem changes and their effect on meat quality. Prerequisite: CHEM 3700. (Su)</p>	<p><b>NFS 6830</b>                      <b>International Nutrition: Macronutrients</b>                      <b>3</b>  <b>(dual listing 5830)</b>            Explores principles and roles of macronutrients in causing malnutrition influencing health, survival, and developmental capacity of populations, especially in developing societies. Discussion of approaches implemented at household, community, national, and international levels to improve nutritional status. (F)</p>
<p><b>NFS 6900</b>                      <b>Special Problems</b>                      <b>1-4<sup>®</sup></b>            Individual problems and research problems for upper-division students in Nutrition and Food Sciences. (F,Sp,Su)<sup>DE</sup></p>	<p><b>NFS 6900</b>                      <b>Special Problems</b>                      <b>1-4<sup>®</sup></b>            Individual problems and research problems for upper-division students in Nutrition and Food Sciences. (F,Sp,Su)<sup>DE</sup></p>

# Course Descriptions

**NFS 6910 Teaching Experiences in Nutrition and Food Sciences 1-2<sup>®</sup>**  
Students work with faculty in the Nutrition and Food Sciences Department to gain experience in teaching. (F,Sp,Su)

**NFS 6970 Thesis Research 1-12<sup>®</sup>**  
For students working on MS research. Graded Pass/Fail *only*. (F,Sp,Su)<sup>DE</sup>

**NFS 6990 Continuing Graduate Advisement 1-12<sup>®</sup>**  
Graded Pass/Fail *only*. (F,Sp,Su)

**NFS 7800 Seminar 1<sup>®</sup>**  
Reports and discussion on research and current literature. (F,Sp)<sup>DE</sup>

**NFS 7970 Dissertation Research 1-12<sup>®</sup>**  
For students working on PhD research. Graded Pass/Fail *only*. (F,Sp,Su)

**NFS 7990 Continuing Graduate Advisement 1-12<sup>®</sup>**  
Graded Pass/Fail *only*. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

## Natural Resources (NR)

See *College of Natural Resources*, pages 138-140

**NR 1010 BSS Humans and the Changing Global Environment 3**  
Introduction to historical nature and extent of human environmental transformation at global and regional levels. Examination of how socio-economic, political, and scientific factors influence past and current perceptions, use and conservation of natural environments in Western and other cultures, and future options available. For availability, check with the College of Natural Resources Dean's Office.

**NR 2220 General Ecology 3**  
Study of the interrelationships among organisms, humans, and their environments, addressing where and how organisms live. Adaptation, population growth, species interactions, biodiversity, and ecosystem function are explored for a wide variety of organisms and ecosystems. Prerequisites: BIOL 1610 and 1620. Also taught as BIOL 2220. (F,Sp)

**NR 6430 Natural Resource and Environmental Policy Cornerstone Seminar 3**  
Interdisciplinary, team-taught cornerstone course for the Natural Resource and Environmental Policy Graduate Certificate Program. Introduces different disciplinary perspectives for analyzing natural resource and environmental policies and decision-making processes. Helps students understand the role of science in policy-making and how to integrate information from contentious perspectives. (Sp)

**NR 6450 Natural Resource and Environmental Policy Presentation 1**  
In their last year of graduate school, certificate candidates make a presentation on policy dimensions of thesis or dissertation, as part of this student seminar series. Students receive one semester credit for this presentation. For availability, check with the College of Natural Resources Dean's Office.

**NR 6510 Biophysical and Human Dimensions of Ecosystems 4**  
Intensive two-week course introducing key biophysical and socio-economic concepts through exploration of important concepts central to ecosystem management. Examines how ecosystem management differs from traditional approaches to the management of natural resources. Prerequisite: Instructor's permission. (F,Sp,Su)<sup>DE</sup>

**NR 6520 Structure and Function of Ecological and Social Systems 4**  
Two-week course examining specific processes of landscape development. Establishes the relationship of landscape structure to vegetation and watersheds. Scale and pattern of ecosystems and classification studied at several scales. Prerequisite: Instructor's permission. (F,Sp,Su)

**NR 6530 Integrated Inventory, Analysis, and Assessment of Ecosystems 4**  
Course participants develop techniques and skills for assessing the biophysical and socio-political environment. Participants gain an understanding of measurement, predicting future conditions, and decision-making techniques in ecosystem management. Prerequisite: Instructor's permission. (F,Sp,Su)<sup>DE</sup>

**NR 6535 Leadership for Natural Resources Professionals 2**  
Online course for students pursuing the professional Master of Natural Resources (MNR) degree. Primary objective is to develop knowledge of leadership techniques in the context of natural resources management through readings, discussions, and position papers. (Sp)

**NR 6540 Ecosystem Management Implementation 4**  
Participants develop an integrated ecosystem assessment of a landscape unit in a capstone exercise. Assessment conducted with an interdisciplinary team during a two-week period in the field. Prerequisite: Instructor's permission. (F,Sp,Su)

**NR 6550 Intensive Silviculture 3**  
Topics for this two-week comprehensive course in silviculture include: stand development and density management; growth and yield; silvicultural systems and reproduction methods; economic evaluation of systems; and relationships between practices and forest health, harvest systems, and forest soils. (F,Sp,Su)

**NR 6560 Fire and Fuels Management 4**  
Two-week course evaluating fire and fuels management programs, which incorporate realistically projected changes in vegetation, fuels, and fire behavior over time. Participants inventory fuels and vegetation, predict fire behavior, and predict change in vegetation structure. (F,Sp,Su)<sup>DE</sup>

**NR 6600 Natural Resources Integrative Experience 1-6<sup>®</sup>**  
Under the direction of the student's supervisory committee, student completes an integrative capstone experience in his or her specialty. During their program of study, students *not allowed* to take this course for *more than 6 credits*. (F,Sp,Su)<sup>DE</sup>

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Nursing (NURS)

See *Weber State University/Utah State University Nursing Program*, pages 392-393

**NURS 1030 Foundations of Nursing Practice 3**  
Nursing concepts introduced which are built upon throughout the nursing curriculum as students care for clients. (F)

**NURS 1031 Foundations of Nursing Practice Clinical 3**  
Companion course taught in concert with NURS 1030. Clinical experience running concurrently with NURS 1030. (F)

**NURS 1040 Women's Health and the Childbearing Family 2**  
Theory focuses on meeting basic human needs of the family and newborn throughout the childbearing cycle. (Sp)

**NURS 1041 Women's Health and the Childbearing Family Clinical 1**  
Companion course taught in concert with NURS 1040. (Sp)

**NURS 1045 Nursing Care of Adults and Children 3**  
Focused theory with emphasis on physiological and psychosocial needs of clients across the lifespan. (Sp)



# Course Descriptions

<b>NURS 1046</b>	<b>Nursing Care of Adults and Children Clinical</b>	<b>2</b>
Companion course taught in concert with NURS 1045. (Sp)		
<b>NURS 1050</b>	<b>Treatment Modalities</b>	<b>3</b>
Basic treatments and pharmacological agents used by nurses to promote health across the lifespan. (F)		
<b>NURS 2050</b>	<b>Treatment Modalities</b>	<b>2</b>
Advanced treatments and pharmacological agents used by nurses to promote health across the lifespan. (F)		
<b>NURS 2060</b>	<b>Psychiatric/Mental Health Nursing</b>	<b>2</b>
Students explore caring strategies for promoting mental health and preventing illness across the lifespan. (Sp)		
<b>NURS 2061</b>	<b>Psychiatric/Mental Health Nursing Clinical</b>	<b>1</b>
Companion course taught in concert with NURS 2060. Clinical application of psychiatric/mental health nursing taught in NURS 2060. (Sp)		
<b>NURS 2070</b>	<b>Nursing Care of Adults and Children II</b>	<b>3</b>
Theory with emphasis on more complex physiological and psychosocial needs of clients across the lifespan. (F)		
<b>NURS 2071</b>	<b>Nursing Care of Adults and Children II Clinical</b>	<b>4</b>
Companion course taught in concert with NURS 2070. Clinical application of medical-surgical concepts learned in NURS 2070. (F)		
<b>NURS 2080</b>	<b>Patient Care Management</b>	<b>2</b>
Theory focuses on the synthesis of nursing knowledge and skills necessary for entrance into registered nursing practice. (Sp)		
<b>NURS 2081</b>	<b>Patient Care Management Clinical</b>	<b>3</b>
Companion course taught in concert with NURS 2080. Clinical synthesis of nursing knowledge and skills necessary for entrance into registered nursing practice. (Sp)		
<b>NURS 2283</b>	<b>Directed Readings and Projects</b>	<b>1-3</b>
Prerequisite: Instructor's approval. (F,Sp)		

## Office Systems Support (OSS)

See *Office Systems Support AAS Degree*, pages 406-407

<b>OSS 1110</b>	<b>Keyboarding</b>	<b>2</b>
For students with no previous keyboarding experience. Designed so student can touch type and learn basic concepts related to word processing and document formatting.		
<b>OSS 1400</b>	<b>Microcomputer Applications</b>	<b>3</b>
Introduction to operating systems, word processing, Internet, graphics, database, and spreadsheet applications. Includes preparation for University Studies Computer and Information Literacy (CIL) examination. Prerequisite: Ability to keyboard at a minimum of 25 wpm. <sup>DE</sup>		
<b>OSS 1410</b>	<b>Special Topics</b>	<b>1-3<sup>®</sup></b>
Selected topics related to using computers.		
<b>OSS 1420</b>	<b>Word Processing Applications</b>	<b>3</b>
Word processing software instruction designed for office applications. Emphasizes creating business documents and improving keyboarding skills. Assumes ability to keyboard by touch at a minimum of 50 wpm. <sup>DE</sup>		
<b>OSS 1550</b>	<b>CI Business Correspondence</b>	<b>3</b>
Development and application of effective business writing skills, emphasizing business correspondence. Includes thorough review of grammar, spelling, and punctuation related to business correspondence. <sup>DE</sup>		
<b>OSS 2300</b>	<b>Data Communications and Networking</b>	<b>3</b>
Emphasizes data communications in a LAN and WAN networking environment. Includes network protocols, cable technology, telecommunications standards,		

security issues, and general telecommunications management issues. Prerequisite: OSS 1400 or Computer and Information Literacy (CIL) Exam.

<b>OSS 2400</b>	<b>Web Design Applications</b>	<b>3</b>
Design, development, and evaluation of documents for electronic media utilizing the worldwide web. Prerequisite: OSS 1400 or Computer and Information Literacy (CIL) Exam. <sup>DE</sup>		
<b>OSS 2450</b>	<b>Spreadsheets and Databases</b>	<b>3</b>
Use of spreadsheets and databases to accomplish application development. Prerequisite: OSS 1400 or Computer and Information Literacy (CIL) Exam. <sup>DE</sup>		
<b>OSS 2500</b>	<b>Visual Basic Applications</b>	<b>3</b>
Designed to teach nontechnical students to develop application solutions using Visual Basic. Features of Microsoft Access requiring knowledge of Visual Basic are introduced. Prerequisite: OSS 2450.		
<b>OSS 2520</b>	<b>Integrating Office Technology</b>	<b>3</b>
Advanced applications of office technology for production of business documents, emphasizing efficient use of word processing, graphics, and desktop publishing. Prerequisite: OSS 1400 or passing scores on University Studies Computer and Information Literacy (CIL) exams. <sup>DE</sup>		
<b>OSS 2600</b>	<b>Office Procedures</b>	<b>3</b>
Finishing course which integrates office knowledge and skills. Applies administrative activities which are part of the office process. Prerequisites: OSS 2520; OSS 1550 or MIS 2200.		
<b>OSS 2800</b>	<b>Principles of Selling</b>	<b>2</b>
Focuses on the sales process, including prospecting, qualifying customers, planning and delivering the sales presentation, overcoming objections, closing the sale, and satisfying the customer's needs. <sup>DE</sup>		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.  
<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Physical Education Activity (PE)

See *Department of Health, Physical Education and Recreation*, pages 296-303

<b>PE 1010</b>	<b>Aerobics</b>	<b>1<sup>®</sup></b>
Fitness program, primarily designed to improve cardiovascular fitness, muscular endurance, and flexibility. Graded Pass/Fail only. (F,Sp) <sup>DE</sup>		
<b>PE 1016</b>	<b>Spinning</b>	<b>1<sup>®</sup></b>
Intense cardiovascular conditioning class performed on stationary bikes. Graded Pass/Fail only. (F,Sp)		
<b>PE 1030</b>	<b>Aerobic Kickboxing</b>	<b>1<sup>®</sup></b>
Designed as a fitness program to improve cardiovascular fitness, muscular endurance, and flexibility through a combination of aerobic exercise and kickboxing. Emphasis placed on safety, fitness, and enjoyment. Graded Pass/Fail only. (F,Sp)		
<b>PE 1046</b>	<b>Jog/Walk</b>	<b>1<sup>®</sup></b>
Provides students with opportunity to achieve and maintain personal fitness through jogging and/or walking. Graded Pass/Fail only. (F,Sp,Su) <sup>DE</sup>		
<b>PE 1055</b>	<b>Pilates</b>	<b>1<sup>®</sup></b>
Provides a mind-body exercise program designed to strengthen core stability, increase flexibility, and increase muscle tone. Graded Pass/Fail only. (F,Sp)		
<b>PE 1057</b>	<b>Yoga</b>	<b>1<sup>®</sup></b>
Practice of yogic exercises to improve flexibility, range of motion, strength, and muscle tone. Instruction in proper alignment. Exploration of breathing and relaxation techniques. Development of greater self-awareness. Graded Pass/Fail only. (F,Sp,Su)		
<b>PE 1063</b>	<b>Conditioning</b>	<b>1<sup>®</sup></b>
Designed to improve overall flexibility, strength, and endurance capacity of the body. Graded Pass/Fail only. (F,Sp) <sup>DE</sup>		

# Course Descriptions

<p><b>PE 1085 Weight Training 1<sup>®</sup></b>            Demonstration of proper weight training techniques. Helps students understand basic concepts related to weight training, in order to gain strength, improve muscle tone, and start or continue a healthy lifestyle. Graded Pass/Fail <i>only</i>. (F,Sp,Su)<sup>DE</sup></p> <p><b>PE 1090 Resistance and Stabilization Training 1<sup>®</sup></b>            Provides students with combination of strength and stabilization training, including agility, balance, and coordination work. Some plyometrics may also be incorporated. Taught Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1100 Tennis I Beginning 1<sup>®</sup></b>            Designed for students desiring a basic understanding of tennis. Improvement of skills and strategies through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1101 Tennis II Intermediate 1<sup>®</sup></b>            Designed for students with a basic knowledge of tennis who desire to learn intermediate skills. Improvement of skills and strategies through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1103 Table Tennis 1<sup>®</sup></b>            Designed for students desiring a basic understanding of table tennis. Improvement of skills and strategies through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1105 Badminton 1<sup>®</sup></b>            Through active participation, students learn basic skills, rules, and strategies of singles and doubles badminton. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1110 Racquetball I Beginning 1<sup>®</sup></b>            Designed to help students understand the general rules and strategies of racquetball, improve competitive skills, and play safely and effectively. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1111 Racquetball II Intermediate 1<sup>®</sup></b>            Designed for students with a basic knowledge of racquetball who desire to learn intermediate skills. Improvement of skills and strategies through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1112 Racquetball III Advanced 1<sup>®</sup></b>            Designed for students with proficient skills and knowledge of racquetball who desire to learn advanced skills. Improvement of skills and strategies through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1120 Handball 1<sup>®</sup></b>            Provides skills and knowledge in the fundamentals of handball. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1130 Golf Beginning 1<sup>®</sup></b>            Designed for the beginning and novice golfer. Basics of individual grip, set-up, posture, and swing. Includes putting, chipping, weight transfer, and balance. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1131 Golf Intermediate 1<sup>®</sup></b>            Designed for students with basic golf skills who desire to learn more about golf and improve their golf skills. Improvement of strategies and skills through active participation. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1145 Bowling 1<sup>®</sup></b>            Provides students with the knowledge, skills, and strategies for successful participation and enjoyment. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1146 Bowling Intermediate 1<sup>®</sup></b>            Designed for students with basic bowling skills who desire to learn intermediate skills. Improvement of strategies and skills through active participation and games. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1150 Billiards Beginning 1<sup>®</sup></b>            Designed to develop basic knowledge and concepts for playing a variety of games. Focuses on stroke mechanics, shot selection, and strategy. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>	<p><b>PE 1151 Billiards Intermediate 1<sup>®</sup></b>            Designed for students with basic billiards skills who desire to learn intermediate skills. Improvement of strategies and skills through active participation and games. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1152 Billiards Advanced 1<sup>®</sup></b>            Designed for students with proficient skills and knowledge of billiards who desire to learn and improve their skills. Improvement of strategies and skills through active participation and games. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1155 Fencing 1<sup>®</sup></b>            Introduction to basic techniques of fencing. Graded Pass/Fail <i>only</i>.</p> <p><b>PE 1170 Gymnastics 1<sup>®</sup></b>            Designed to enhance current abilities and teach skills according to the individual student's abilities. Skills taught through drill work and lecture. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1200 Basketball 1<sup>®</sup></b>            Designed to help the recreational player become more familiar with the basic skills involved in the game of basketball. During the course, games and/or a "mini" tournament will be played. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 1210 Volleyball Beginning 1<sup>®</sup></b>            Designed to help students understand the general rules and strategies and enjoyment of the game through active participation. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1211 Volleyball Intermediate 1<sup>®</sup></b>            Designed for students with basic knowledge of volleyball who desire to learn intermediate skills. Improvement of skills and strategies through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1212 Volleyball Advanced 1<sup>®</sup></b>            Designed for students with proficient skills and knowledge of volleyball who desire to learn new skills and improve their skills. Improvement of skills and strategies through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1225 Softball 1<sup>®</sup></b>            Designed to help students develop and understand the skills and strategies of recreational softball through active participation. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 1230 Soccer 1<sup>®</sup></b>            Designed to help students develop and understand the skills and strategies of soccer through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1235 Flag Football 1<sup>®</sup></b>            Designed to help students develop and understand the skills and strategies of recreational flag football through active participation. Graded Pass/Fail <i>only</i>. (F)</p> <p><b>PE 1245 Ultimate Frisbee 1<sup>®</sup></b>            Designed to enhance each student's skills and abilities in ultimate frisbee. Emphasizes cardiovascular and muscular fitness. Course is progressive, with increase in intensity as the individual improves abilities. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1246 Ultimate Frisbee Intermediate 1<sup>®</sup></b>            Designed to enhance the skills and abilities of students desiring to learn intermediate skills in ultimate frisbee. Emphasizes cardiovascular and muscular fitness. Improvement of skills and strategies through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1260 Ice Hockey Beginning 1<sup>®</sup></b>            Designed for students desiring a basic understanding of ice hockey. Conditioning and skill development achieved through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1261 Ice Hockey Intermediate 1<sup>®</sup></b>            Designed for students with a basic understanding of ice hockey who would like to learn intermediate skills and techniques. Conditioning and skill development achieved through active participation in drills and games. Graded Pass/Fail <i>only</i>. (F,Sp)</p>
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# Course Descriptions

<p><b>PE 1265</b>                    <b>Officiating Ice Hockey</b>                    <b>1</b><sup>®</sup> Development of skating skills, positioning, and rules knowledge. Students officiate at scrimmages and games, and are evaluated on their performance. Course leads to USA Hockey levels 1, 2, and 3 certification. Taught Pass/Fail <i>only</i>. (F)</p> <p><b>PE 1300</b>                    <b>Swimming Beginning</b>                    <b>1</b><sup>®</sup> Designed for swimmers and nonswimmers desiring to improve swimming skills and enhance cardiovascular and muscular fitness. Emphasizes swimming safety and enjoyment in a variety of water activities. Beginning and intermediate swim sections offered. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1301</b>                    <b>Lap Swimming</b>                    <b>1</b><sup>®</sup> Designed for swimmers desiring to improve swimming skills and enhance cardiovascular and muscular fitness. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1315</b>                    <b>Water Aerobics</b>                    <b>1</b><sup>®</sup> Provides students with opportunity to maintain personal fitness, with an emphasis on non-weight-bearing cardiovascular activity in water. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1400</b>                    <b>Self-Defense</b>                    <b>1</b><sup>®</sup> Covers skill development in terms of defensive capability, environment assessment, situation management, and the legal ramifications of the use of force. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1407</b>                    <b>Rape Aggression Defense</b>                    <b>1</b><sup>®</sup> Designed to develop and enhance the options of self-defense, so they may become viable considerations to the woman who is attacked. Students learn how to use personal weapons against abduction. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1410</b>                    <b>Tai Chi Chuan</b>                    <b>1</b><sup>®</sup> Designed to give participants entry-level experience in the art of Tai Chi Chuan. Participants explore the physical, meditational, yogic, metaphysical, and martial foundations of the art. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1430</b>                    <b>Karate</b>                    <b>1</b><sup>®</sup> Designed to develop and enhance the options of self-defense for students with little or no background in martial arts (Eastern or Western) with the rudimentary skills of self-defense. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1440</b>                    <b>Aikido</b>                    <b>1</b><sup>®</sup> Students learn Aikido self-defense techniques through blending with the energy of an attacker, physical exercises for mind-body coordination, and forms of breathing to improve concentration and relaxation. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1445</b>                    <b>Tae Kwon Do</b>                    <b>1</b><sup>®</sup> Students learn Tae Kwon Do self-defense techniques through blending with the energy of an attacker, physical exercises for mind-body coordination, and forms of breathing to improve concentration and relaxation. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1505</b>                    <b>Kayaking</b>                    <b>1</b><sup>®</sup> Provides basic skills and knowledge in kayaking. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1510</b>                    <b>Fly Fishing</b>                    <b>1</b><sup>®</sup> Provides students with the opportunity to develop the skills, knowledge, and strategies for successful participation and enjoyment. Classes are offered in beginning and intermediate fly tying, rod building, and casting. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1511</b>                    <b>Fly Tying Beginning</b>                    <b>1</b><sup>®</sup> Provides students with an introduction to fly tying, including knots, flies, casting, fishing, and understanding trout streams. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1512</b>                    <b>Fly Tying Intermediate</b>                    <b>1</b><sup>®</sup> Designed for students with basic fly tying skills who are interested in learning intermediate skills. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1513</b>                    <b>Fly Casting</b>                    <b>1</b><sup>®</sup> Designed for students desiring a basic understanding of fly casting techniques and strategies. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1514</b>                    <b>Fly Rod Building</b>                    <b>1</b><sup>®</sup> Designed for students desiring a basic understanding of fly rod building. Students will build a fly rod for their own personal use. Graded Pass/Fail <i>only</i>. (F,Sp)</p>	<p><b>PE 1515</b>                    <b>Sailing</b>                    <b>1</b><sup>®</sup> Provides skills and knowledge in the fundamentals of sailing and water safety. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1520</b>                    <b>Hiking</b>                    <b>1</b><sup>®</sup> Provides skills and knowledge in hiking, with an emphasis on leave no trace techniques and safe operations in an outdoor environment. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1523</b>                    <b>Orienteering</b>                    <b>1</b><sup>®</sup> Provides skills and knowledge in the fundamentals of orienteering with an emphasis on wilderness travel techniques and safety in the outdoors. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1527</b>                    <b>Rock Climbing: Basic</b>                    <b>1</b><sup>®</sup> Provides skills and knowledge in basic rock climbing, teaching safe judgment and proper techniques in a climbing gym. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1532</b>                    <b>Outdoor Survival</b>                    <b>1</b><sup>®</sup> Provides skills and knowledge in the fundamentals of outdoor survival and developing a wilderness ethic to allow for safe participation in wilderness activities. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1538</b>                    <b>Yurt Camping</b>                    <b>1</b><sup>®</sup> Provides skills and knowledge for safe winter camping using a yurt for shelter. Assists in the development of high outdoor ethics. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1543</b>                    <b>Wilderness First Aid</b>                    <b>1</b><sup>®</sup> Provides outdoor leaders with an introduction to wilderness first aid. Upon completion of course, students may receive a two-year wilderness first aid certification. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1550</b>                    <b>Mountain and Road Biking</b>                    <b>1</b><sup>®</sup> Introduction to road safety principles, various riding techniques, and cycle maintenance. Sections of road and mountain biking offered. Beginning and intermediate classes offered for both road and mountain biking. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1570</b>                    <b>National Outdoor Leadership School Course</b>                    <b>3-18</b><sup>®</sup> Provides students with the opportunity to earn USU credit for attending National Outdoor Leadership (NOLS) courses. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1600</b>                    <b>Winter Exploration</b>                    <b>1</b><sup>®</sup> Provides skills and knowledge for safe winter camping using backpacking equipment. Assists in the development of high outdoor ethics. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1605</b>                    <b>Skiing</b>                    <b>1</b><sup>®</sup> Alpine ski instruction for all students. Offered for beginning, intermediate, and advanced levels. Focuses on knowledge, techniques, equipment, and safety necessary for participating in and enjoying alpine skiing, snowboarding, and telemark skiing. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 1615</b>                    <b>Snowboarding</b>                    <b>1</b><sup>®</sup> Provides opportunity for students of all skill levels and experience to develop their riding techniques. Emphasizes versatility and efficiency in varied snow and terrain conditions. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 1625</b>                    <b>Cross Country Skiing</b>                    <b>1</b><sup>®</sup> Focuses on knowledge, techniques, equipment, and safety necessary to participate in and enjoy winter recreational activities, including cross country ski touring and snowshoeing. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 1635</b>                    <b>Telemark Skiing</b>                    <b>1</b><sup>®</sup> Provides opportunity for students of all skill levels and experience to develop their telemark skiing skills. Emphasizes versatility and efficiency in varied snow and terrain conditions. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 1655</b>                    <b>Snowshoeing</b>                    <b>1</b><sup>®</sup> Provides skills and knowledge of snowshoeing, with an emphasis on leave no trace techniques and development of safe winter activity skills. Graded Pass/Fail <i>only</i>. (F,Sp)</p>
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# Course Descriptions

<p><b>PE 1670</b>                    <b>Figure Skating Beginning</b>                    <b>1</b><sup>®</sup> Designed for students desiring to learn basic figure skating skills. Conditioning and skill development achieved through active participation. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1671</b>                    <b>Figure Skating Intermediate</b>                    <b>1</b><sup>®</sup> Designed for students with basic figure skating skills who are interested in becoming more proficient skaters and learning new techniques and skills. Conditioning and skill development achieved through active participation. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1680</b>                    <b>Curling</b>                    <b>1</b><sup>®</sup> Designed for students desiring to learn the rules, skills, strategies, and etiquette of curling. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1700</b>                    <b>Dance</b>                    <b>1</b><sup>®</sup> Designed to help students enhance their basic skills and enjoyment of dance through the following forms: jazz, modern, ballet, ballroom, social, Latin, western swing, etc. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1701</b>                    <b>Introduction to Modern Dance</b>                    <b>1</b><sup>®</sup> Designed for individuals to gain basic dance experience through a wide variety of modern and post-modern dance techniques and choreographic exercises. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1702</b>                    <b>Modern Dance Intermediate</b>                    <b>1</b><sup>®</sup> Designed for individuals to expand their dance experience through a wide range of modern and post-modern dance techniques and choreographic exercises. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1710</b>                    <b>Western Swing</b>                    <b>1</b><sup>®</sup> Designed to help students enhance their basic skills and enjoyment of country western swing dance (e.g., western swing, two-step, waltz, cowboy cha-cha, line dancing, etc.). Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1711</b>                    <b>Western Swing Intermediate</b>                    <b>1</b><sup>®</sup> Designed for students who have basic western swing dancing skills and would like to develop and improve their techniques. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1720</b>                    <b>Social and Ballroom Dance</b>                    <b>1</b><sup>®</sup> Designed to provide knowledge and experience in ballroom and social dance. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1745</b>                    <b>Big Band Swing Level I</b>                    <b>1</b><sup>®</sup> Designed to provide students with basic knowledge and experience in Big Band Swing dance (e.g., lindy hop, boogie woogie, etc.). Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1746</b>                    <b>Big Band Swing Level II</b>                    <b>1</b><sup>®</sup> Designed for students with basic knowledge and experience in Big Band Swing dance (e.g., lindy hop, boogie woogie, etc.) to learn new techniques and enhance their skills. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1760</b>                    <b>Jazz Technique</b>                    <b>1</b><sup>®</sup> Designed for students who want to learn basic jazz technique. Includes center floor work, as well as across floor progressions. Improves strength and endurance levels through dancing. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1765</b>                    <b>Hip Hop Beginning/Intermediate</b>                    <b>1</b><sup>®</sup> Advanced, up-beat, energetic class designed to increase coordination, improve rhythm, and increase stamina. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1900</b>                    <b>Club Sports</b>                    <b>1</b><sup>®</sup> Designed for students desiring to participate in extramural competition against other colleges and universities in the following sports: ballroom dance, baseball, bowling, cycling, disc golf, hockey, men's lacrosse, racquetball, rodeo, rugby, men's soccer, ultimate frisbee, men's volleyball, waterpolo, and wrestling. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 1905</b>                    <b>Aggiettes</b>                    <b>1</b><sup>®</sup> Designed for students who audition for and are accepted into the Aggiette dance program to represent Utah State University at sporting events. Graded Pass/Fail <i>only</i>. (F,Sp)</p>	<p><b>PE 1910</b>                    <b>African Dance</b>                    <b>1</b><sup>®</sup> Introduces students to African dance using live drummers. Each class incorporates a series of warm-up exercises, followed by specific dances inspired by traditional African ceremonies and events, all accompanied by a traditional African drum ensemble. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 1915</b>                    <b>Cheer Squad</b>                    <b>1</b><sup>®</sup> Designed for students who audition for and are accepted into the Cheer Squad program to represent Utah State University at sporting events. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 2000</b>                    <b>Personal Instruction and Conditioning</b>                    <b>1</b><sup>®</sup> Designed for students and prospective members of varsity teams, as well as for the student/athlete requiring a personalized program. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 2010</b>                    <b>Varsity Cross Country</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in cross country. Graded Pass/Fail <i>only</i>. (F)</p> <p><b>PE 2020</b>                    <b>Varsity Football</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in football. Graded Pass/Fail <i>only</i>. (F)</p> <p><b>PE 2030</b>                    <b>Varsity Soccer</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in soccer. Graded Pass/Fail <i>only</i>. (F)</p> <p><b>PE 2040</b>                    <b>Varsity Volleyball</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in volleyball. Graded Pass/Fail <i>only</i>. (F)</p> <p><b>PE 2050</b>                    <b>Varsity Indoor Track and Field</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in indoor track and field. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 2060</b>                    <b>Varsity Basketball</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in basketball. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 2070</b>                    <b>Varsity Gymnastics</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in gymnastics. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 2080</b>                    <b>Varsity Track and Field</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in track and field. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 2090</b>                    <b>Varsity Softball</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in softball. Graded Pass/Fail <i>only</i>. (Sp)</p> <p><b>PE 2100</b>                    <b>Varsity Golf</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in golf. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 2110</b>                    <b>Varsity Tennis</b>                    <b>1</b><sup>®</sup> Designed to meet the needs of varsity student/athletes in tennis. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>PE 2120</b>                    <b>Varsity Weight Training</b>                    <b>1</b><sup>®</sup> Designed for varsity athletes. Emphasizes strength development. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>PE 3000</b>                    <b>Dynamic Fitness</b>                    <b>3</b><sup>®</sup> Designed to develop positive health practices in the areas of physical activity, diet, rest, and relaxation of living through classroom, laboratory, and activity experiences. Also taught as PEP 3000. (F,Sp,Su)<sup>DE</sup></p> <p><b>PE 4000</b>                    <b>Lifeguard Training</b>                    <b>2</b><sup>®</sup> Designed to prepare students as pool or nonsurf open water lifeguards. Presents knowledge and skills necessary for lifeguard functions. American Red Cross certification available. Graded Pass/Fail <i>only</i>. (F,Sp)</p>
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# Course Descriptions

**PE 4050 Water Safety Instructor 2<sup>®</sup>**  
Attention given to methods of teaching swimming and lifesaving. Presents knowledge and skills necessary for lifeguard functions. American Red Cross certification available. Graded Pass/Fail *only*. (F,Sp)

**PE 4200 Athletic Transition 2**  
Life skills course designed to meet the needs of fourth-year and fifth-year student athletes. Provides personal and career assistance. (F,Sp)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Physical Education Professional (PEP)

See Department of Health, Physical Education and Recreation, pages 296-303

**PEP 2000 Introduction and History of Physical Education 2**  
Acquaints P.E. students with four areas of physical education, including: the department, with respect to the University and the College of Education and Human Services; the history of physical education; the effects of sociology on physical education; and future employment opportunities in the fields of physical education. (F,Sp)

**PEP 2020 Introduction to Physical Therapy 2**  
Introduces prephysical therapy students to the discipline of physical therapy and familiarizes them with its associated spectrum of opportunities and responsibilities. (F)

**PEP 2050 Sport Rules and Regulations of the Utah High School Athletic Association 1**  
Knowledge of the rules and mechanics of officiating all Utah high school sports. (Sp)

**PEP 2100 Skills 1 (Swimming, Volleyball, Football) 1**  
Provides physical education majors and minors with the knowledge, skills, practice, and understanding of swimming, volleyball, and football needed for successful participation. Exposes students to a variety of teaching methods for these three sports. (F,Sp)

**PEP 2200 Skills 2 (Lifetime Activities) 1**  
Provides physical education majors and minors with the knowledge, skills, practice, and understanding of lifetime activities needed for successful participation. Exposes students to a variety of teaching methods for these activities. (F,Sp,Su)

**PEP 2300 Skills 3 (Softball, Basketball, Soccer) 1**  
Provides physical education majors and minors with the knowledge, skills, practice, and understanding of softball, basketball, and soccer needed for successful participation. Exposes students to a variety of teaching methods for these three sports. (F,Sp)

**PEP 2400 Skills 4 (Tennis, Badminton, Track and Field) 1**  
Provides physical education majors and minors with the knowledge, skills, practice, and understanding of tennis, badminton, and track and field needed for successful participation. Exposes students to a variety of teaching methods for these three sports. (F,Sp)

**PEP 2500 Rhythms and Movement 1**  
Focuses on fundamental motor skills, mixers, aerobic, line, folk, ballroom, and square dance. Provides opportunities to practice rhythms and movement, as well as opportunities to practice teaching. Designed for physical education majors and minors. (F,Sp)

**PEP 3000 Dynamic Fitness 3<sup>®</sup>**  
Designed to develop positive health practices in the areas of physical activity, diet, rest, and relaxation of living through classroom, laboratory, and activity experiences. Also taught as PE 3000. (F,Sp,Su)<sup>DE</sup>

**PEP 3050 Physical Education in the Elementary School 3**  
Prepares students to teach elementary physical education. Focuses on developmentally appropriate activities, locomotor and manipulative skills, fitness, games, rhythms, motor learning, and lesson planning. Students will teach physical education lessons in the elementary school. Prerequisite: Completion of 45 credits prior to registration. (F,Sp,Su)<sup>DE</sup>

**PEP 3100 Athletic Injuries 3**  
Care and prevention of common athletic injuries and standard taping techniques. Emphasizes recognition, first aid, and referral for these injuries. Taping techniques taught in a lab setting. (F,Sp)

**PEP 3200 CI Motor Learning and Technology in Skill Analysis 3**  
Exploration of materials, methods, mechanisms of learning, practicing, and performing motor skills. A variety of sport skills taught where students give and receive feedback. Students teach and analyze sport skills with a presentation using computer technology with video and slides. (F,Sp,Su)

**PEP 3250 Anatomical Kinesiology 3**  
Study of the anatomical bases of human movement. Laboratory provides application of principles. (Sp)

**PEP 3300 Clinical Experience I 1**  
Public school clinical experience in physical education. Prerequisite: Admission into Teacher Education program. Graded Pass/Fail *only*. (F,Sp)

**PEP 3550 Strategies for Teaching Physical Education 3**  
Designed to provide future physical education teachers with sound strategies and methods for teaching lifetime activities including fitness, as well as team, individual, and dual sports (F,Sp)

**PEP 3600 Elementary Physical Education Practicum 3**  
Prepares teachers to teach elementary physical education as a support minor. Prerequisite: PEP 3050. (Arr)

**PEP 3650 Movement Exploration for Elementary Teachers 2**  
Covers creative movement and international folk dance. Experiences range from classroom management and curriculum development to large open-space activities and performance. Includes art and sound activities. (F)

**PEP 4000 Mental Aspects of Sports Performance 3**  
Provides current knowledge of sport psychology. Applies this knowledge to teaching sports and coaching in public schools. Also taught as PSY 4000. (F,Sp,Su)

**PEP 4100 CI Exercise Physiology 4**  
Designed to expose students to theory and application of exercise physiology and principles of training and conditioning. Laboratory experience provides hands-on practicum for concepts taught in the classroom. Prerequisites: BIOL 2320, 2420; and MATH 1050 or ACT score of 25 or higher. (F,Sp,Su)

**PEP 4150 Advanced Care and Prevention of Athletic Injuries 3**  
Final preparation and competency demonstration of knowledge and skills prior to taking the national certification exam for the Athletic Training credential. Prerequisites: PEP 3100, instructor approval, and NATABOC certification eligibility.

**PEP 4200 QI Biomechanics 4**  
Understanding and application of human anatomical kinesiology and biomechanical principles fundamental to efficient human movement. In required concurrent one-hour lab, students obtain hands-on application of principles of anatomical kinesiology and biomechanics. Prerequisites: BIOL 2320, 2420; and MATH 1050 or ACT score of 25 or higher. (F,Sp,Su)

**PEP 4250 Advanced Cooperative Work Experience 1-10<sup>®</sup>**  
Cooperative education work experience offers student opportunity to work in related field work of the major. Graded Pass/Fail *only*. Prerequisite: Instructor approval. (F,Sp,Su)

# Course Descriptions

<p><b>PEP 4300</b>                    <b>Clinical Experience II</b>                    <b>1</b> Public school clinical experience in physical education. Graded Pass/Fail <i>only</i>. Prerequisite: Admission into Teacher Education program. (F,Sp)</p> <p><b>PEP 4350</b>                    <b>Administration and Classroom Management of Physical Education</b>                    <b>2</b> Designed for students to develop a philosophy toward the development and implementation of quality physical education programming. Effective classroom management techniques presented and discussed. Reviews budget, personnel, facilities management, programs, and activities. (F,Sp)</p> <p><b>PEP 4400</b>    <b>QI</b>                    <b>Evaluation in Physical Education</b>                    <b>3</b> Focuses on the nature and use of a variety of tests in physical education. Practical application, interpretation, and use of test results are stressed. Prerequisite: Enrollment in major within Health, Physical Education and Recreation Department. (F,Sp,Su)</p> <p><b>PEP 4500</b>                    <b>Motivational Strategies for Physical Education and Coaching</b>                    <b>3</b> Addresses issues related to development of coaching philosophy, administration, and reviewing motivational strategies to develop and encourage positive behavior toward sport. Intrinsic motivation, goal setting, team building, and discipline discussed. Provides opportunity to work with local youth sports. (Sp)</p> <p><b>PEP 4600</b>                    <b>Methods of Coaching Football and Soccer</b>                    <b>1</b> Outlines the methods, strategies, and techniques for coaching scholastic football and soccer. Emphasizes young player skill development and high school coaches' administration of these sports. Prerequisite: PEP 4500 (may be taken concurrently). (Arr)</p> <p><b>PEP 4700</b>                    <b>Methods of Coaching Volleyball, Track and Field</b>                    <b>1</b> Outlines the methods, strategies, and techniques for coaching scholastic volleyball, as well as track and field. Emphasizes young player skill development and high school coaches' administration of these sports. Prerequisite: PEP 4500 (may be taken concurrently). (Arr)</p> <p><b>PEP 4800</b>                    <b>Methods of Coaching Basketball, Baseball, and Softball</b>                    <b>1</b> Outlines methods, strategies, and techniques of coaching scholastic basketball, baseball, and softball. Emphasizes young player skill development and high school coaches' administration of these sports. Prerequisite: PEP 4500 (may be taken concurrently). (Arr)</p> <p><b>PEP 4850</b>                    <b>Methods of Teaching and Coaching Women's Gymnastics</b>                    <b>3</b> Instructs students in required coaching methods for women's gymnastics from the beginning to advanced levels. Also includes section on judging. (Arr)</p> <p><b>PEP 4900</b>    <b>CI</b>                    <b>Methods of Physical Education</b>                    <b>3</b> Designed to prepare physical education majors and minors to teach physical education in the schools. Emphasizes planning, teaching, strategies, and methods. Admission to the Teacher Education program is required. Must be taken concurrently with either PEP 3300 or 4300. Prerequisite: PEP 3550. (F,Sp,Su)</p> <p><b>PEP 4950</b>                    <b>Honors Senior Thesis</b>                    <b>1-6</b> Culminating experience within the department for honors students. Student works closely with faculty mentor in an extensive project in the student's area of interest. (F,Sp)</p> <p><b>PEP 5050</b>                    <b>Psychological Aspects of Sports Performance</b>                    <b>3</b> <b>(dual listing 6050)</b> Psychological theory and principles applied to sports. Includes motivational techniques, psychological evaluation, stress and anxiety in sports, and personality and sports performance. Also taught as PSY 5050/6050. (Arr)</p> <p><b>PEP 5070</b>                    <b>Sport Sociology</b>                    <b>3</b> Develops understanding of the social significance of sport. Applies the sociological perspective to a variety of contemporary issues, enabling students to better understand how sport affects and reflects American culture. (Sp)</p>	<p><b>PEP 5100</b>                    <b>Fitness Assessment and Exercise Programs</b>                    <b>4</b> Application of physiologic principles, assessment techniques, and exercise prescription for developing quality fitness programs that impact health. Students gain experience in a personal fitness program and in the use and interpretation of fitness tests. Prerequisite: PEP 4100. (F)</p> <p><b>PEP 5430</b>    <b>CI</b>                    <b>The History and Philosophy of Physical Education</b>                    <b>3</b> Designed to familiarize physical education majors (or nonmajors) with history of physical education and sport, as well as philosophical influences which have contributed to development of contemporary physical education and sport. Considers historical development of yesterday's pastimes into today's complex, institutionalized forms of sport and physical education. (F)</p> <p><b>PEP 5500</b>                    <b>Student Teaching Seminar</b>                    <b>2</b> Capstone seminar focused upon student teaching issues, professional development, and principles of effective instruction. Prerequisites: PEP 4900, completion of Level I and II field experiences. (F,Sp)</p> <p><b>PEP 5560</b>                    <b>Practicum in Improving School System Programs</b>                    <b>1-4®</b> In-service seminar for experienced teachers, emphasizing improvement in instruction. (F,Sp,Su)</p> <p><b>PEP 5630</b>                    <b>Student Teaching in Secondary Schools</b>    <b>10</b> A 13-week culminating experience in which students assume full-time teaching responsibilities under the direction of cooperating teachers in physical education. Graded Pass/Fail <i>only</i>. Prerequisites: PEP 4900, completion of Level I and Level II field experiences. (F,Sp)</p> <p><b>PEP 5700</b>                    <b>Special Topics in Physical Education</b>    <b>1-6®</b> <b>(dual listing 6700)</b> In-depth review and discussion of special topics in physical education. (F,Sp,Su)<sup>DE</sup></p> <p><b>PEP 5900</b>                    <b>Independent Study</b>                    <b>1-3®</b> Provides opportunity for undergraduate or graduate students to participate in independent inquiry under guidance of a professor. (F,Sp,Su)</p> <p><b>PEP 5910</b>                    <b>Independent Research</b>                    <b>1-3</b> Allows undergraduate students to pursue personal research interest by formalizing an independent project under the guidance of a professor. (F,Sp,Su)</p> <p><b>PEP 6000</b>                    <b>Administration of Athletics</b>                    <b>3</b> Prepares students to organize and administer interscholastic and intercollegiate sports at the public school or university level. Consideration is given to both the challenges and standards associated with such programs. (Arr)<sup>DE</sup></p> <p><b>PEP 6010</b>                    <b>Leadership in Health, Physical Education, and Recreation</b>                    <b>3</b> Group approach to improvement and innovation in leadership and supervisory skills. (Sp)<sup>DE</sup></p> <p><b>PEP 6050</b>                    <b>Psychological Aspects of Sports Performance</b>                    <b>3</b> <b>(dual listing 5050)</b> Psychological theory and principles applied to sports. Includes motivational techniques, psychological evaluation, stress and anxiety in sports, and personality and sports performance. Also taught as PSY 6050/5050. (Arr)<sup>DE</sup></p> <p><b>PEP 6070</b>                    <b>Sport in Society</b>                    <b>3</b> Introduces students to complex role and social significance of sport in contemporary society. Familiarizes students with aims, scope, and potential contributions of sport in society. (Sp)<sup>DE</sup></p> <p><b>PEP 6250</b>                    <b>Graduate Cooperative Work Experience</b>                    <b>1-10®</b> Professional level of educational work experience in a cooperative education position for graduate students. (F,Sp,Su)</p> <p><b>PEP 6290</b>                    <b>Corporate Wellness Marketing</b>                    <b>3</b> Reviews history of corporate fitness in America, as well as common organizational and management practices. Emphasizes marketing practices promoting individual and business involvement. (Sp)</p>
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# Course Descriptions

<b>PEP 6400</b>	<b>Exercise in Health, Fitness, and Sport</b>	<b>4</b>
Emphasizes physiological and health benefits of exercise. Discusses role of exercise in disease prevention, along with medications given to treat illness and disease. (F)		
<b>PEP 6420</b>	<b>Curriculum in Physical Education</b>	<b>3</b>
Curriculum development studied in terms of student needs in relation to present-day society. Includes current practices and trends in the area of curriculum. (Arr) <sup>DE</sup>		
<b>PEP 6430</b>	<b>History and Philosophy of Physical Education and Sport</b>	<b>3</b>
History of physical education; philosophical influences which have contributed to contemporary physical education; and methods of educational instruction using the primary philosophical positions. (F) <sup>DE</sup>		
<b>PEP 6450</b>	<b>Fitness Assessment and Exercise Testing</b>	<b>3</b>
Exposure to fitness assessment in clinical cardiac settings, as well as in corporate wellness settings. Exercise testing and interpretations, using different testing protocols in emphasized variant electrocardiograms, studied as part of the disease process. Prerequisite: PEP 6400. (Sp)		
<b>PEP 6500</b>	<b>Practicum in Corporate Wellness</b>	<b>1-10<sup>®</sup></b>
Experiences designed for the practical implementation of coursework. Involves random populous rehabilitation, as well as executive and industry, senior citizen centers, and rest homes. (F,Sp,Su)		
<b>PEP 6540</b>	<b>Wellness Programming</b>	<b>3</b>
Emphasizes exercise prescription writing and exercise prescription implementation. Students test prescriptions in laboratory setting. Prerequisites: PEP 6400, 6450. (Sp)		
<b>PEP 6550</b>	<b>Athletic Training Clinical Orthopedics I</b>	<b>3</b>
Provides graduate student athletic trainers with opportunity to learn sports medicine from a sports medicine physician's perspective. Concepts provide real-life examples. (F)		
<b>PEP 6560</b>	<b>Athletic Training Clinical Orthopedics II</b>	<b>3</b>
Provides graduate student athletic trainers with opportunity to learn sports medicine from a sports medicine physician's perspective. Concepts provide real-life examples. (Sp)		
<b>PEP 6570</b>	<b>Athletic Training Clinical Orthopedics III</b>	<b>3</b>
Provides students in athletic training services with an opportunity to understand the role of the athletic trainer, in conjunction with the team physician, in providing care, evaluation, and treatment for sport-related injuries. (F)		
<b>PEP 6580</b>	<b>Athletic Training Clinical Orthopedics IV</b>	<b>3</b>
Provides students in athletic training services with an opportunity to understand the role of the athletic trainer, in conjunction with the team physician, in providing care, evaluation, and treatment for sport-related injuries. (Sp)		
<b>PEP 6690</b>	<b>Analysis of Teaching Physical Education</b>	<b>3</b>
Designed to provide graduate students with practicum experiences in the analysis of physical education, via micro teaching and observation of physical education classes. (Arr)		
<b>PEP 6700</b>	<b>Special Topics in Physical Education</b>	<b>1-6<sup>®</sup></b>
<b>(dual listing 5700)</b> In-depth review and discussion of special topics in physical education. (F,Sp,Su)		
<b>PEP 6730</b>	<b>Worksite Guidance and Counseling</b>	<b>3</b>
Provides cardiac rehabilitation/corporate wellness graduate students with basic understanding of exercise and health psychology. (Arr)		
<b>PEP 6800</b>	<b>Biomechanics and Ergonomics of Health, Industry, and Sport</b>	<b>3</b>
Understanding and application of biomechanical and ergonomic principles fundamental to efficient human movement in health, industry, and sport. (Sp)		
<b>PEP 6810</b>	<b>Research Methods in Health Sciences</b>	<b>3</b>
Explores basic to advanced concepts contained in research and statistical design, as applicable to health sciences. (F) <sup>DE</sup>		

<b>PEP 6820</b>	<b>Wellness Certification and Technology</b>	<b>2</b>
Provides instruction and experience in wellness technology and wellness certification. Students learn use of current technology in the fitness industry and obtain certain wellness certifications. (Arr)		
<b>PEP 6830</b>	<b>Motor Learning</b>	<b>3</b>
Comprehensive review and analysis of research in the area of motor skills which bears upon the teaching of physical education activities. (Arr) <sup>DE</sup>		
<b>PEP 6900</b>	<b>Independent Study</b>	<b>1-3<sup>®</sup></b>
Student conducts independent projects under direction of one or more professors. Provides student with opportunity for individualized study. (F,Sp,Su)		
<b>PEP 6910</b>	<b>Independent Research</b>	<b>1-3</b>
Allows graduate students to pursue personal research interests by formalizing an independent project under the guidance of a graduate professor. (F,Sp,Su)		
<b>PEP 6960</b>	<b>Master's Project</b>	<b>3</b>
Allows students opportunity to develop creative and applicable educational project. (F,Sp,Su) <sup>DE</sup>		
<b>PEP 6970</b>	<b>Thesis</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail only. (F,Sp,Su)		
<b>PEP 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Provides graduate students with continued support and advisement. Usually taken following completion of all coursework required for the degree. Graded Pass/Fail only. (F,Sp,Su)		
<b>PEP 7550</b>	<b>Practicum in the Evaluation of Instruction</b>	<b>1-6<sup>®</sup></b>
Field-based experience involving supervision of student teachers in Department of Health, Physical Education and Recreation. (F,Sp,Su) <sup>DE</sup>		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Personal Financial Planning (PFP)

See *School of Accountancy, pages 143-146*

<b>PFP 1050</b>	<b>Introduction to Personal Financial Planning</b>	<b>1-3</b>
Introduction to concepts of financial planning for individuals. Taught only as a special extension course as requested. <sup>DE</sup>		
<b>PFP 3460</b>	<b>Fundamentals of Personal Investing</b>	<b>3</b>
Examination of investment vehicles available to personal investor. Principal emphasis on corporate and government securities. Credit cannot be used toward requirements for finance major. (Sp) <sup>DE</sup>		
<b>PFP 5060</b>	<b>Personal Financial Planning and Advising</b>	<b>3</b>
<b>(dual listing 6060)</b> Fundamental concepts and principles of personal financial planning for individuals. (F) <sup>DE</sup>		
<b>PFP 5070</b>	<b>Retirement Planning</b>	<b>3</b>
<b>(dual listing 6070)</b> Concepts and principles of retirement planning, including retirement and benefit plans, deferred compensation, and investments. (Sp) <sup>DE</sup>		
<b>PFP 5080</b>	<b>Estate Planning</b>	<b>3</b>
<b>(dual listing 6080)</b> Concepts and principles of estate planning for individuals, including goal identification, data gathering, forms of property ownership, documents, probate, and transfer taxes. (Sp) <sup>DE</sup>		

# Course Descriptions

<b>PFP 5090</b> <b>(dual listing 6090)</b>	<b>Personal Financial Plans</b>	<b>3</b>
Capstone course in personal financial planning. Knowledge from other financial planning courses used to prepare comprehensive personal financial plans. Prerequisites (may be taken concurrently): ACCT 3410; PFP 3460 or FIN 4460; PFP 5060/6060, 5070/6070, 5080/6080.		
<b>PFP 6060</b> <b>(dual listing 5060)</b>	<b>Personal Financial Planning and Advising</b>	<b>3</b>
Fundamental concepts and principles of personal financial planning for individuals. (F)		
<b>PFP 6070</b> <b>(dual listing 5070)</b>	<b>Retirement Planning</b>	<b>3</b>
Concepts and principles of retirement planning, including retirement and benefit plans, deferred compensation, and investments. (Sp)		
<b>PFP 6080</b> <b>(dual listing 5080)</b>	<b>Estate Planning</b>	<b>3</b>
Concepts and principles of estate planning for individuals, including goal identification, data gathering, forms of property ownership, documents, probate, and transfer taxes. (Sp)		
<b>PFP 6090</b> <b>(dual listing 5090)</b>	<b>Personal Financial Plans</b>	<b>3</b>
Capstone course in personal financial planning. Knowledge from other financial planning courses used to prepare comprehensive personal financial plans. Prerequisites (may be taken concurrently): ACCT 3410; PFP 3460 or FIN 4460; PFP 6060/5060, 6070/5070, 6080/5080.		

<b>PFP 6560</b>	<b>Business Law and Professional Responsibilities</b>	<b>3</b>
Examines the ethical and legal responsibilities of business professionals. Includes the application of law to business organizations, contracts, government regulation of business, and the uniform commercial code. (F,Sp)		

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Philosophy (PHIL)

See *Department of Languages, Philosophy, and Speech Communication*, pages 334-346

<b>PHIL 1000</b>	<b>BHU Introduction to Philosophy</b>	<b>3</b>
Introduction to philosophical questions regarding truth, knowledge, reality, mind, God, morality, and meaning. Examination of various philosophical responses to these questions. (F,Sp)		
<b>PHIL 1120</b>	<b>BHU Social Ethics</b>	<b>3</b>
Examination of principles and arguments underlying current debate in American law and politics. Topics may include abortion, euthanasia, capital punishment, discrimination and affirmative action, sexual harassment, freedom of expression, welfare, and duties to help the poor in other nations. (F) <sup>DE</sup>		
<b>PHIL 1200</b>	<b>BHU Practical Logic*</b>	<b>3</b>
Recognition of arguments and diagramming their logical structure. Study of valid argument forms, as well as formal and informal fallacies. Evaluating categorical syllogisms using rules and Venn diagrams. Basic propositional logic. (Sp)		
<b>PHIL 2200</b>	<b>QI Deductive Logic</b>	<b>3</b>
Study of deductive arguments and techniques for evaluating their validity, including construction of proofs. Recognizing formal fallacies in reasoning. Symbolizing English sentences and arguments to make their meanings precise. Propositional logic. Study of quantifiers and relations. Prerequisite: MATH 1030 or STAT 1040. (F,Sp)		
<b>PHIL 2400</b>	<b>BHU Ethics</b>	<b>3</b>
Study of judgments concerning what is good or bad, right or wrong. How judgments are justified and related to action. Relativism, subjectivism, absolutism, freedom, and responsibility. (Sp)		

<b>PHIL 3100</b>	<b>CI Ancient Philosophy**</b>	<b>3</b>
Development of philosophical thought in the Ancient Greek world. Readings from the pre-Socratics, Plato, Aristotle, the Stoics, and Epicureans.		
<b>PHIL 3110</b>	<b>Medieval Philosophy**</b>	<b>3</b>
Neo-Platonism with stress on Plotinus, St. Augustine, and early Christian philosophy; early medieval thought; St. Thomas Aquinas and the rise of scholasticism; and philosophical thought in the Renaissance.		
<b>PHIL 3120</b>	<b>CI Early Modern Philosophy</b>	<b>3</b>
Philosophers and philosophical disputes in Western Europe from 1400-1750. Figures and topics may include: Bacon, Hobbes, Descartes, Locke, Hume, nominalism, empiricism, rationalism, religion, politics, and morals.		
<b>PHIL 3150</b>	<b>CI Kant and His Successors</b>	<b>3</b>
Philosophers and philosophical disputes in Western Europe from 1750-1900. Study of Kant, Hegel, Bentham, Mill, Marx, Schopenhauer, and Nietzsche. Examination of critical idealism, philosophy of history, utilitarianism, communism, and origins of existentialism.		
<b>PHIL 3160</b>	<b>CI Contemporary Philosophy**</b>	<b>3</b>
Twentieth century philosophical thought, including existentialism, logical positivism, analytic philosophy, and postmodernism, as expressed in the works of Heidegger, Husserl, Wittgenstein, Carnap, Russell, Quine, Sartre, Derrida, and others.		
<b>PHIL 3180</b>	<b>CI Contemporary European Philosophy*</b>	<b>3</b>
Study of twentieth-century philosophical movements originating and developing on the European continent. Movements to be considered may include: existentialism, phenomenology, hermeneutics, and post-metaphysical philosophy.		
<b>PHIL 3500</b>	<b>Medical Ethics</b>	<b>3</b>
Key issues in medicine, including: consent, competency, confidentiality, euthanasia, abortion, and the justification of health care. (F)		
<b>PHIL 3510</b>	<b>DHA Environmental Ethics</b>	<b>3</b>
Key issues in the treatment of nature, such as: the value of wilderness, animal rights, comparative views of nature, and moral issues in economic approaches to the wilderness. (Sp)		
<b>PHIL 3520</b>	<b>DHA Business Ethics</b>	<b>3</b>
Key issues in business, including: foreign bribery, corporate responsibility, corporate culture, ethical theories, justice, and preferential treatment. <sup>DE</sup>		
<b>PHIL 3700</b>	<b>DHA Philosophy of Religion</b>	<b>3</b>
Problems in defining "religion" and the existence of God; the problem of evil; the immortality of the soul; religious experience; faith; alternatives to theism; religious language. (F)		
<b>PHIL 3710</b>	<b>Philosophies of East Asia*</b>	<b>3</b>
Study of Confucianism, Buddhism, Zen Buddhism, and Taoism. Focus on appreciating the merits of each system of thought. Emphasis on class discussion. Includes much assigned reading every week. (F)		
<b>PHIL 3720</b>	<b>Philosophical Theology After Kant*</b>	<b>3</b>
Explores attempts to reconstruct the reasonable basis of religion in the two centuries after the Enlightenment. (F)		
<b>PHIL 3730</b>	<b>CI Philosophy of the New Testament</b>	<b>3</b>
Historical and intellectual context of the development of the New Testament. Character, ideas, and historical setting of the various documents.		
<b>PHIL 3750</b>	<b>Religion and Science in the Modern World*</b>	<b>3</b>
Study of problems addressing the relation of religion to science in the modern world (e.g., evolution, Big Bang, origin of life). (F)		
<b>PHIL 3800</b>	<b>DHA Philosophy in Literature</b>	<b>3</b>
Study of philosophical concepts, problems, and issues as they have been presented and dramatized in works of literature and cinema. Discussion of issues concerning ethics, epistemology, ontology, and logic. Students read or view works from a variety of media, including novels, short stories, and films.		



# Course Descriptions

<b>PHIL 3810</b>	<b>DHA</b>	<b>Aesthetics</b>	<b>3</b>
Analysis of traditional theories of aesthetics and art criticism. Theories are applied to illustrative examples, including music, painting, photography, sculpture, dance, literature and cinema. (Sp)			
<b>PHIL 4300</b>		<b>Epistemology</b>	<b>3</b>
Study of foundations of knowledge and belief systems, and related topics in epistemology, including perception, certainty, and skepticism.			
<b>PHIL 4310</b>	<b>DHA</b>	<b>Philosophy of Science</b>	<b>3</b>
Study of different views of the nature of science: the classical traditions of Hempel and Popper, Kuhn's subjectivism, and Feyerabend's anarchism. Topics include confirmation, induction, scientific realism, reductionism, and the growth of scientific knowledge.			
<b>PHIL 4320</b>	<b>DHA</b>	<b>History of Scientific Thought</b>	<b>3</b>
Examination of key episodes in the history of science and associated ideas about the nature of scientific knowledge and how this knowledge may be acquired. Also taught as HIST 4320.			
<b>PHIL 4400</b>		<b>Metaphysics</b>	<b>3</b>
Study of fundamental problems of existence. Topics include: mind and its relation to the body, determinism and human freedom, fatalism, idealism and realism, truth, and our knowledge of the world. (F)			
<b>PHIL 4410</b>		<b>Philosophy of Mind</b>	<b>3</b>
Beginning with the context of Cartesian mind/body dualism, a thorough examination of Cartesian privacy, privileged access, and the problem of other minds is conducted. Ancillary topics may include the mind/machine controversy and animal intelligence.			
<b>PHIL 4420</b>		<b>Philosophy of Language</b>	<b>3</b>
Nature and uses of language, concepts of meaning, reference, truth, syntax, semantics, pragmatics, metaphors, ambiguity, vagueness, and definition. Application in linguistics, psychology, anthropology, and literary criticism.			
<b>PHIL 4500</b>		<b>Contemporary Ethical Theory</b>	<b>3</b>
Careful examination of one or more topics playing a central role in current moral philosophy. Focus on work produced in philosophical literature within last twenty years.			
<b>PHIL 4530</b>	<b>DSC</b>	<b>Ethics and Biotechnology</b>	<b>3</b>
<b>(dual listing 6530)</b>			
Interdisciplinary examination of key issues such as: cloning, human genetic screening and therapy, and transgenic animals and food.			
<b>PHIL 4540</b>	<b>DHA</b>	<b>Human Values and Information</b>	<b>3</b>
<b>(dual listing 6540)</b>		<b>Technology</b>	
Philosophical investigation of relations between technological change, human values, and the good life. Emphasis on growth of computer-mediated communication and its impact on values such as autonomy and privacy.			
<b>PHIL 4600</b>		<b>Philosophy of Law</b>	<b>3</b>
Examines the nature of law, relations between law and morality, the obligation to obey law, ways to interpret law, the justification of legal punishment, and appropriate conditions for civil and criminal liability.			
<b>PHIL 4610</b>	<b>DHA</b>	<b>Social and Political Philosophy</b>	<b>3</b>
Explores the nature of a just society, political obligation, and justification and proper limits of political power.			
<b>PHIL 4900</b>		<b>Special Topics</b>	<b>3<sup>®</sup></b>
Detailed consideration of a particular philosopher or philosophical problem. Instructor approval required. Course may be repeated when a different topic is discussed. (F,Sp)			
<b>PHIL 4910</b>		<b>Readings and Research</b>	<b>1-4<sup>®</sup></b>
Independent study of a particular philosopher or philosophical topic. Consent of instructor required. Course may be repeated when a different topic is discussed. (F,Sp)			
<b>PHIL 4920</b>		<b>Senior Honors Seminar</b>	<b>1</b>
Credit for completing and presenting a senior honors thesis project. Requirement may be fulfilled by publishing the thesis in an academic journal, defending the thesis before a faculty committee, presenting the thesis at an academic			

conference, or presenting the thesis in the philosophy session during Scholar's Day. (Sp)

**PHIL 4930**                      **Senior Honors Thesis**                      **1-4<sup>®</sup>**  
Independent study research credits for preparation of a senior honors thesis to fulfill requirements for a degree in philosophy with departmental honors. Prerequisite: Permission of instructor prior to enrollment. (F,Sp,Su)

**PHIL 4990**                      **Philosophy Seminar**                      **3<sup>®</sup>**  
Advanced study of recent work in philosophy. Topic will vary by instructor. Especially appropriate for students planning to go on to graduate or professional school.

**PHIL 5200**                      **Symbolic Logic**                      **3**  
Study of the metatheory for truth functional and predicate logic. Examination of systems employing modal, epistemic, and deontic operators. Set theory, fuzzy logic, and Godel's undecidability theorem may also be considered. If time permits, applied logic will be considered. Prerequisite: PHIL 2200 or instructor's approval.

**PHIL 5510**                      **Ethics and the Environment**                      **3**  
Study and analysis of both individualistic and holistic approaches to environmental ethics, with emphasis on contemporary debates within the field and their implications for the formation of public policies. Prerequisite: PHIL 3510 or graduate standing.

**PHIL 5600**                      **Legal Ethics**                      **3**  
Study and analysis of major issues arising in the practice of law within the context of the American adversarial system of justice. Prerequisite: PHIL 4600, graduate standing, or permission of instructor.

**PHIL 6420**                      **Philosophy of Language**                      **3**  
(Sp)

**PHIL 6530**                      **Ethics and Biotechnology**                      **3**  
**(dual listing 4530)**  
Interdisciplinary examination of key issues such as: cloning, human genetic screening and therapy, and transgenic animals and food. To receive graduate credit, extra readings and a 25-30 page paper will be required.

**PHIL 6540**                      **Human Values and Information**                      **3**  
**(dual listing 4540)**                      **Technology**  
Philosophical investigation of relations between technological change, human values, and the good life. Emphasis on growth of computer-mediated communication and its impact on values such as autonomy and privacy. To receive graduate credit, extra readings and a 25-30 page paper will be required.

**PHIL 6890**                      **Philosophy of Science**                      **3**  
(Sp)

**PHIL 6900**                      **Independent Study**                      **1-4<sup>®</sup>**  
(F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

\*This course is taught during alternate years. For information about when this course will be taught, contact department.

<sup>®E</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Physics (PHYS)

See Department of Physics, pages 408-414

**PHYS 1020**                      **BPS**                      **Energy**                      **3**  
Study of energy resources, utilization, conversion, and conservation, including energy balance and flow in biological and geological systems. Social impacts of energy resource development, including public policy and planning. Prerequisites: At least one university-level mathematics or statistics course, and completion of University Studies Computer and Information Literacy (CIL) examination.

# Course Descriptions

<p><b>PHYS 1040 BPS Introductory Astronomy</b> 3 Exploration of solar system and universe. Laws of motion, fundamental interactions, structure of matter, electromagnetic radiation, and conceptual models of celestial motions. Conceptual and quantitative homework problems and exams, along with writing assignments and observation reports, are required. Facility with high school mathematics is expected.</p> <p><b>PHYS 1080 BPS Intelligent Life in the Universe</b> 3 Study of the likelihood of extraterrestrial intelligence and its probable locations. Nature and evolution of life on Earth, as well as stellar evolution and planetary environments. Discussion of psychology of UFO phenomena. Prerequisites: At least one university-level mathematics or statistics course, and completion of University Studies Computer and Information Literacy (CIL) examination.</p> <p><b>PHYS 1100 BPS Great Ideas in Physics</b> 3 Descriptive introduction to the principles underlying contemporary physics. Great ideas will include relativity and quantum mechanics and such consequences and applications as the twin paradox, black holes, nuclear energy, magnetic imaging, lasers, superconductivity, and the paradox of Schrodinger's cat. Facility with high school algebra is expected.</p> <p><b>PHYS 1200 BPS Introduction to Physics by Hands-on Exploration</b> 4 Overview of physics concepts important in today's society. Explores structure of matter, electricity and magnetism, light and sound, forces, energy, momentum, thermodynamics, and modern physics. Required laboratory emphasizes hands-on, inquiry-based activities. <sup>DE</sup></p> <p><b>PHYS 1800 BPS Physics of Technology</b> 4 Overview of the classical physics on which industrial technology is based. Elements of kinematics, forces, energy, momentum, thermodynamics, electric and magnetic fields, waves, and optics. Required laboratory. Prerequisites: MATH 1050 and 1060.</p> <p><b>PHYS 2110 The Physics of Living Systems I</b> 4 Study of kinematics and dynamics of particles and systems of particles. Introduction to Newton's Laws of motion, momentum and energy conservation, rotations, and thermodynamics, with applications in biology and biotechnology. Required recitation and lab. Prerequisite: MATH 1100 or 1210.</p> <p><b>PHYS 2120 BPS The Physics of Living Systems II</b> 4 Introduction to electromagnetism, optics, and quantum phenomena—including the microscopic structure of matter, with applications in biology and biotechnology. Required recitation and lab. Prerequisite: MATH 1100 or 1210, PHYS 2110.</p> <p><b>PHYS 2200 Elements of Mechanics</b> 2 Calculus-based introduction to particle mechanics. Kinematics, Newton's laws of motion, momentum, work and energy, and angular momentum. Required recitation and lab. Prerequisite: MATH 1210.</p> <p><b>PHYS 2210 QI General Physics—Science and Engineering I</b> 4 Calculus-based introduction to Newton's Laws of motion, momentum and energy conservation, rotations, oscillations, and thermodynamics, with applications in the physical sciences and technology. Required recitation and lab. Prerequisite: MATH 1210. <sup>DE</sup></p> <p><b>PHYS 2220 BPS/QI General Physics—Science and Engineering II</b> 4 Calculus-based introduction to electromagnetism, waves, optics, and modern physics, with applications in the physical sciences and technology. Required recitation and lab. Prerequisites: MATH 1210; PHYS 2200 or 2210, or a minimum score of 4 on the AP B exam, or a minimum score of 3 on the AP C (mechanics) exam. <sup>DE</sup></p> <p><b>PHYS 2400 Introductory Topics in Physics (Topic)</b> 1-3<sup>®</sup> Explores issues in contemporary physics at an introductory level. Prerequisite: Approval of instructor.</p>	<p><b>PHYS 2500 Introduction to Computer Methods in Physics</b> 2 Topics include: (1) use of numerical, graphical, and symbolic manipulation software to solve physics problems; and (2) interfacing computers to instrumentation for control and data acquisition. Prerequisite: PHYS 2110 or 2210 or 2220.</p> <p><b>PHYS 2710 Introductory Modern Physics</b> 3 Overview of the origins, principles, and practical applications of quantum mechanics. Atomic structure and periodic table, molecular bonding, solids, electronic properties of metals and semiconductors, and superconductivity. Prerequisites: MATH 1220, PHYS 2120 or 2220.</p> <p><b>PHYS 3010 DSC/QI Space Exploration from Earth to the Solar System</b> 3 Comparative introduction to the Earth and other planets in our solar system, including geological structure and atmosphere. Emphasis on space exploration methods, including spacecraft and detection instrumentation. Examines latest results of Mars missions, Jupiter and Saturn exploration, etc. Prerequisites: Completion of University Studies Quantitative Literacy (QL) and Breadth Physical Sciences (BPS) requirements.</p> <p><b>PHYS 3020 DSC Great Scientists</b> 3 Lives and work of men and women responsible for scientific revolution: Maxwell (loved children), Einstein (despised authority), Curie (suffered discrimination against women), Schrodinger (fled from Hitler), Watson and Crick (the DNA story), Feynman (lock picker), Rubin (as a young girl built her own telescope), and others. Prerequisite: Fulfillment of University Studies Breadth Physical Sciences (BPS) or Breadth Life Sciences (BLS) requirement. <sup>DE</sup></p> <p><b>PHYS 3030 DSC/QI The Universe</b> 3 Study of properties and origin of the universe, based on Einstein's theory of gravity. Topics include curved space-time; black holes, white holes, and worm holes; the big bang; multiple universes; and the births of stars, galaxies, heavy atoms, and planets. Prerequisite: Completion of University Studies Quantitative Literacy (QL) requirement and PHYS 1040.</p> <p><b>PHYS 3040 QI Space Weather—Dangers to the High-Tech World</b> 3 Space weather can be as destructive to high technology as ordinary weather is to property and crops. Examines increasing vulnerability of society to events in space resulting from changes on the Sun and from human activity. Explores how we learn about space weather with satellites, radars, lidars, and numerical models. Prerequisites: Completion of University Studies Quantitative Literacy (QL) and Breadth Physical Sciences (BPS) requirements.</p> <p><b>PHYS 3500 Topics in Physics (Topic)</b> 1-3<sup>®</sup> Introduces and explores issues in contemporary physics at an intermediate undergraduate level. Focuses on phenomena and experimental methods. Prerequisite: PHYS 2710 and approval of instructor.</p> <p><b>PHYS 3550 Intermediate Classical Mechanics</b> 3 Newton's laws of motion, work and energy, systems of particles, Lagrange's and Hamilton's equations, accelerated reference frames, central force problem, harmonic oscillations, and rigid body rotations. Prerequisites: PHYS 2710, MATH 2210; MATH 2250 (may be taken concurrently).</p> <p><b>PHYS 3600 Intermediate Electromagnetism</b> 3 Electrostatics, electric potential, current, magnetostatics, induction, AC circuits, Maxwell's equations, and electromagnetic waves. Prerequisites: PHYS 2710, MATH 2210; MATH 2250 (may be taken concurrently).</p> <p><b>PHYS 3700 Thermal Physics</b> 3 Rigorous treatment of laws of thermodynamics and statistical mechanics. Concepts of work, temperature, heat, energy, and entropy; and their application to reversible and irreversible processes. Criteria for equilibrium. Prerequisite: PHYS 2710.</p> <p><b>PHYS 3710 Intermediate Modern Physics</b> 3 Introduction to the principles and applications of special and general relativity. Space-time, relativistic kinematics and dynamics, gravity and geometry, black holes, Big Bang, nuclei, radioactivity, and nuclear reactions. Interconnections between modern cosmology and elementary particle physics. Prerequisites: MATH 1220, PHYS 2120 or 2220.</p>
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# Course Descriptions

<p><b>PHYS 3750 Foundations of Wave Phenomena 3</b> Survey of wave phenomena in physics, with emphasis on application of mathematical techniques to the wave equation, Schrodinger equation, and Maxwell equations. Prerequisites: PHYS 2710, MATH 2210; MATH 2250 (may be taken concurrently).</p> <p><b>PHYS 3870 CI Intermediate Laboratory I 2</b> Modern experimental techniques, data and error analysis, experimental design, and communication skills. Exercises complement upper-level theory courses, and include some experiments of historical importance. Prerequisite: PHYS 2500.</p> <p><b>PHYS 3880 CI Intermediate Laboratory II 2</b> Continuation of PHYS 3870. Prerequisite: PHYS 3870.</p> <p><b>PHYS 3900 Projects in Physics 1-3®</b> Individual study pursued under direction of staff member. Prerequisite: Approval of instructor.</p> <p><b>PHYS 4010 DSC/QI Chaos Under Control 3</b> Introduction to principles and applications of new sciences of fractals, chaos, and complexity. Importance of describing physical, geological, biological, and natural resource structures with fractals. Practical benefits of understanding and controlling erratic behavior in physical and living systems. Technological consequences of self-organized, adaptive behavior. Prerequisites: Completion of University Studies Quantitative Literacy (QL) and Breadth Physical Sciences (BPS) requirements.</p> <p><b>PHYS 4020 DSC/QI Science, Art, and Music 3</b> Explores how science constrains production and appreciation of visual and auditory art. Relevance to art of: physics of sound and light, perspective and observer in relativity and quantum mechanics, symmetry, fractals, chaos, complex adaptive behavior, and self-organization. Prerequisites: Completion of University Studies Computer and Information Literacy (CIL) examination, Quantitative Literacy (QL), and Physical or Life Sciences breadth (BPS or BLS) requirements.</p> <p><b>PHYS 4250 CI Cooperative Work Experience 1-6®</b> Planned work experience in industry or national laboratories. A detailed plan and the purpose of the experience must have prior approval. A written report is required. Prerequisite: PHYS 2710.</p> <p><b>PHYS 4550 Advanced Classical Mechanics 3</b> Lagrange's equations, Liouville's theorem, continua, Euler's equations, small vibrations, and special relativity. Prerequisites: PHYS 3550, 3750.</p> <p><b>PHYS 4600 Advanced Electromagnetism 3</b> Potential formulations of electrodynamics, energy and momentum, waves and boundary conditions, waves in dielectrics and conductors, guided waves, dipole radiation, and relativistic electrodynamics. Prerequisites: PHYS 3600 or ECE 3870; PHYS 3550, 3750.</p> <p><b>PHYS 4650 Optics I 3</b> <b>(dual listing 6650)</b> Topics include mathematics of wave motion, electromagnetic theory of light, light propagation, geometrical optics, and superposition of waves. For graduate (6000-level) credit, additional reading, recitation, use of optical-design software, and/or writing will be required. Also taught as ECE 4650/6650. Prerequisite: ECE 3870.</p> <p><b>PHYS 4680 Optics II 3</b> <b>(dual listing 6680)</b> Topics include polarization, interference, diffraction, Fourier optics, coherence theory, and the quantum nature of light. For graduate (6000-level) credit, additional reading, recitation, use of optical-design software, and/or writing will be required. Prerequisite: PHYS/ECE 4650 or PHYS/ECE 6650. Also taught as ECE 4680/6680.</p> <p><b>PHYS 4700 Quantum Mechanics I 3</b> Principles of quantum mechanics, operators in Hilbert space, matrix mechanics, angular momentum, spin, perturbation theory, and applications. Prerequisites: PHYS 3550, 3600, 3750.</p> <p><b>PHYS 4710 Quantum Mechanics II 3</b> Continuation of PHYS 4700. Prerequisite: PHYS 4700.</p>	<p><b>PHYS 4900 CI Research in Physics 1-3®</b> Research experience pursued with faculty mentor. Prior to registration, student must make arrangements with the Physics Department's undergraduate research advisor. Prerequisite: PHYS 2710.</p> <p><b>PHYS 5340 Methods of Theoretical Physics I 3</b> Physics applications of vector calculus and differential geometry, group theory, infinite series, complex analysis, differential equations, Sturm-Liouville theory, orthogonal functions, integral equations, and the calculus of variations.</p> <p><b>PHYS 5350 Methods of Theoretical Physics II 3</b> Continuation of PHYS 5340. Prerequisite: PHYS 5340.</p> <p><b>PHYS 5500 Intermediate Topics in Physics (Topic) 1-3®</b> Explores issues in contemporary physics at the advanced undergraduate and beginning graduate level.</p> <p><b>PHYS 5800 Physics Colloquium 1®</b> A series of invited lectures on specialized topics in physics and related subjects. Graded Pass/Fail <i>only</i>.</p> <p><b>PHYS 5870 CI Advanced Laboratory 3</b> Experimental experience with such modern techniques as scanning tunneling microscopy, LEED, Auger spectroscopy, and Fourier transform infrared spectroscopy. Prerequisite: PHYS 2710.</p> <p><b>PHYS 6010 Classical Mechanics I 3</b> Lagrange's equations, Hamilton's principle, Hamilton's equations, canonical transformations, Hamilton-Jacobi theory, central forces, noninertial reference frames, rigid body motion, small oscillations, relativistic mechanics, canonical perturbation theory, continuum mechanics. Prerequisite: PHYS 4550 or equivalent.</p> <p><b>PHYS 6020 Classical Mechanics II 3</b> Continuation of PHYS 6010. Prerequisite: PHYS 6010.</p> <p><b>PHYS 6110 Electrodynamics I 3</b> Fundamental laws of electrostatics and magnetostatics; dielectric media, Maxwell's equations, time varying fields, and electromagnetic waves. Waveguides and radiation by moving charges. Prerequisite: PHYS 4600 or equivalent.</p> <p><b>PHYS 6120 Electrodynamics II 3</b> Continuation of PHYS 6110. Prerequisite: PHYS 6110.</p> <p><b>PHYS 6210 Quantum Mechanics I 3</b> Advanced quantum mechanics stressing the formalism of states and operators in the study of quantum dynamics, angular momentum, symmetry and group theory, perturbation theory and scattering. Prerequisite: PHYS 4710 or equivalent.</p> <p><b>PHYS 6220 Quantum Mechanics II 3</b> Continuation of PHYS 6210. Prerequisite: PHYS 6210.</p> <p><b>PHYS 6240 Space Environment and Engineering 3</b> Study of space environment and models used for engineering analysis. Topics include considerations for engineering in the space environment such as plasma interactions, debris, chemical reactions, radiation effects, and thermal issues. Prerequisites: MATH 2270, 2280. Corequisite: ECE 5230. Also taught as ECE 6240.</p> <p><b>PHYS 6250 Cooperative Work Experience 1-6®</b> Allows students to register for credit when working in a physics-related position. Prerequisite: Permission of department head prior to enrollment.</p> <p><b>PHYS 6310 Solar-terrestrial Physics I 3</b> Study of solar-terrestrial physics, including planetary magnetic fields, the interaction of the sun with planetary properties (magnetic fields and atmospheres), and an overview of ionospheric measurement techniques. Study of the upper atmosphere and the physics occurring in each of the layers and zones, including the equatorial and polar ionosphere. Prerequisite: PHYS 4600 or equivalent.</p> <p><b>PHYS 6320 Solar-terrestrial Physics II 3</b> Continuation of PHYS 6310. Prerequisite: PHYS 6310.</p>
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# Course Descriptions

<b>PHYS 6330</b>	<b>Plasma Physics I</b>	<b>3</b>
Characteristics of the plasma state and plasma generation; velocity distribution functions, collisions and Boltzmann's equation; wave modes in a plasma; transport theory; plasma devices. Prerequisite: PHYS 4600 or equivalent.		
<b>PHYS 6340</b>	<b>Plasma Physics II</b>	<b>3</b>
Continuation of PHYS 6330. Prerequisite: PHYS 6330.		
<b>PHYS 6410</b>	<b>Statistical Mechanics I</b>	<b>3</b>
Review of thermodynamics. Discussion of foundation of statistical mechanics and applications to ideal classical and quantum gases, blackbody radiation, ideal crystals, interacting classical gases and liquids, phase transitions, and critical phenomena.		
<b>PHYS 6420</b>	<b>Statistical Mechanics II</b>	<b>3</b>
Continuation of PHYS 6410. Prerequisite: PHYS 6410.		
<b>PHYS 6530</b>	<b>Solid State Physics I</b>	<b>3</b>
Development of the modern theory of the solid state. Emphasis placed on understanding the bulk properties of the solids, including crystal structure, cohesive properties, electronic structure, and lattice dynamics. Explores response to added stimuli, such as electric, magnetic, and optical fields. Prerequisites: PHYS 4600 and 4710; PHYS 6410 (can be taken concurrently).		
<b>PHYS 6540</b>	<b>Solid State Physics II</b>	<b>3</b>
Continuation of PHYS 6530. Prerequisite: PHYS 6530.		
<b>PHYS 6550</b>	<b>Physics of Materials I</b>	<b>3</b>
Application of microscopic (quantum) and macroscopic (classical) physics to study materials properties (e.g., bonding, structure, atomic dynamics, electrical, magnetic, thermal, optical), characterization methods, and a survey of materials. Prerequisites: PHYS 3700, 4710.		
<b>PHYS 6560</b>	<b>Physics of Materials II</b>	<b>3</b>
Continuation of PHYS 6550. Prerequisite: PHYS 6550.		
<b>PHYS 6650</b> <b>(dual listing 4650)</b>	<b>Optics I</b>	<b>3</b>
Topics include mathematics of wave motion, electromagnetic theory of light, light propagation, geometrical optics, and superposition of waves. For graduate (6000-level) credit, additional reading, recitation, use of optical-design software, and/or writing will be required. Also taught as ECE 6650/4650. Prerequisite: ECE 3870.		
<b>PHYS 6680</b> <b>(dual listing 4680)</b>	<b>Optics II</b>	<b>3</b>
Topics include polarization, interference, diffraction, Fourier optics, coherence theory, and the quantum nature of light. For graduate (6000-level) credit, additional reading, recitation, use of optical-design software, and/or writing will be required. Prerequisite: PHYS/ECE 4650 or PHYS/ECE 6650. Also taught as ECE 6680/4680.		
<b>PHYS 6910</b>	<b>Relativity I</b>	<b>3</b>
Foundations of spacetime physics. Survey of the basics of special and general relativity, including kinematics, mechanics, and electrodynamics in flat spacetime, the description of curved spacetime, and the Einstein equations. Exact solutions, applications, tests, and the mathematical techniques of general relativity. Prerequisites: PHYS 6020, 6120.		
<b>PHYS 6920</b>	<b>Relativity II</b>	<b>3</b>
Continuation of PHYS 6910. Prerequisite: PHYS 6910.		
<b>PHYS 6930</b>	<b>Quantum Field Theory I</b>	<b>3</b>
Detailed study of the relativistic quantum description of scalar, spinor, and vector fields in spacetime. Topics include gauge theories, canonical and path integral quantization, and interactions.		
<b>PHYS 6940</b>	<b>Quantum Field Theory II</b>	<b>3</b>
Continuation of PHYS 6930. Prerequisite: PHYS 6930.		
<b>PHYS 6970</b>	<b>Thesis Research</b>	<b>1-10<sup>®</sup></b>
Advanced research under guidance of one or more faculty members. Graded Pass/Fail only.		

<b>PHYS 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail only.		
<b>PHYS 7210</b>	<b>Spacecraft Instrumentation</b>	<b>3</b>
Theory, engineering, and data reduction techniques of spacecraft instrumentation for space science and spacecraft systems. Prerequisite: PHYS/ECE 6240. Also taught as ECE 7210.		
<b>PHYS 7500</b>	<b>Advanced Topics in Physics (Topic)</b>	<b>3<sup>®</sup></b>
Explores issues in contemporary physics at the advanced graduate level.		
<b>PHYS 7510</b>	<b>Seminar</b>	<b>1-3<sup>®</sup></b>
<b>PHYS 7970</b>	<b>Dissertation Research</b>	<b>1-15<sup>®</sup></b>
Graded Pass/Fail only.		
<b>PHYS 7990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
Graded Pass/Fail only.		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.  
<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Plant Science (PLSC)

See *Department of Plants, Soils, and Climate*, pages 415-423

**Note:** Effective Spring Semester 2010, courses listed with the PLSC prefix will use the Plants, Soils, and Climate (PSC) prefix.

<b>PLSC 2100</b>	<b>BLS Introduction to Horticulture</b>	<b>3</b>
Introduction to production of nursery, greenhouse, fruit, and vegetable crops. Explores residential and commercial landscape construction and management. Students also learn about interior plants, arboriculture, turf science, landscape plant materials, and home gardening. (F) <sup>DE</sup>		
<b>PLSC 2200</b>	<b>Pest Management Principles and Practices</b>	<b>3</b>
Overview of pest control considerations, procedures, and principles. Topics include integrated pest management, organic and chemical pest control, environmental considerations, safety, life cycles of pests, and commercial pesticide licensing. (Sp) <sup>DE</sup>		
<b>PLSC 2250</b>	<b>Occupational Experience in Agronomy and Horticulture</b>	<b>1-4<sup>®</sup></b>
Provides credit for on-the-job training in jobs related to plants or soils. (F,Sp,Su) <sup>DE</sup>		
<b>PLSC 2600</b>	<b>Annual and Perennial Plant Materials</b>	<b>3</b>
Identification, culture, and utilization of herbaceous ornamental plants in the landscape, including annual and perennial flowering plants, herbaceous ground covers, ornamental grasses, and herbs. (F)		
<b>PLSC 2620</b>	<b>Woody Plant Materials: Trees and Shrubs for the Landscape</b>	<b>3</b>
Identification, culture, and utilization of woody ornamental plants in the landscape, including shade trees, flowering trees and shrubs, hedge plants, and vines. Review of native plants commonly used in the landscape. (F) <sup>DE</sup>		
<b>PLSC 2900</b>	<b>Special Problems in Plant Science</b>	<b>1-4<sup>®</sup></b>
Student-selected practical problems in horticulture and/or agronomy. (F,Sp,Su) <sup>DE</sup>		
<b>PLSC 3010</b>	<b>Basic Flower Arranging</b>	<b>2</b>
Principles of basic flower design using fresh, dried, and artificial flowers. Proper care of cut flowers and foliage. Basic plant physiology behind such principles. Lab fee required. Offered through Distance Education only. (F) <sup>DE</sup>		
<b>PLSC 3050</b>	<b>Greenhouse Management and Crop Production</b>	<b>4</b>
Design and management of commercial greenhouse facilities. Production requirements of primary greenhouse crops. (Sp) <sup>DE</sup>		

# Course Descriptions

<p><b>PLSC 3300 Residential Landscapes</b> 3 Functional and aesthetic relationships of plants and structures in the landscape in connection with installation considerations. Prerequisite: PLSC 2620. Recommended: PLSC 2600. (Sp)<sup>DE</sup></p> <p><b>PLSC 3310 Advanced Residential Landscape Design</b> 3 Advanced course in residential landscape design. Uses industry-standard and computer-aided design software for small-scale designs. (F)</p> <p><b>PLSC 3400 Landscape Management Principles and Practices</b> 3 Principles and practices of landscape management, including plant site analysis, pruning, soil and irrigation management, pest management, equipment considerations, cost estimating, and sustainability. Prerequisites: PLSC 2600, 2620. (Sp)<sup>DE</sup></p> <p><b>PLSC 3420 Landscape Irrigation Design</b> 2 Introduction to design of sprinkler and drip irrigation systems for residential and commercial landscapes. (Sp)<sup>DE</sup></p> <p><b>PLSC 3430 Landscape Business Practices</b> 3 Explores small business approach to managing landscape construction companies and using techniques of bidding and estimating. (Sp)</p> <p><b>PLSC 3440 Construction Methods for Residential Landscape Installation</b> 2 Introduction to methods and equipment used in landscape installation, such as techniques of layout, pavers, water features, planting, sod installation, sprinkler and drip irrigation installation, and equipment operation. (F)</p> <p><b>PLSC 3500 The Structure and Function of Economic Crop Plants</b> 3 Environmental effects on plant structure and function. Control of plant development for enhanced production of marketable goods. Introduction to principles using examples from horticulture and agronomy. Applications in these fields emphasized. Prerequisites: Integrated Science or comparable breadth course, BIOL 1010 or 1610. (Sp)</p> <p><b>PLSC 3700 Plant Propagation</b> 4 Propagation of plants by sexual and asexual means. Covers fundamental physiology of propagation, as well as cultural practices and techniques used in crop production. Recommended: BIOL 1610. (F)<sup>DE</sup></p> <p><b>PLSC 3800 Turfgrass Management</b> 3 Fundamentals of turfgrass science: species adaptation, identification, and cultural requirements; turfgrass growth and development; establishment; primary cultural practices (fertilization, irrigation, mowing); secondary cultural practices; pest management; integrated management planning for turfgrass systems. Prerequisite: BIOL 1010 or 1610. (F)</p> <p><b>PLSC 4100 Landscape Water Conservation</b> 2 Explains why water conservation is important, and how water can be conserved through precision irrigation and conversion to low-water-use landscapes. Not currently being taught. Contact department for further information.</p> <p><b>PLSC 4280 Field Crops</b> 3 Economic importance, use, distribution, origin, history, classification, identification, botanical nature, marketing, processing, storage, certification, grading, diseases, insects, commercial production, and improvement of cereal, root, and oilseed crops. Two lectures, one lab per week. (F)</p> <p><b>PLSC 4300 World Food Crops and Cropping Systems: The Plants That Feed Us</b> 3 Climatic, geographic, and management requirements of the world's plants that provide food for humans, including botanical relationships. Systems used to produce these crops and processes for turning them into food. Prerequisite: Integrated Science or comparable breadth course. Not currently being taught. Contact department for further information.</p> <p><b>PLSC 4320 Forage Production and Pasture Ecology</b> 3 Cultivation and management of legumes and grasses used throughout the world for grazing, stored feed, soil improvement, and conservation. Forage plant growth and development, nutrient and water utilization, and responses to environmental stress. Prerequisite: Integrated Science or comparable breadth course. (F even)</p>	<p><b>PLSC 4400 Modern Vegetable Production</b> 3 Principles and practices underlying scientific vegetable culture. Discussion of production of important vegetables, focusing on the physiological processes influencing their culture. Explores crop performance in research and commercial applications. Prerequisite: BIOL 1010 or 1610. (F)<sup>DE</sup></p> <p><b>PLSC 4500 Fruit Production</b> 3 Cultivars, physiology, anatomy, propagation, sites, soils, climate, culture, irrigation, fertilizers, insects, diseases, integrated management, plant and fruit growth and development, harvesting, storage, pruning, orchard architecture, environmental protection, and economics for both tree and small fruits. Prerequisite: BIOL 1010 or 1610. (Sp)<sup>DE</sup></p> <p><b>PLSC 4600 DSC/QI Cereal Science</b> 3 Introduction to principles involved in cereal chemistry and processing. Covers starch chemistry, dry milling, wet milling, decortication, malting, and extrusion. Processing of all major cereals also covered. Prerequisite: MATH 1030 or STAT 1040 or completion of University Studies Quantitative Literacy (QL) requirement. (Sp even)</p> <p><b>PLSC 4800 Professional Turfgrass Management</b> 2 Fertilization, irrigation, and cultivation practices for managed landscapes. Construction issues, including compaction, soil modification, and specialized construction practices for golf courses and sports turf. Prerequisites: SOIL 3000, PLSC 3800. (Sp)</p> <p><b>PLSC 5100 Landscape Irrigation Management (dual listing 6100)</b> 3 Explores how principles of evapotranspiration, soil and plant properties, and urban landscape sprinkler irrigation systems can be combined for proper irrigation scheduling. Evaluating and analyzing landscape water demand. (Sp)</p> <p><b>PLSC 5200 Environmental Plant Physiology (dual listing 6200)</b> 2 Quantitatively analyzes the relationship between physiological processes and growth of whole plants. Energy balance and water use efficiency. Light interception and canopy geometry. Canopy photosynthesis and respiration. Carbon partitioning and source/sink relationships. Prerequisites: BIOL 4400, MATH 1050, or consent of instructor. (Sp)</p> <p><b>PLSC 5300 Principles of Cytogenetics</b> 3 Examination and analysis of variation in chromosome structure, behavior, and number. Includes discussions of developmental and evolutionary effects of this variation, and practical applications in plant and animal genetics. Prerequisite: BIOL 3060. (Sp odd)</p> <p><b>PLSC 5400 Low Water Landscaping (dual listing 6400)</b> 3 Examines arid ecosystems, emphasizing the Intermountain West, and recreating such ecosystems in a range of amenity landscapes. Also covers procurement, propagation, establishment, and maintenance of plants appropriate for low water landscapes. Also taught as LAEP 5400/6400. (F)</p> <p><b>PLSC 5420 CI Forest and Shade Tree Pathology</b> 3 Nature, cause, and management of forest diseases. Also taught as BIOL 5420 and WILD 5420. (Sp)</p> <p><b>PLSC 5430 Plant Nutrition (dual listing 6430)</b> 2 Mechanisms of nutrient acquisition, rhizosphere interactions, root morphology and distribution, short- and long-distance transport, nitrogen fixation, and biochemical function of essential and beneficial elements. (F even)</p> <p><b>PLSC 5440 Plant Molecular, Cellular, and (dual listing 6440) Developmental Biology I</b> 3 Examines background and recent advances. Students analyze and discuss structure, genome, molecular development, and photosynthesis topics from a research perspective. Prerequisites: BIOL 3060, 5210; CHEM 3700 or 5710. Also taught as BIOL 5440/6440. (Sp even)</p> <p><b>PLSC 5450 Plant Molecular, Cellular, and (dual listing 6450) Developmental Biology II</b> 3 Examines background and recent advances. Students analyze and discuss cell wall, growth regulator, and environmental response topics from a research</p>
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# Course Descriptions

perspective. Prerequisites: BIOL 3060, 5210, CHEM 3700 or 5710. Also taught as BIOL 5450/6450. (Sp odd)

**PLSC 5550 Weed Biology and Control 4**  
(dual listing 6550)

Management strategies for undesirable plant species in native and agroecosystems. Interference and allelopathy, undesirable plant invasion and spread, noxious weed eradication principles and practices, integrated plant management strategies, herbicide interactions with weeds and crops, and economics of management emphases. (F)

**PLSC 5600 Plant Water Relations 2**  
(dual listing 6600)

Explores basic concepts such as the soil-plant-atmosphere continuum. Explains how water affects the physiological processes that control the quantity and quality of growth. Includes discussion of crop physiology and plant physiology. (F)

**PLSC 5650 Urban/Community Forestry 3**

Social, biological, and administrative aspects of managing urban/community forests, including field and classroom exercises and a management planning project. Also taught as WILD 5650. (Sp)

**PLSC 5700 Principles of Plant Breeding 3**

Principles of plant breeding. Breeding techniques for self-pollinated, cross-pollinated, and asexually reproducing crops. Real-life breeding problems solved, showing that resource identification and allocation are the critical points in developing a successful program. Prerequisite: Fulfillment of General Education Breadth Life Sciences (BLS) requirement. (Sp odd)

**PLSC 5750 Crop Biotechnology 2**

Genetic and cellular approaches to crop improvement. Emphasizes cell culture, transformation, markers, marker-assisted selection, mapping simple and quantitatively inherited traits, fine mapping, gene cloning, mutagenesis, expression profiling, and bioinformatics. Prerequisite: BIOL 3060. (Sp odd)

**PLSC 5760 Crop Ecology 2**

Features of agroecosystems compared with natural ecosystems; input of energy and materials to manipulate agroecosystems and produce maximum, sustained quality and yield of agricultural products. Prerequisites: BIOL 4400, PLSC 5200/6200, or instructor's consent. (Sp)

**PLSC 6100 Landscape Irrigation Management 3**  
(dual listing 5100)

Explores how principles of evapotranspiration, soil and plant properties, and urban landscape sprinkler irrigation systems can be combined for proper irrigation scheduling. Evaluating and analyzing landscape water demand. (Sp)

**PLSC 6200 Environmental Plant Physiology 2**  
(dual listing 5200)

The relationship between physiological processes and growth of whole plants. Energy balance and water use efficiency. Light interception and canopy geometry. Canopy photosynthesis and respiration. Carbon partitioning and source/sink relationships. Prerequisites: BIOL 4400, MATH 1050, or consent of instructor. (Sp)

**PLSC 6220 Professional Experience in Water Efficient Landscaping 6**

Internship component of water efficient landscaping master's program. Summer employment with water purveyors, consulting firms, and businesses involved in landscape irrigation. (Su)

**PLSC 6230 Readings in Landscape Water Conservation 1**

Background topics in water development and policy in the West. Current topics on various aspects of water conservation in urban landscapes. (Sp even)

**PLSC 6240 Water Efficient Landscaping Seminar 2**

Students develop skills in public speaking by presenting their summer internship experience to the Plants, Soils, and Climate faculty. Students also work on a culminating academic endeavor for the program. (F)

**PLSC 6400 Low Water Landscaping 3**  
(dual listing 5400)

Examines arid ecosystems, emphasizing the Intermountain West, and recreating such ecosystems in a range of amenity landscapes. Also covers procurement,

propagation, establishment, and maintenance of plants appropriate for low water landscapes. Also taught as LAEP 6400/5400. (F)

**PLSC 6430 Plant Nutrition 2**  
(dual listing 5430)

Mechanisms of nutrient acquisition, rhizosphere interactions, root morphology and distribution, short- and long-distance transport, nitrogen fixation, and biochemical function of essential and beneficial elements. (F even)

**PLSC 6440 Plant Molecular, Cellular, and Developmental Biology I 3**  
(dual listing 5440)

Examines background and recent advances. Students analyze and discuss structure, genome, molecular development, and photosynthesis topics from a research perspective. Prerequisites: BIOL 3060, 5210; CHEM 3700 or 5710. Also taught as BIOL 6440/5440. (Sp even)

**PLSC 6450 Plant Molecular, Cellular, and Developmental Biology II 3**  
(dual listing 5450)

Examines background and recent advances. Students analyze and discuss cell wall, growth regulator, and environmental response topics from research perspective. Prerequisites: BIOL 3060, 5210, CHEM 3700 or 5710. Also taught as BIOL 6450/5450. (Sp odd)

**PLSC 6550 Weed Biology and Control 4**  
(dual listing 5550)

Management strategies for undesirable plant species in native and agroecosystems. Interference and allelopathy, undesirable plant invasion and spread, noxious weed eradication principles and practices, integrated plant management strategies, herbicide interactions with weeds and crops, and economics of management emphases. (F)

**PLSC 6570 Herbicide Physiology and Mode of Action 3**

Entrance, movement, and metabolism of major herbicides; and a critical study of the physiological processes affected by them. Prerequisites: BIOL 4400, PLSC 6550/5550 or instructor's consent. (Sp odd)

**PLSC 6600 Plant Water Relations 2**  
(dual listing 5600)

Explores basic concepts such as the soil-plant-atmosphere continuum. Explains how water affects the physiological processes that control the quantity and quality of growth. Includes discussion of crop physiology and plant physiology. (F)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Political Science (POLS)

See Department of Political Science, pages 424-428

**POLS 1100 BAI United States Government and Politics 3**

U.S. Constitution, political parties and elections, interest groups, Congress, president, bureaucracy, courts, and civil rights and liberties. This course meets the Americanization requirement. (F,Sp)<sup>DE</sup>

**POLS 2100 Introduction to International Politics 3**

Analysis of the nation-state system as well as interdependence of the global community. (F,Sp)<sup>1</sup>

**POLS 2200 BSS Comparative Politics 3**

Comparisons of differences in political culture, institutions, and processes, including authoritarian and democratic systems, violence and corruption, political development, and public policy. (F,Sp)<sup>1 DE</sup>

**POLS 2300 Introduction to Political Theory 3**

A survey course covering ancient and modern political theory. (F,Sp)

**POLS 3000 QI Introduction to Political Research 3**

Methodology, methods, and approaches used to study and analyze political events and relationships, including the use of library resources. Prerequisite: STAT 1040 or MATH 1030. (F,Sp)<sup>2</sup>

# Course Descriptions

<p><b>POLS 3100 Global Issues*</b> 3 The origins and consequences of conflict and cooperation in an interdependent global community are examined in order to analyze how transnational, as well as competing national, interests and institutions affect economic, political, and environmental choices and outcomes. (F)</p> <p><b>POLS 3110 DSS Parties and Elections**</b> 3 Political parties, campaigns, and elections. (Sp)</p> <p><b>POLS 3115 Electoral Behavior</b> 3 Considers the factors influencing citizens to become involved in politics. Explores how voters decide which candidates or issues to support, how candidates might act on that support, and whether or not reforms are needed to ensure greater participation. (Sp)</p> <p><b>POLS 3120 DSS Law and Politics</b> 3 Examines history, processes, and theories underlying American law and politics. Makes selective comparison of the American legal system with other legal systems. (F)</p> <p><b>POLS 3130 DSS United States Legislative Politics</b> 3 Legislative process. (Sp)</p> <p><b>POLS 3140 DSS The Presidency*</b> 3 Examines the origins, purposes, and scope of the executive power in the American constitutional system. (F)</p> <p><b>POLS 3150 State and Local Government</b> 3 Includes state and local politics, in addition to metro-urban politics. (Sp)</p> <p><b>POLS 3160 Practicing American National Government</b> 3 Includes survey of legislative, executive, and judicial governing. Offers academic basis for Washington, DC experience. (F,Sp,Su)</p> <p><b>POLS 3170 Law and Economics</b> 3 Explains legal and political rules, the organization of government, and other institutional processes. Uses standard microeconomic tools and concepts, such as scarcity, choice, preferences, incentives, and supply and demand. Prerequisite: POLS 1100. Also taught as ECN 3170. (Sp)<sup>DE</sup></p> <p><b>POLS 3180 Introduction to Public Administration</b> 3 Overviews management of United States governmental affairs. Helps students understand how the government is structured to accomplish the execution and implementation of public policy. Prerequisite: POLS 1100. (F)</p> <p><b>POLS 3190 DSS Gender, Power, and Politics</b> 3 Examines the question of gender inequality in politics, focusing on contemporary political issues cross-culturally and in different political systems. (F)<sup>4</sup></p> <p><b>POLS 3210 DSS Western European Government and Politics**</b> 3 Britain, France, Germany, Scandinavia, and the European Union. (F)</p> <p><b>POLS 3220 DSS Russian and East European Government and Politics*</b> 3 (F)</p> <p><b>POLS 3230 Middle Eastern Government and Politics**</b> 3 General overview of political cultures and political developments in the Middle East. (F)</p> <p><b>POLS 3250 DSS Chinese Government and Politics</b> 3 (F)</p> <p><b>POLS 3270 DSS Latin American Government and Politics</b> 3 Survey of most of the governments and politics of Latin America, emphasizing events, policies, and governmental actions of the past decade. (F)</p> <p><b>POLS 3310 DSS American Political Thought</b> 3 Survey of American political thought from colonial times to the present. (F)</p>	<p><b>POLS 3320 The Foundations of American Constitutionalism</b> 3 Introduces students to debate over constitutions, constitutionalism, and constitution-making which occurred during the period (roughly) from the Revolution to the election of 1800.</p> <p><b>POLS 3400 DSS United States Foreign Policy</b> 3 Formulation, execution, and impact of United States foreign policy. (F,Sp)<sup>3</sup></p> <p><b>POLS 3430 Political Geography</b> 3 The relationship between earth and state. World political phenomena studied from a geographic point of view, including international boundaries, territorial seas, and landlocked states. Also taught as GEOG 3430. (Sp)</p> <p><b>POLS 3700 Terrorism and Counterterrorism*</b> 3 Explores dynamics, causes, characteristics, and consequences of those acts labeled "terrorist." Also explores counter measures to such acts. (F)</p> <p><b>POLS 3810 DSS Introduction to Public Policy</b> 3 Examines different approaches to the study of public policy and different value dimensions in the design of policies. (F)</p> <p><b>POLS 4000 Political Analysis</b> 3 Political data, quantitative and analytical techniques. Prerequisite for majors: POLS 3000. (F)<sup>4</sup></p> <p><b>POLS 4120 American Constitutional Law</b> 3 Analyzes the separation of powers, checks and balances, federalism, the Bill of Rights, and other constitutional amendments. (F,Sp)</p> <p><b>POLS 4130 Constitutional Theory</b> 3 Introduces students to constitutional theory, with particular emphasis on American constitutional theory. Prerequisite: POLS 1100. (Sp)</p> <p><b>POLS 4140 Political Organizations</b> 3 Focuses on formal and informal constitutional rules, examining how different sets of rule structures impact the collective decisions of individuals in society and how individuals can influence or shape the rules structuring their lives. Prerequisite: POLS 1100.</p> <p><b>POLS 4150 The Supreme Court and the Shaping of America</b> 3 Exposes students to the most important Supreme Court decisions in U.S. history. Outlines how such decisions impact American citizens and policy. (Sp)</p> <p><b>POLS 4160 The First Amendment</b> 3 Provides an in-depth examination of the first amendment of the U.S. Constitution, based on case law of the Supreme Court and interpretations made within government agencies. (Sp)</p> <p><b>POLS 4210 European Union Politics**</b> 3 Explores creation and ongoing development of the European Union. Examines governing institutions, and internal and external politics of the European Union across a number of issues areas. (Sp)</p> <p><b>POLS 4220 CI Ethnic Conflict and Cooperation</b> 3 Examines origins of ethnic groups and the causes of ethnic conflicts, as well as different strategies for preventing or resolving such conflict. Explores conditions facilitating interethnic cooperation, the more common form of ethnic group interaction. (Sp)<sup>4</sup></p> <p><b>POLS 4230 Issues in Middle East Politics</b> 3 Contemporary Middle Eastern political movements, regional conflicts, and state-level political change. (Sp)<sup>4</sup></p> <p><b>POLS 4260 Southeast Asian Government and Politics*</b> 3 (Sp)</p> <p><b>POLS 4280 Politics and War*</b> 3 Examines causes and implications of war. Study of wars from general to limited, including case studies such as the Vietnam War. (Sp)</p> <p><b>POLS 4310 CI History of Political Thought I</b> 3 Issues and thinkers in ancient and medieval political thought. (Sp)</p>
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# Course Descriptions

<p><b>POLS 4320 DSS History of Political Thought II*</b> 3 Issues and thinkers in modern and contemporary political thought. (Sp)</p> <p><b>POLS 4330 Political Theory and Literature</b> 3 Utilizes works from the field of literature, partly in order to discuss issues in politics and political philosophy, and partly as examples of political thought at its best. (F,Sp)</p> <p><b>POLS 4350 Public Policy and Democratic Theory</b> 3 Examines the nature of the American Republic. Focuses on the tension between our republican form of government and the tendency toward democratization. Considers how this balance has changed over time. (F)</p> <p><b>POLS 4410 Global Negotiations*</b> 3 Creates an awareness of international issues and other cultures. Utilizes a computer simulation program in which negotiating teams of students from around the world are linked in a negotiation simulation. (Sp)</p> <p><b>POLS 4450 CI United States and Latin America</b> 3 Study and analysis of foreign relations of Latin American nations among themselves and with the rest of the world. (Sp)</p> <p><b>POLS 4460 National Security Policy*</b> 3 How intelligence systems function, fit within the policymaking systems of free societies, and are managed and controlled. (Sp)</p> <p><b>POLS 4470 Foreign Policy in the Pacific*</b> 3 Analysis of contemporary foreign policies of major countries surrounding the North Pacific. (Sp)</p> <p><b>POLS 4800 The Supreme Court and American Constitutional History</b> 3 Examines many of the major arguments made about the Constitution, which were presented before the Supreme Court of the United States. Also taught as HIST 4800.</p> <p><b>POLS 4810 Politics and Public Policy</b> 3 Explains public policies as rational expressions of political self-interest and explores the relationship between self-interest and values such as "equity" and "efficiency" in policy. (F)</p> <p><b>POLS 4820 DSS Natural Resources and Environmental Policy: Political Economy of Environmental Quality**</b> 3 Causes of environmental and natural resources problems and evaluation of political and private responses to them. Study of economics and politics applied to the environment. Production, protection, and allocation of scarce resources by markets and political systems. (Sp)</p> <p><b>POLS 4890 Special Topics</b> 1-5® Credit arranged. Instructor's permission required. (F,Sp)<sup>DE</sup></p> <p><b>POLS 4910 Readings and Conference</b> 1-5® Individually directed study in subjects of special interest to students. Credit arranged. Instructor permission required. (F,Sp,Su)</p> <p><b>POLS 4990 CI Senior Research Seminar</b> 3® Introduces students to the research process by having them complete a major research project in the topic area of the particular professor. (F,Sp)<sup>DE</sup></p> <p><b>POLS 5110 Social Policy**</b> 3 Examines health, education, and welfare policies in U.S. contexts and in comparative context. (F)</p> <p><b>POLS 5120 Economics of Russia and Eastern Europe, 9th Century to 21st Century</b> 3 Development of the economics of Russia and Eastern Europe from earliest times to the present, emphasizing the interaction between economic forces and policies of the state. Prerequisite: APEC/ECN 2010. (F)</p> <p><b>POLS 5130 Law and Policy</b> 3 Analyzes the relationship between law and the formation and implementation of policy. (Sp)</p>	<p><b>POLS 5140 Law, Politics, and War</b> 3 Examines relationship between law, politics, and war, with particular emphasis on the American experience since 1787. (F)</p> <p><b>POLS 5180 Natural Resource Policy</b> 3 Political and economic theory applied to the analysis of natural resource allocation conflicts and U.S. policies enacted to resolve such conflicts. (Sp)<sup>4</sup></p> <p><b>POLS 5200 Global Environment</b> 3 Examines different strategies for resolving global resource and environmental problems. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>POLS 5210 Comparative Political Change/Development*</b> 3 Emphasis on approaches and theories in the field of comparative politics, with a focus on political change/development. (F)</p> <p><b>POLS 5230 Development in the Middle East</b> 3 Study of Middle Eastern regimes, political cultures, and political developments. (Sp)<sup>4</sup></p> <p><b>POLS 5270 Latin American Politics and Development</b> 3 Focuses on special contemporary issues of selected Latin American nations, such as democratization, the role of the military, and elections. (Sp)<sup>4</sup></p> <p><b>POLS 5290 Development in Europe</b> 3 Emphasizes political and economic development in Europe. (Sp)<sup>4</sup></p> <p><b>POLS 5350 DSS Evolution, Conflict, and Cooperation*</b> 3 Intensively examines human cooperation as a fundamental problem of development and human conflict as the major obstacle to development. (Sp)</p> <p><b>POLS 5420 The Mass Media and Politics (dual listing 6420)</b> 3 Examination of the role of the mass media in the political process, including both campaigns and governance. Examination of political advertising, news coverage, polling, opinion formation strategies, and politicians' use of new media technologies. Also taught as JCOM 5420/6420. (F)</p> <p><b>POLS 5440 DSS Gender and World Politics</b> 3 Examines the role gender inequality plays in the construction of international relations, using a variety of feminist approaches. Central theme of gendered critique is global security, defined in terms of economic, ecological, political, and military dimensions. (Sp)<sup>4</sup></p> <p><b>POLS 5480 International Trade Policy**</b> 3 Examines governance and politics of international trade relations, focusing in particular on cooperation, conflict, and dispute resolution in the GATT/WTO, European community, NAFTA, and Asian cooperative regimes. (Sp)</p> <p><b>POLS 5910 Campaign Internship</b> 1-12® A semester campaign internship. Instructor approval required. (F,Sp,Su)</p> <p><b>POLS 5920 Washington Internship</b> 1-12® A semester congressional, administrative, or legal internship in Washington, D.C. Graded Pass/Fail <i>only</i>. Instructor approval required. (F,Sp,Su)</p> <p><b>POLS 5930 State Government Internship</b> 1-12® A semester legislative, lobbying, or administrative internship in the state government of Utah or those of any other state government. Graded Pass/Fail <i>only</i>. Instructor approval required. (F,Sp,Su)</p> <p><b>POLS 5940 Administrative Internship</b> 1-12® A semester administrative internship at the local or state level. Graded Pass/Fail <i>only</i>. Instructor approval required. (F,Sp,Su)</p> <p><b>POLS 5950 International Internship</b> 1-12 Prerequisite: Enrollment in International Studies major. (F,Sp,Su)</p> <p><b>POLS 6010 Research Design</b> 3 A graduate survey of the philosophy and methods of political analysis. Topics ranging from the methodology of inquiry to elementary statistical methods will be covered. (F)</p>
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# Course Descriptions

**POLS 6020 Public Policy Analysis 3**  
Examines and reviews leading theories of policy analysis and the policy-making process at an advanced level. (Sp)

**POLS 6030 Political Theory, Political Economy, and Capitalism 3**  
Provides an introduction to the study of political economy by considering the connections among political theory, political economy, and capitalism. This course is not currently being offered. For information about when it may be offered, contact the department.

**POLS 6040 Public Choice 3**  
Introduction to applying the microeconomic theory of markets to political processes. This course is not currently being offered. For information about when it may be offered, contact the department.

**POLS 6100 Introduction to Public Administration 3**  
Introduction to issues of public and nonprofit management. Provides overview of macro and micro forces influencing public and nonprofit management.

**POLS 6110 Budgeting and Finance 3**  
Surveys all major activities concerning allocation, investment, and control of public funds, as well as budgeting and revenues in context of fiscal policy making (Alt Sp)

**POLS 6120 Program Assessment and Evaluation 3**  
Practical guidelines for conducting evaluation studies. Discussion of performance measurement, social indicators, quantitative and qualitative methods, and experimental and quasi-experimental designs as used in applied policy and program research. (Alt F)

**POLS 6130 Law and Administration 3**  
Exploration and analysis of constitutional and legal basis in which American Public Administration is set, including separation of powers, checks and balances, delegation of discretionary authority, and common law and equity. (Alt Su)

**POLS 6140 Leadership in Public Organizations 3**  
Analysis of leadership behavior and managerial activities. Examination of major theories of leadership and motivation, including leadership vs. management, leadership qualities and characteristics, and leadership skills. (Alt Su)

**POLS 6210 Conflict and Security 3**  
Explores the many causes of conflict at different levels. Identifies the means by which resolution can be achieved, as well as the challenges and barriers associated with such efforts. (Sp)

**POLS 6220 International Relations Theory 3**  
Reading seminar on theory and method in the interplay of politics and economics in international relations. This course is not currently being offered. For information about when it may be offered, contact the department.

**POLS 6230 Terrorism and Counter-Terrorism\*\* 3**  
Explores the history, causes, and consequences of terrorism, as well as its impact on the global arena. Teaches students why understanding of terrorism is crucial, in order to allow effective, intelligent responses. (Sp)

**POLS 6240 Democratic Theories and Practice 3**  
Explores the many different perspectives and theories on the concept of democracy, ranging from the 18th Century to writings of the 21st Century. (F)

**POLS 6250 Theories of War and Peace 3**  
Examines the "classic" alternative understanding, in the history of political thought, regarding the reasons people go to war. Explores consequent proposals to erase the sources or alleviate the results of armed conflicts. (F,Sp)

**POLS 6400 United States Foreign Policy 3**  
Explores contemporary U.S. foreign policy in the context of international relations theory and global realities. Utilizing theoretical perspectives as analytical models, course examines how policy makers formulate and attempt to achieve U.S. foreign policy goals in the global arena. Taught during alternate years.

**POLS 6420 The Mass Media and Politics 3**  
**(dual listing 5420)**  
Examination of the role of the mass media in the political process, including both campaigns and governance. Examination of political advertising, news coverage, polling, opinion formation strategies, and politicians' use of new media technologies. Also taught as JCOM 6420/5420. (F)

**POLS 6810 Graduate Seminar 1-4<sup>®</sup>**  
American politics; comparative politics; political theory; international politics; public law; public administration. (F,Sp,Su)

**POLS 6910 Graduate Tutorial 1-3<sup>®</sup>**  
Prerequisite: instructor's consent. (F,Sp,Su)

**POLS 6920 Internship 1-15<sup>®</sup>**  
Internship in a public administration agency. Instructor approval required. (F,Sp,Su)

**POLS 6970 Thesis Research 1-9<sup>®</sup>**  
Graded Pass/Fail *only*. Prerequisite: admission to candidacy. (F,Sp,Su)

**POLS 6990 Continuing Graduate Advisement 1-3<sup>®</sup>**  
Graded Pass/Fail *only*. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>®E</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

<sup>1</sup>Taught Spring 2010.

<sup>2</sup>Taught Spring 2011.

<sup>3</sup>Taught Spring 2010 and 2012.

<sup>4</sup>Not taught 2009-2010 or 2010-2011.

## Portuguese (PORT)

See *Department of Languages, Philosophy, and Speech Communication*, pages 334-346

**PORT 1010 Portuguese First Year I 4**  
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. (F)

**PORT 1020 Portuguese First Year II 4**  
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: PORT 1010 or equivalent. (F,Sp)

**PORT 1050 Intensive Portuguese for Spanish Speakers 4**  
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Intensive course for Spanish speakers. (Sp)

**PORT 2010 Portuguese Second Year I 4**  
Continued development of communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: PORT 1020 or equivalent. (F)

**PORT 2020 Portuguese Second Year II 4**  
Continued development of communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: PORT 2010 or equivalent. (Sp)

**PORT 2880 Individual Readings 1-4<sup>®</sup>**  
Individual study of selected readings in Portuguese. Instructor's permission required. (F,Sp)

**PORT 3040 CI Advanced Portuguese Grammar and Composition 3**  
Review of the more complex Portuguese grammatical points and development of writing skills through composition. Prerequisite: PORT 2020 or equivalent. (F,Sp)

# Course Descriptions

**PORT 3570 DHA Brazilian Culture and Civilization 3**  
Historical, social, political, economic, and cultural conditions and institutions of Brazil. Prerequisite: PORT 3040 or permission of instructor. (F)

**PORT 3630 DHA Survey of Brazilian Literature 3**  
Selected readings and discussions of major works and authors in Brazilian literature. Prerequisite: PORT 3040. (Sp)

**PORT 3800 Portuguese III Study Abroad 1-4**  
Intense review of selected problematic areas of Portuguese grammar for students with advanced language skills. Prerequisite: PORT 2020 or equivalent. Taught *only* in USU's overseas Portuguese program. (Su)

**PORT 4880 Individual Readings 1-4<sup>®</sup>**  
Readings in Brazilian and/or Portuguese literature. Prerequisite: Instructor's permission. (F,Sp)

**PORT 4920 Portuguese Language Tutoring 1<sup>®</sup>**  
Allows students to develop tutoring skills by assisting professors in lower-division courses or fulfilling instructional duties for a comparable amount of time in the language laboratory, public schools, or similar activities with departmental approval. May be repeated to a maximum of 3 credits. Prerequisite: Permission of instructor. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

## Parks and Recreation Professional (PRP)

See Department of Health, Physical Education and Recreation, pages 296-303

**PRP 1000 Introduction to Recreation Services 3**  
Introduces the conceptual foundations of play, recreation, and leisure, as well as the history and current trends of the profession. Provides insight into the careers offered within the recreation services industry. (F,Sp)

**PRP 2500 Outdoor Recreation Management 3**  
Explores philosophy, meaning, and value of outdoor recreation in society. Gives management agency overview. Emphasizes organizing and leading outdoor recreation pursuits. This course is not currently being taught. For information about when it may be taught, contact the Department of Health, Physical Education and Recreation.

**PRP 3000 Designing Recreation Experiences 3**  
Introduces aspects of designing theory-based recreation experiences, utilizing methods, models, marketing, budgets, and evaluation. (F,Sp)

**PRP 3025 Techniques of Experiential Recreation 3**  
Explores the foundations behind and techniques utilized in leading recreation experiences. Emphasizes practical experience with planning recreation activities. Prerequisites: PRP 1000, 3000. (F)

**PRP 3050 Evaluation of Recreation Services 3**  
Examines methods and practical applications of evaluation utilized in recreation services. Prerequisites: PRP 1000, 3000; PRP 3025 (may be taken concurrently); and MATH 1030 or STAT 1040 or a higher MATH or STAT course. (F)

**PRP 3075 Applications of Experiential Recreation 3**  
Applies the management aspects of recreation services. Culminating course emphasizing design, implementation, and evaluation of recreation experiences. Prerequisites: PRP 1000, 3000, 3025, 3050, 4500, 4550. PRP 4550 may be taken concurrently. (Sp)

**PRP 3500 CI Community Recreation Administration 3**  
Examines community recreation organization with emphasis on administrative skills and functions, including budgeting, personnel management, and grantsmanship. Prerequisites: PRP 1000 and 3000. This course is not currently being taught. For information about when it may be taught, contact the Department of Health, Physical Education and Recreation.

**PRP 3750 Commercial Recreation and Tourism 3**  
Examines history, organization, and management of commercial recreation and tourism enterprises. Studies entrepreneurship, feasibility, marketing, and management of projects. This course is not currently being taught. For information about when it may be taught, contact the Department of Health, Physical Education and Recreation.

**PRP 3900 Diverse Populations 3**  
Examines participation and management aspects of recreation experiences for diverse clientele. Explores settings, cultures, and contexts within the recreation services industry. Prerequisite: PRP 1000 (may be taken concurrently). (F)

**PRP 4100 CI History of Leisure 3**  
Explores historical, behavioral, scientific, and philosophical foundations of leisure and recreation. Prerequisites: PRP 1000 and fulfillment of Communications Literacy CL2 requirement. (Sp)

**PRP 4250 Cooperative Work Experience 1-12<sup>®</sup>**  
Provides practical and educational work and/or voluntary opportunities to gain professional experience prior to PRP 4750. Graded Pass/Fail *only*. Prerequisites: PRP 1000, 3000 (both of which may be taken concurrently). (F,Sp,Su)

**PRP 4500 Management of Recreation Services I 3**  
Provides entry-level knowledge of current management practice, specializing in human resources, finance, budget, and marketing. Prerequisites: PRP 1000, 3000. (F)

**PRP 4550 Management of Recreation Services II 3**  
Provides entry-level knowledge of infrastructure management, risk management, and legal aspects of the recreation services industry. Prerequisites: PRP 1000, 3000, 4500. (Sp)

**PRP 4700 Pre-Internship Seminar 3**  
In preparation for PRP 4750, focuses on resume building, interview skills, internship selection, and career planning. Graded Pass/Fail *only*. Prerequisites: PRP 1000, 3000, 3025, 3050, 3075, 3900, 4500. PRP 4500 may be taken concurrently. (F)

**PRP 4725 CI Senior Seminar 3**  
Focuses on current issues and trends in recreation services through analysis, papers, presentation, and discussion with professionals. Prerequisites: PRP 1000, 3000, 3025, 3050, 3075, 3900, 4500, 4550. PRP 3075 and 4550 may be taken concurrently. (Sp)

**PRP 4750 Internship in Recreation Services 6**  
Fulfills professional practice requirement of a minimum of 400 hours with a cooperating recreation service agency. Prerequisites: PRP 1000, 3000, 3025, 3050, 3075, 3900, 4100, 4500, 4550, 4700, 4725; INST 5205. (F,Sp,Su)

**PRP 4970 Honors Senior Thesis 1-6**  
Culminating experience within the department for honors students. Student works closely with faculty mentor in an extensive project in the student's area of interest. (F,Sp,Su)

**PRP 5900 Independent Study 1-3<sup>®</sup>**  
Students work on special projects and/or research out of the classroom, with approval and guidance of instructor. (F,Sp,Su)

**PRP 5910 Independent Research 1-3<sup>®</sup>**  
Students work on research out of the classroom, with approval and guidance of instructor. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

\*This course is taught alternating years. Check with department for information about when course will be taught.

# Course Descriptions

## Plants, Soils, and Climate (PSC)

See *Department of Plants, Soils, and Climate*, pages 415-423

**Note:** Effective Spring Semester 2010, courses listed with the PLSC, SOIL, and CLIM prefixes will use the Plants, Soils, and Climate (PSC) prefix.

### **PSC 1050**      **Plants, Soils, and Climate Orientation**      **1-2**

Orientation to the teaching, research, and extension programs of the department, and to career opportunities. Optional orientation to a specific major: Horticulture, Crop Science, or Environmental Soil/Water Science. (F)<sup>DE</sup>

### **PSC 2040**      **Introduction to Biotechnology**      **1**

Introduces freshmen to the emerging field of biotechnology and the impact this technology has on society. Also taught as ADVS 2040, BIOL 2040, and NFS 2040. (Sp)

### **PSC 2800**      **Fundamentals of Organic Agriculture**      **3**

Organic agriculture uses a holistic systems approach for maintaining plant, animal, and soil health. In this course, animal and crop production approaches and disease, as well as insect and weed management strategies, are scientifically assessed, critically compared, and used in decision making and problem solving exercises. (Sp)

### **PSC 3890**    **CI**      **Preparation for Careers in Plants, Soils, and/or Climate**      **1**

Discussion of education at land-grant universities, role of Plants, Soils, and Climate graduates in society, preparation for careers, familiarization with placement processes, and career/graduate school opportunities in Plants, Soils, and Climate. (F)<sup>DE</sup>

### **PSC 4250**      **Internship in Plants, Soils, and/or Climate**      **1-4<sup>®</sup>**

Professional internship in crop science, horticulture, environmental soil/water science, and/or climate. (F,Sp,Su)<sup>DE</sup>

### **PSC 4890**    **CI**      **Senior Seminar**      **1<sup>®</sup>**

Capstone course for senior Plants, Soils, and Climate majors. Focuses on individual presentations of current scientific papers, and collaborative production of a white paper and professional presentation recommending a science-based solution to a current issue related to plants, soils, or climate. Includes experiences in team building. (F,Sp)<sup>DE</sup>

### **PSC 4900**      **Special Problems**      **1-4<sup>®</sup>**

Special topics and problems in crop science, horticulture, environmental soil/water science, and/or climate. Subject, time, and credit arranged individually as needed. Department approval required. (F,Sp,Su)<sup>DE</sup>

### **PSC 5000**      **Environmental Instrumentation**      **2**

(**dual listing 6000**)  
Discusses physics of signal transduction underlying all sensors. Basic electronics necessary to link sensors with dataloggers. Programming dataloggers to maximize measurement accuracy and to summarize data. (F odd)

### **PSC 5160**      **Methods in Biotechnology: Cell Culture**      **3**

Techniques and fundamental knowledge for culturing mammalian and insect cells. Students will learn maintenance, growing, genetic engineering of cells, cytotoxicity, hybridoma creation, cloning, etc. Extensive laboratory experience is provided. Also taught as ADVS 5160, BIOL 5160, and NFS 5160. (Sp)

### **PSC 5200**      **Site-Specific Agriculture and Landscape/Horticultural Management**      **3**

Integration of site-specific management technology, such as computers, GPS, yield monitors, variable rate controllers, mechanized samplers, and postharvest processing controllers with planning, tillage, planting, chemical applications, and harvesting to optimize off-site inputs and environmental/economical sustainability in crop or landscape management. Taught during second half of semester. (Sp)

### **PSC 5240**      **Methods in Biotechnology: Protein Purification Techniques**      **3**

Reviews basic methods of protein purification, including scaled-up use of 100L fermenter, large-scale centrifugation, diafiltration, chromatography, and use of BioCAD. Prerequisite: CHEM 3700. Also taught as ADVS 5240, BIOL 5240, and NFS 5240. (Sp)

### **PSC 5260**      **Methods in Biotechnology: Molecular Cloning**      **3**

Laboratory-oriented course designed to teach molecular biology techniques such as DNA cloning, genetic probes, polymerase chain reaction, and DNA sequencing. Prerequisite: CHEM 3700 or 5710; or BIOL 3060; or permission of instructor. Also taught as ADVS 5260, BIOL 5260, and NFS 5260. (F)

### **PSC 6000**      **Environmental Instrumentation**      **2**

(**dual listing 5000**)  
Discusses physics of signal transduction underlying all sensors. Basic electronics necessary to link sensors with dataloggers. Programming dataloggers to maximize measurement accuracy and to summarize data. (F odd)

### **PSC 6700**      **Integrative Topics in Plants, Soils, and Climate**      **1-3<sup>®</sup>**

Team-taught special topics course encouraging interdisciplinary analysis of a research or policy area from the current literature, encompassing the three departmental subdisciplines. Emphasis on written and oral student presentations. Not currently being taught. Contact department for further information.

### **PSC 6870**      **Ecology Seminar**      **1<sup>®</sup>**

The Ecology Center schedules regular seminars throughout the school year with ecological scientists from other institutions participating. Ecology majors are required to attend a minimum of 10 such lectures. Graded Pass/Fail *only*. Students should register for fall semester, but attend through spring semester. Also taught as BIOL 6870, ENVS 6870, WATS 6870, and WILD 6870. (F)

### **PSC 6890**      **Plants, Soils, and Climate Graduate Seminar**      **1<sup>®</sup>**

Review and critique of presentations. Communication practice in extemporaneous, extension, research, poster, and lecture presentations. Graded Pass/Fail *only*. PSC graduate students must enroll during both fall and spring semesters. (F,Sp)

### **PSC 6900**      **Special Problems in Plants, Soils, and/or Climate**      **1-8<sup>®</sup>**

(F,Sp,Su)

### **PSC 6960**      **Graduate General Ecology**      **4**

General concepts, history, and issues in all major areas of the science of ecology including: environmental biophysics; and physiological, behavioral, evolutionary, community, ecosystem, and applied ecology in both terrestrial and aquatic environments. Also taught as BIOL 6960, ENVS 6960, WATS 6960, and WILD 6960. (F)

### **PSC 6970**      **Research and Thesis**      **1-18<sup>®</sup>**

Graded Pass/Fail *only*. (F,Sp,Su)

### **PSC 6990**      **Continuing Graduate Advisement**      **1-12<sup>®</sup>**

Graded Pass/Fail *only*. (F,Sp,Su)

### **PSC 7890**      **Plants, Soils, and Climate Graduate Seminar**      **1<sup>®</sup>**

Review and critique of presentations. Communication practice in extemporaneous, extension, research, poster, and lecture presentations. Graded Pass/Fail *only*. PSC graduate students must enroll during both fall and spring semesters. (F,Sp)

### **PSC 7900**      **Special Problems in Plants, Soils, and/or Climate**      **1-8<sup>®</sup>**

(F,Sp,Su)

### **PSC 7970**      **Research and Thesis**      **1-18<sup>®</sup>**

Graded Pass/Fail *only*. (F,Sp,Su)

### **PSC 7990**      **Continuing Graduate Advisement**      **1-12<sup>®</sup>**

Graded Pass/Fail *only*. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Psychology (PSY)

See Department of Psychology, pages 429-437

**Note:** Prerequisites for Psychology courses are *strictly enforced*. In the course listings below, prerequisites are indicated at the end of course descriptions. A student must be admitted as a psychology major or must complete *at least* 45 semester credits with a GPA of 3.0 or higher prior to taking psychology courses numbered 3000 or above. However, students who have been admitted to the Teacher Education program may take PSY 3660, provided they have met the prerequisites. A student must be admitted as a psychology major or must complete *at least* 60 semester credits with a GPA of 3.0 or higher prior to taking psychology courses numbered 4000 or above.

**PSY 1010 BSS General Psychology 3**  
Explores basic areas of psychology, and how each explains human thought and behavior at the individual, familial, and cultural levels. (F,Sp,Su)<sup>DE</sup>

**PSY 1100 Developmental Psychology: Infancy and Childhood 3**  
Introduction to psychological development with emphasis on perceptual, language, cognitive, and social development in children. Prerequisite: PSY 1010. (F,Sp)<sup>DE</sup>

**PSY 1210 Psychology of Human Adjustment 3**  
Examination of life situations affecting human adjustment to everyday living, with emphasis on practical applications. Prerequisite: PSY 1010. (F,Sp)<sup>DE</sup>

**PSY 1220 Career and Life Planning 3**  
Students assess and clarify their interests, values, skills, and temperaments. Emphasizes discovering relationships between these personal characteristics and the realities of educational and employment opportunities. Explores setting goals, creating action plans, and coping with change. (F,Sp)<sup>DE</sup>

**PSY 1400 Analysis of Behavior: Basic Principles 3**  
A laboratory course about the scientific methods used in the study of animal and human behavior. Prerequisite: PSY 1010. (F,Sp,Su)<sup>DE</sup>

**PSY 1410 Analysis of Behavior: Basic Principles Lab 1**  
Laboratory experience accompanying PSY 1400. Prerequisite: PSY 1010. (F,Sp,Su)<sup>DE</sup>

**PSY 1730 Strategies for Academic Success 1-3**  
Orients students to the systems, tools, and resources unique to higher education that are needed to maximize academic success (e.g., library, computer lab use, etc.). Also helps students develop critical thinking, study, and learning strategies necessary for college success. (F,Sp)<sup>DE</sup>

**PSY 1740 Academic Literacy and College Reading Skills 3**  
Helps students understand and adapt reading skills to fit their learning needs. Philosophy of the class is for students to discover new reading strategies and test them by practicing and applying them to college reading material. Also emphasizes reading comprehension and understanding a variety of texts. (F,Sp,Su)

**PSY 1750 Comprehension Strategies for College Reading 1**  
Practical course emphasizing application of strategies and development of critical thinking skills needed to comprehend and distill meaning from college-level texts. (F,Sp)

**PSY 2100 Developmental Psychology: Adolescence\*\* 3**  
Characteristics of adolescents and their psychological, educational, and adjustment problems are discussed in detail. Prerequisite: PSY 1010. (Sp)<sup>DE</sup>

**PSY 2250 Introductory Cooperative Work Experience 1-6<sup>®</sup>**  
Educators and employers cooperate to provide opportunities for students to apply classroom theory and principles in job environments, thereby gaining practical experience in their field. Prerequisite: Approval of Psychology Department coop education counselor. (F,Sp,Su)<sup>DE</sup>

**PSY 2800 QI Psychological Statistics 3**  
Elementary study of statistical procedures in handling test scores and other data, and of the concepts needed for each current type of educational and psychological literature. Prerequisite: STAT 1040. (F,Sp)<sup>DE</sup>

**PSY 2950 Orientation to Psychology as a Career and Profession 2**  
Overview of the field and major. Students clarify career goals, identify steps necessary to achieve goals, prepare a vita, and gain major-relevant skills (e.g., APA-style writing, ethics, and library usage). Prerequisites: PSY 1010 and consent of Psychology Advising Office. (F,Sp,Su)<sup>DE</sup>

**PSY 3110 Health Psychology\*\*\* 3**  
Introduction to "biopsychosocial model" of health and well-being. Focuses on reciprocal interactions among biological, psychological, and social factors in human functioning and disease. Explores cultural approaches to health, illness, and treatment. Prerequisite: PSY 1010. (Sp)<sup>DE</sup>

**PSY 3120 DSS Abuse, Neglect, and the Psychological Dimensions of Intimate Violence 3**  
Overview of child maltreatment, animal abuse, dating, courtship, domestic violence, and abuse of the elderly. Stresses the psychological factors related to the causes, consequences, and treatment of abuse and neglect. Presents multidisciplinary perspectives, including historical, legal, medical, psychiatric, and psychological approaches. Prerequisite: PSY 1010. (F,Su)<sup>DE</sup>

**PSY 3210 DSS Abnormal Psychology 3**  
Introduction to "abnormal" human behavior. Covers characteristics, etiology, and treatment of a variety of psychological disorders. Prerequisite: PSY 1010. (F,Sp)<sup>DE</sup>

**PSY 3400 DSS Analysis of Behavior: Advanced 4**  
In-depth examination of principles introduced in PSY 1400. Considers principles governing more complex human and animal behavior, as well as emotional and motivational factors in behavior. Lab included as part of credit. Prerequisites: PSY 1400 and 1410. (F,Sp)<sup>DE</sup>

**PSY 3450 Perception and Psychophysics 3**  
Analysis of how sensory processes and principles help determine behavior. Introduction to methods used to measure sensory-determined behavior. Methods, results, and principles of sensory communication. Lab required as part of 3 credits. Prerequisite: PSY 1010. (F)<sup>DE</sup>

**PSY 3460 Physiological Psychology 3**  
Introductory course examining relationship between central system anatomy and physiology, and behavior and emotional functioning. Also considers neural and biochemical substrates of behavior. Lab required as part of 3 credits. Prerequisite: PSY 1010. (Sp)<sup>DE</sup>

**PSY 3500 CI/DSS Scientific Thinking and Methods in Psychology 3**  
Provides introduction to research methods and scientific thinking. Teaches students to understand, analyze, and evaluate existing behavioral research. Includes defining and measuring variables; selecting research participants; experimental, quasi-experimental, and nonexperimental research designs; and conducting ethical research. Prerequisite: PSY 1010. (F,Sp)<sup>DE</sup>

**PSY 3510 DSS Social Psychology 3**  
Study of the individual in society; problems, theories, and methods of social psychology; will relate reading assignments to current social issues. Prerequisite: PSY 1010. (F,Su)<sup>DE</sup>

**PSY 3660 Educational Psychology for Teachers 2**  
Principles and practices for development of conditions for effective learning. Lab required. Prerequisite: PSY 1100 or 2100. (F,Sp)<sup>DE</sup>

**PSY 3720 Behavior Modification 3**  
Approaches to behavior modification in a variety of settings. Students required to complete an individual project. Prerequisites: PSY 1010, 1400, 1410, 3400. (Sp)<sup>DE</sup>

# Course Descriptions

<p><b>PSY 4000</b>            <b>Mental Aspects of Sports Performance***</b>            <b>3</b> Provides an understanding of theory and applications in the specialty area of sports psychology, including enhancement of motivation and performance, stress, anxiety, aggression and time management, and the relation of these issues to physical development and coaching styles. Also taught as PEP 4000. (F,Sp,Su)</p> <p><b>PSY 4210 DSS</b>    <b>Personality Theory</b>            <b>3</b> Explanatory study of various personality theories, their origin, and approaches to the understanding of human behavior. Prerequisites: PSY 1010 and 2800. (Sp)<sup>DE</sup></p> <p><b>PSY 4230 DSS</b>    <b>Psychology of Gender***</b>            <b>3</b> Critical analysis of evidence for sex differences, gender roles, the effect of gender on traditional psychology, and other topics, including parenthood, cultural influence, and sexual orientation. (Sp)<sup>DE</sup></p> <p><b>PSY 4240 DSS</b>    <b>Multicultural Psychology</b>            <b>3</b> Explores cultural influences on basic psychological processes, including perception, cognition, language, emotion, intelligence, attitudes, values, and intergroup relations. Prerequisite: PSY 1010. (F)<sup>DE</sup></p> <p><b>PSY 4250</b>            <b>Advanced Cooperative Work Experience</b>            <b>1-12<sup>®</sup></b> Cooperative education work experience position; increased level of complexity and a more professional level of experience as student advances toward completion of the program. Prerequisite: Approval of Psychology Department cooperative education coordinator. (F,Sp,Su)<sup>DE</sup></p> <p><b>PSY 4420 DSS</b>    <b>Cognitive Psychology</b>            <b>3</b> In-depth study of basic concepts, methods, and theories involved in perception, memory, and thinking. Lab required. Prerequisite: PSY 1010. (Sp)<sup>DE</sup></p> <p><b>PSY 4430</b>            <b>Cognitive Psychology Laboratory</b>            <b>1</b> Required laboratory, designed to accompany PSY 4420. Focuses on conducting cognitive experiments via computer simulations and sampling data collection. Designed to increase skills in designing data collection and interpreting experimental data. (Sp)<sup>DE</sup></p> <p><b>PSY 4510 CI</b>        <b>Effective Social Skills Interventions</b>            <b>3</b> Examination of theory and practice of social skills training with children, adolescents, and adults. Prerequisites: PSY 1010, 1100, and either PSY 3210 or 3510. (Sp)<sup>DE</sup></p> <p><b>PSY 4790</b>            <b>Psychological Principles and Individuals who are Deaf and Hard of Hearing (dual listing 6790)</b>            <b>3</b> Psychological theories and research used to describe the deaf and hard of hearing. Exploration of principles that can be used in helping these individuals achieve emotional well-being. Also taught as COMD 4790/6790. (Sp)</p> <p><b>PSY 4910</b>            <b>Undergraduate Research Creative Opportunity</b>            <b>1-3<sup>®</sup></b> A cooperative process of discovery, investigation, research, or creativity between faculty and one or more students. Prerequisite: Approval of Psychology Department URCO coordinator. (F,Sp,Su)<sup>DE</sup></p> <p><b>PSY 4920</b>            <b>Practicum</b>            <b>1-3<sup>®</sup></b> Field work in applied psychological setting at BS level. (F,Sp,Su)<sup>DE</sup></p> <p><b>PSY 4950 CI</b>        <b>Undergraduate Apprenticeship</b>            <b>3</b> Students plan and execute their apprenticeship experience in a research setting (with faculty members) and an applied setting (e.g., community service agency or school). Students are encouraged to take this course three or more semesters prior to graduation. Prerequisite: PSY 2950. (F,Sp,Su)<sup>DE</sup></p> <p><b>PSY 4960 CI</b>        <b>Advanced Undergraduate Apprenticeship</b>            <b>3</b> Students continue their apprenticeship experiences from PSY 4950. Students complete a major written assignment that can take the form of a literature review or complete research report. Students are encouraged to take this course one or more semesters prior to graduation. Prerequisite: PSY 4950. (F)<sup>DE</sup></p>	<p><b>PSY 5020</b>            <b>Multicultural Issues in Psychology (dual listing 6020)</b>            <b>3</b> Examines role of culture in human development, with emphasis on understanding relations between culture, ethnicity, and identity and how images of "cultural selves" and "cultural others" are produced and "naturalized." (F)</p> <p><b>PSY 5050</b>            <b>Psychological Aspects of Sports Performance</b>            <b>3</b> Psychological theory and principles applied to sports. Includes motivational techniques, psychological evaluation, stress and anxiety in sports, personality and sports performance. Also taught as PEP 5050/6050. (Sp)<sup>DE</sup></p> <p><b>PSY 5100</b>            <b>History and Systems of Psychology (dual listing 6100)</b>            <b>3</b> Theoretical and historical developments in psychology with primary emphasis on nineteenth and twentieth century developments, although earlier precursors are also considered. Prerequisite: PSY 1010. (Sp)<sup>DE</sup></p> <p><b>PSY 5200 CI</b>        <b>Introduction to Interviewing and Counseling</b>            <b>3</b> Theory, models, and practice in basic principles of interviewing and counseling, including listening skills, facilitation of verbal interaction, gathering information, attending to nonverbal behavior, interpersonal dynamics, and promoting helping relationships. Prerequisites: Psychology major or minor, matriculation in master's program requiring PSY 5200, or consent of instructor. (F)<sup>DE</sup></p> <p><b>PSY 5330</b>            <b>Psychometrics</b>            <b>3</b> <b>(dual listing 6330)</b> Overview of measurement development principles and statistics. Evaluation, interpretation, and uses of standardized tests of aptitude, intelligence, achievement, personality, and adjustment. Prerequisites: PSY 1010, 2800. (F)<sup>DE</sup></p> <p><b>PSY 5500</b>            <b>Interdisciplinary Workshop</b>            <b>1-3<sup>®</sup></b> (F,Sp,Su)</p> <p><b>PSY 5720</b>            <b>Behavior Analysis Practicum</b>            <b>3</b> Students receive supervised training in applying behavior analysis principles in community, school, and institutional settings. Either SPED 5050 or PSY/SPED 5720 fulfill part of practicum requirement for Behavior Analysis track. Prerequisite: Permission of instructor. Also taught as SPED 5720. (F)</p> <p><b>PSY 5900</b>            <b>Independent Study</b>            <b>1-3<sup>®</sup></b> Individual discussion and intensive study of a particular problem or area. Prerequisite: Instructor's consent. (F,Sp,Su)<sup>DE</sup></p> <p><b>PSY 5910</b>            <b>Independent Research</b>            <b>1-3<sup>®</sup></b> Experiments and demonstration projects are conducted and reported. Prerequisite: Instructor's consent. (F,Sp,Su)<sup>DE</sup></p> <p><b>PSY 5930</b>            <b>Instructional Apprenticeship in Psychology</b>            <b>1-3<sup>®</sup></b> Didactic and applied experience in course preparation and instructional techniques applicable to the teaching of psychology. Intended for students planning careers as instructors at the secondary and postsecondary levels. Prerequisite: Instructor's consent. (F,Sp,Su)<sup>DE</sup></p> <p><b>PSY 6010</b>            <b>Introduction to Program Evaluation: Evaluation Models and Practical Guidelines</b>            <b>3</b> Alternative approaches and practical guidelines for conducting evaluation studies. Through case studies and simulations, addresses impact of social, political, and ethical issues on evaluation. Also taught as EDUC 6010. (F,Sp)<sup>DE</sup></p> <p><b>PSY 6020</b>            <b>Multicultural Issues in Psychology (dual listing 5020)</b>            <b>3</b> Examines role of culture in human development, with emphasis on understanding relations between culture, ethnicity, and identity and how images of "cultural selves" and "cultural others" are produced and "naturalized." (F)</p> <p><b>PSY 6050</b>            <b>Psychological Aspects of Sports Performance</b>            <b>3</b> <b>(dual listing 5050)</b> Psychological theory and principles applied to sports. Includes motivational techniques, psychological evaluation, stress and anxiety in sports, personality and sports performance. Also taught as PEP 6050/5050. (Sp)</p>
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# Course Descriptions

<p><b>PSY 6100</b>                    <b>History and Systems of Psychology</b>                    <b>3</b> <b>(dual listing 5100)</b> Theoretical and historical developments in psychology with primary emphasis on nineteenth and twentieth century developments, although earlier precursors are also considered. Prerequisite: PSY 1010. (Sp)<sup>DE</sup></p> <p><b>PSY 6150</b>                    <b>Evidence-Based Practice I: Children and Adolescents</b>                    <b>2</b> Introduction to application of evidence-based practice in psychology, focusing on child and adolescent populations. (F)<sup>DE</sup></p> <p><b>PSY 6220</b>                    <b>Group Counseling</b>                    <b>3</b> Introduction to theory of group counseling with illustrative experiences to show how theory may be applied. Prerequisite: PSY 6350. (Sp)<sup>DE</sup></p> <p><b>PSY 6240</b>                    <b>Introduction to School Counseling and Guidance</b>                    <b>3</b> Introduction to role and function of school counselors. Overview of history of school guidance and counseling, and role of counselors in comprehensive guidance program. (Sp)<sup>DE</sup></p> <p><b>PSY 6250</b>                    <b>Internship in School Counseling and Guidance</b>                    <b>1-10<sup>®</sup></b> Internship in approved school system involving comprehensive guidance activities, under supervision of licensed school counselor. (F,Sp,Su)<sup>DE</sup></p> <p><b>PSY 6260</b>                    <b>Career Development: Theory and Practice</b>                    <b>3</b> Consideration of career patterns and factors influencing career development and career effectiveness. (Su)</p> <p><b>PSY 6270</b>                    <b>Child Psychopathology</b>                    <b>3</b> Focuses on issues relevant to the understanding of child emotional and behavioral disorders. Discussion of symptom characteristics, assessment, and treatment protocols, as well as research pertaining to the major mental health problems found in children and adolescents. Prerequisite: Admission to graduate program in psychology or permission of instructor. (F)</p> <p><b>PSY 6290</b>                    <b>Diversity Issues in Treatment and Assessment</b>                    <b>3</b> Introduction to diversity issues in counseling and psychological/educational assessment, including culture, gender, language, and related issues. Training in models for providing effective psychological services to clients, taking into account their unique background. Prerequisite: PSY 6350 or instructor's consent. (F)<sup>DE</sup></p> <p><b>PSY 6310</b>                    <b>Intellectual Assessment</b>                    <b>3</b> Training and supervised experience in administering and interpreting individual intellectual ability tests, such as the Wechsler and Stanford-Binet scales. Prerequisite: Matriculation into School Psychology program or Combined Psychology program. (F)</p> <p><b>PSY 6320</b>                    <b>Objective Assessment of Personality and Affect</b>                    <b>3</b> Research bases and clinical applications of objective psychological assessment instruments and techniques, designed to measure adolescent and adult personality, affect, and psychotherapy. Prerequisite: PSY 6310. (Sp)</p> <p><b>PSY 6330</b>                    <b>Psychometrics</b>                    <b>3</b> <b>(dual listing 5330)</b> Overview of measurement development principles and statistics. Evaluation, interpretation, and uses of standardized tests of aptitude, intelligence, achievement, personality, and adjustment. Prerequisites: PSY 1010, 2800. (F)<sup>DE</sup></p> <p><b>PSY 6340</b>                    <b>Psychological and Educational Consultation</b>                    <b>3</b> Overview of theory and practice of consultation as provided by counselors, psychologists, and other mental health education professionals. Consultation with teachers, parents, medical professionals, and organizations, emphasizing applications in educational settings. (Sp,Su)<sup>DE</sup></p>	<p><b>PSY 6350</b>                    <b>Introduction to Theories of Intervention in Psychology</b>                    <b>3</b> Introduction to empirically based psychological practice (EBPP) and basic theories of psychological intervention. Explores basic models of EBPP, common factors associated with therapeutic change, and core theories of psychological intervention. Prerequisite: Matriculation into School Psychology/School Counseling or Combined Psychology program. (F,Su)</p> <p><b>PSY 6360</b>                    <b>Introduction to the Practice of Professional Psychology</b>                    <b>3<sup>®</sup></b> Observation and practice of clinical skills, while linking theory to case conceptualization and techniques of intervention. Introduction and evaluation of students on logistical aspects of psychological practice. Course has strong applied focus, while integrating theories of practice. Prerequisite: PSY 6350. (Sp)</p> <p><b>PSY 6370</b>                    <b>Practicum in School Counseling</b>                    <b>3<sup>®</sup></b> Supervised practicum in public school setting, under direction of licensed school counselor. Taken by students in School Counseling master's program. Graded Pass/Fail <i>only</i>. (Sp)<sup>DE</sup></p> <p><b>PSY 6380</b>                    <b>Practicum in School Psychology</b>                    <b>3<sup>®</sup></b> Supervised practicum in school psychology in public school or closely related setting. Taken by second-year students in School Psychology master's program. (F,Sp,Su)</p> <p><b>PSY 6410</b>                    <b>Psychoeducational Assessment</b>                    <b>3</b> Training and supervised experience in assessment of school-age and preschool-age children. Administration and interpretation of cognitive, developmental, and academic achievement measures, along with other psychoeducational assessment instruments and methods. (Sp)</p> <p><b>PSY 6450</b>                    <b>Introduction to School Psychology</b>                    <b>1</b> Introductory overview of field of school psychology. Role and function of school psychologist, historical context of school psychology, and trends and new developments in service provision. Prerequisite: Matriculation into School Psychology master's program or Combined Psychology doctoral program. (F)</p> <p><b>PSY 6460</b>                    <b>Professional Issues in School Counseling and School Psychology</b>                    <b>3</b> Legal, ethical, and professional issues relevant to school counselors and school psychologists. Issues and practices in providing counseling and psychological services to "at-risk" students. Prerequisite: Graduate standing in psychology or instructor's consent. (Sp)<sup>DE</sup></p> <p><b>PSY 6470</b>                    <b>Health Psychology</b>                    <b>3</b> Explores psychological and behavioral principles relating to health and illness. Focuses on development and maintenance of health behaviors. Emphasizes integration of research findings with clinical intervention. Prerequisite: Graduate standing in Psychology; or graduate standing in Health, Physical Education and Recreation. (F)</p> <p><b>PSY 6500</b>                    <b>Interdisciplinary Workshop</b>                    <b>1-2<sup>®</sup></b> Series of self-instructional modules and videos and a variety of elective training. Module topics include developmental disabilities, legal aspects and issues, assessment, intervention, assistive technology, transition, and prevention/intervention for aggression and violence. (F,Sp,Su)</p> <p><b>PSY 6510</b>                    <b>Social Psychology*</b>                    <b>3</b> Provides all graduate students with common knowledge base in social psychology. Emphasizes overview of recent developments, while also discussing social psychology principles as a guide in executing evaluation research and helping clients. Understanding of both emphases ensures breadth as psychologists. Prerequisite: PSY 3510. (Sp)</p> <p><b>PSY 6530</b>                    <b>Developmental Psychology</b>                    <b>3</b> Advanced survey course in general developmental psychology. Theory and research in human development across the lifespan, with particular emphasis on child and adolescent development. (F)<sup>DE</sup></p> <p><b>PSY 6570</b>                    <b>Introduction to Educational and Psychological Research</b>                    <b>3</b> Provides introduction to research methods, including identification of research problem, review and evaluation of research literature, and design and implementation of research project. Also taught as EDUC 6570. (F,Sp,Su)</p>
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# Course Descriptions

<b>PSY 6600</b>	<b>Research Design and Analysis I</b>	<b>3</b>	Research design and statistical concepts for research in education, human services, and psychology, with emphasis on the selection and interpretation of statistical analyses. Prerequisites: EDUC/PSY 6570, passing score on 6600 Pretest via WebCT, and permission of instructor. Also taught as EDUC 6600. (F,Sp,Su)	also examine various current methods of instruction and course evaluation schemes. (F,Sp,Su)
<b>PSY 6650</b>	<b>Theories of Learning: The Behavioral Perspective***</b>	<b>3</b>	In-depth examination of the major behavioral theories of learning, including classical and operant conditioning. (F)	<b>PSY 6950</b> <b>Internship in School Psychology</b> <b>3<sup>®</sup></b> Internship in approved school system involving assessment, counseling, consultation, and program development, under the supervision of a certified school psychologist. Prerequisite: Permission of instructor. (F,Sp,Su)
<b>PSY 6660</b>	<b>Cognition and Instruction***</b>	<b>3</b>	Survey of theory and principles in cognitive psychology, with special emphasis on applying these principles in instructional settings. (Sp)	<b>PSY 6970</b> <b>Thesis</b> <b>1-6<sup>®</sup></b> Graded Pass/Fail <i>only</i> . (F,Sp,Su)
<b>PSY 6750</b>	<b>Evidence-Based Practice II: Adults</b>	<b>2</b>	Introduction to application of evidence-based practice, focusing on adults. (Sp)	<b>PSY 6990</b> <b>Continuing Graduate Advisement</b> <b>1-12<sup>®</sup></b> Graded Pass/Fail <i>only</i> . (F,Sp,Su)
<b>PSY 6790</b>	<b>Psychological Principles and Individuals (dual listing 4790) who are Deaf and Hard of Hearing</b>	<b>3</b>	Psychological theories and research used to describe the deaf and hard of hearing. Exploration of principles that can be used in helping these individuals achieve emotional well-being. Also taught as COMD 6790/4790. (Sp)	<b>PSY 7020</b> <b>Advanced Evaluation Methodology and Techniques*</b> <b>3</b> Provides advanced theory and practice in focus group interviews, on-site visit techniques, observation and anchor scales, multiple-site evaluation standards, and advanced reporting techniques. Prerequisite: EDUC/PSY 6010. (Sp)
<b>PSY 6800</b>	<b>Addictive Behaviors***</b>	<b>3</b>	Provides students with an overview of the theoretical issues, research, and models that underlie our understanding of behavioral syndromes commonly referred to as "addictive behaviors." Emphasizes chemical dependency problems, as well as the well-studied pattern of "addiction." (F)	<b>PSY 7030</b> <b>Instrument Development***</b> <b>3</b> In-depth study of factors and techniques critical for designing and developing evaluation and research instruments. (F)
<b>PSY 6810</b>	<b>Seminar</b>	<b>1-3<sup>®</sup></b>	Special topics designed to help students develop in-depth knowledge of emerging research, theory, and practice in psychology. Taught in seminar format by USU faculty or visiting scholars. (F,Sp,Su)	<b>PSY 7040</b> <b>Practicum in Evaluation Planning and Contracting</b> <b>3</b> Provides detailed information on methods for planning program evaluations, negotiating agreements with client/sponsor, and finalizing evaluation contract. Taught every third year. Prerequisite: EDUC/PSY 6010. (Sp)
<b>PSY 6820</b>	<b>Clinical Applications of Biofeedback***</b>	<b>3</b>	Training in clinical applications of biofeedback for treating common health, psychological, and stress-related problems. Practical experience provided in use of different modalities of biofeedback (e.g., neurofeedback, skin temperature training, and electrodermal training). Stresses importance of integrating biofeedback into other appropriate treatments. Prerequisite: Graduate standing in psychology or instructor's consent. (F) <sup>1</sup>	<b>PSY 7050</b> <b>Internship in Program Evaluation</b> <b>1-9<sup>®</sup></b> Experience in practical aspects of program evaluation through planned, supervised evaluation project participation approved by student's supervisory committee. Prerequisite: EDUC/PSY 6010. (F,Sp,Su)
<b>PSY 6850</b>	<b>Introduction to the Combined Doctoral Program</b>	<b>1</b>	This seminar is designed to orient beginning PhD students to the combined program and to the School of Graduate Studies. Opportunity provided for students to meet and talk with all faculty members concerning their research. Students also begin their own research and become acquainted with required paperwork for their program. (F)	<b>PSY 7060</b> <b>Internship in Research</b> <b>1-9<sup>®</sup></b> Research experience gained through conducting planned, supervised research project. Prerequisites: Approval by supervisory committee and EDUC/PSY 6570. (F,Sp,Su)
<b>PSY 6880</b>	<b>Transcultural Assessment Lab</b>	<b>1</b>	Psychoeducational assessment laboratory experience to be taken by students in the School Psychology and Combined Psychology programs in conjunction with PSY 6290. (Sp)	<b>PSY 7070</b> <b>Advanced Measurement Theories and Practice</b> <b>3</b> Covers psychometric topics, including classical test theory, generalizability theory, item response theory, and issues concerning bias in psychological testing. Prerequisites: PSY 5330/6330, EDUC/PSY 6600. (Sp)
<b>PSY 6890</b>	<b>Assessment of Child and Adolescent Psychopathology and Personality</b>	<b>3</b>	Theoretical foundations and applied training in methods of assessing and classifying behavioral, social, and emotional problems of children and adolescents. Prerequisite: Matriculation into Combined Psychology doctoral program or School Psychology program. (Su)	<b>PSY 7090</b> <b>Experimental and Applied Psychological Science Program Seminar</b> <b>1<sup>®</sup></b> Provides opportunity for doctoral students in the Experimental and Applied Psychological Science Program to meet on a regular basis to discuss journal articles and explore student and faculty research projects. Graded Pass/Fail <i>only</i> . (F)
<b>PSY 6900</b>	<b>Independent Study</b>	<b>1-3<sup>®</sup></b>	Individual discussion and intensive study of a particular problem or area. Prerequisite: Instructor's consent. (F,Sp,Su)	<b>PSY 7100</b> <b>Biological Basis of Behavior***</b> <b>3</b> Explores normal and abnormal behavior from a basic neuroanatomical/neurophysiological perspective. Discusses pharmacological/nonpharmacological applications. (Sp)
<b>PSY 6910</b>	<b>Independent Research</b>	<b>1-3<sup>®</sup></b>	Experiments and demonstration projects are conducted and reported. Prerequisite: Instructor's consent. (F,Sp,Su) <sup>DE</sup>	<b>PSY 7110</b> <b>Advanced Theories in Cognitive Psychology</b> <b>3</b> In-depth study of theories, models, and current research in the field of cognitive psychology, including memory, perception, problem-solving, and decision making. Prerequisite: PSY 4420 or 6660. (F)
<b>PSY 6930</b>	<b>University Teaching Apprenticeship</b>	<b>1-3<sup>®</sup></b>	Prepares graduate students for college teaching. Students learn to prepare study guides, examinations, and lectures, and learn to use audio-visual aids. Students	<b>PSY 7230</b> <b>Theory and Research in Personality***</b> <b>3</b> Overview of theoretical approaches, research, and clinical applications regarding personality differences. (Sp)
				<b>PSY 7250</b> <b>Professional Ethics and Standards*</b> <b>1-3</b> Designed to train clinicians and researchers in the field of psychology to operate within the professional ethics and standards of the field. (Sp)

# Course Descriptions

<b>PSY 7270</b>	<b>Lifespan Psychopathology</b>	<b>3</b>
Summarizes research on risk, epidemiology, and etiological perspectives regarding emotional and behavioral disorders of children, adolescents, and adults. Emphasizes classification and diagnosis of these disorders utilizing the DSM system. (F)		
<b>PSY 7320</b>	<b>Advanced Personality Assessment</b>	<b>2</b>
Theory and clinical training in personality assessment, with additional techniques than those covered in PSY 6320. Focuses on the comprehensive scoring system of Rorschach. Prerequisite: PSY 6320 or instructor's consent. (Su)		
<b>PSY 7350</b>	<b>Practicum in School Psychology</b>	<b>3<sup>®</sup></b>
Doctoral-level practicum in a school or closely related setting. Supervised experience in developmental, learning, and school-related problems. Appropriate assessment and consultation with teachers, administrators, parents, and other related individuals. Prerequisite: Permission of program chair. (F,Sp,Su)		
<b>PSY 7360</b>	<b>Practicum in Counseling Psychology</b>	<b>3<sup>®</sup></b>
Doctoral-level practicum in a counseling setting. Supervised experience in individual, group, and family counseling. Appropriate assessment and consultation. Prerequisite: Permission of program chair. (F,Sp,Su)		
<b>PSY 7370</b>	<b>Practicum in Clinical Psychology</b>	<b>3<sup>®</sup></b>
Doctoral-level practicum in a clinical setting. Supervised experience in individual, group, and family psychotherapy. Includes psychological assessment and consultation. Prerequisite: Permission of program chair. (F,Sp,Su)		
<b>PSY 7380</b>	<b>Practicum in Psychology</b>	<b>1-6<sup>®</sup></b>
Doctoral-level practicum in a variety of health service settings. Supervised experience in individual, group, and family psychotherapy assessment and consultation as needed. Prerequisite: Permission of program chair. (F,Sp,Su)		
<b>PSY 7610</b>	<b>Research Design and Analysis II</b>	<b>3</b>
Advanced treatment of research design and statistical concepts and issues in educational, human services, and psychological research. Prerequisite: EDUC/PSY 6600. Also taught as EDUC 7610. (F,Sp,Su)		
<b>PSY 7650</b>	<b>Longitudinal Research Design and Analysis*</b>	<b>3</b>
Applied longitudinal study design and analysis for research in behavioral and educational sciences. Explores case-control, cohort, cross-over, complex sample, and randomized controlled trial designs. Examines analytical methods for observed outcomes of various distributions (e.g., Gaussian, Binomial, Poisson). Prerequisite: PSY/EDUC 7610. Also taught as EDUC 7650. (Sp)		
<b>PSY 7670</b>	<b>Literature Reviews in Education and Psychology</b>	<b>2</b>
Advanced concepts in designing, writing, and critiquing literature reviews. Prerequisites: PSY/EDUC 6600 or consent of instructor. Also taught as EDUC 7670. (Sp,Su)		
<b>PSY 7700</b>	<b>Grant Writing**</b>	<b>3</b>
Students learn to identify funding sources, select strategies for seeking resources, and write proposals for research, development, training, and service activities in education, psychology, and related fields. Prerequisite: PSY/EDUC 6570. (Sp)		
<b>PSY 7780</b>	<b>Multivariate Methods in Psychology and Education</b>	<b>3</b>
Focuses on application of multivariate methods (factor analytic techniques, structural equation modeling, canonical correlation, multivariate analysis of variance, etc.) in research and measurement in psychology, education, and other social and behavioral sciences. Prerequisites: EDUC/PSY 6600, 7610. (F)		
<b>PSY 7810</b>	<b>Seminar</b>	<b>1-3<sup>®</sup></b>
Special topics designed to help students develop in-depth knowledge of emerging research, theory, and practice in psychology. Taught in seminar format by USU faculty or visiting scholars. (F,Sp,Su)		
<b>PSY 7820</b>	<b>Neuropsychology: Principles and Assessment***</b>	<b>2 or 4</b>
Overview of neuropsychological symptoms, common syndromes, and underlying neural structures. Coverage of neuropsychological assessment approaches, diagnostic issues, and supervised experience with selected neuropsychological		

tests. Includes some discussion of rehabilitation, but primarily emphasizes assessment. (Sp)

**PSY 7840 Psychopharmacology\*\*\* 1**  
Provides psychology graduate students with basic working knowledge of the field of psychopharmacology and the medical use of psychotropic drugs. Prerequisite: PSY 6320.<sup>1</sup>

**PSY 7850 Internship and Professional Development Seminar 1**  
Advanced orientation to issues and trends in professional psychology. Internship, including application process. Also overviews remaining program requirements. Focuses on continuing development of good professional decision-making skills. (Sp)

**PSY 7900 Independent Study 1-3<sup>®</sup>**  
Individual discussion and intensive study of a particular problem or area. Prerequisite: Instructor's consent. (F,Sp,Su)

**PSY 7910 Independent Research 1-3<sup>®</sup>**  
Experiments and demonstration projects are conducted and reported. Prerequisite: Instructor's consent. (F,Sp,Su)

**PSY 7950 Internship in Professional Psychology 1<sup>®</sup>**  
One-year, supervised, full-time internship required of doctoral candidates in professional psychology (clinical, counseling, and/or school psychology). Prerequisite: All doctoral coursework completed, with the possible exception of the dissertation if approved by the student's committee, prior to initiating the internship. (F,Sp,Su)

**PSY 7970 Dissertation 1-18<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

**PSY 7990 Continuing Graduate Advisement 1-12<sup>®</sup>**  
Graded Pass/Fail only. (F,Sp,Su)

<sup>1</sup>This course is offered infrequently. For more information, contact Psychology Department.

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>®E</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

\*\*\*This course is taught alternating years. Check with department for information about when course will be taught.

## Public Health (PUBH)

See *Department of Biology, pages 185-193*

**PUBH 3120 Family and Community Health 3**  
Focuses on health aspects of various population groups within the community. Particular emphasis placed on guidelines for optimal family health. (Sp)

**PUBH 3310 Occupational Health and Safety 3**  
Covers the principles of occupational health and safety, including regulatory standards. Emphasizes on-the-job health and safety problems from the occupational health and safety professional and management view. (F)

**PUBH 3610 Environmental Management 3**  
Introduction to environmental health, emphasizing relationships among environmental quality, public health, environmental and occupational health regulations, human health risk assessment, institutions, and engineered systems in environmental health management. Prerequisites: CHEM 1210; BIOL 1610 or University Studies Breadth Life Sciences (BLS) course; MATH 1210. Also taught as CEE 3610. (F)

**PUBH 3870 CI Professional/Technical Writing in Civil and Environmental Engineering 2**  
Gives CEE students intensive practice with oral and written communication in business and technical CEE writing. Requires concurrent enrollment in PUBH/CEE 3610. Also taught as CEE 3870. (F)



# Course Descriptions

<p><b>PUBH 4000</b>      <b>Public Health Field Experience</b>      <b>3-6<sup>®</sup></b> Field experience in the practice of public health, as appropriate to each student's area of public health emphasis: public health education, environmental health, or industrial hygiene. Prerequisite: Junior standing in public health. (F,Sp,Su)</p> <p><b>PUBH 4030</b>      <b>Communicable Disease Control</b>      <b>3</b> Comprehensive study of communicable diseases, including etiological agents, reservoirs of infection, and mechanisms of transmission, control, and prevention. Recommended prerequisite: A course in microbiology. (F)<sup>DE</sup></p> <p><b>PUBH 4040</b>      <b>Fundamentals of Epidemiology</b>      <b>3</b> Introduction to the study of the distribution and causes of communicable and noncommunicable diseases of humans and other animals. Recommended prerequisite: A course in statistics. (Sp)<sup>DE</sup></p> <p><b>PUBH 4300</b>      <b>Industrial Hygiene Seminar</b>      <b>1<sup>®</sup></b> Participant seminar on current developments in industrial hygiene. (F)</p> <p><b>PUBH 4310</b>      <b>Industrial Hygiene Recognition of Hazards</b>      <b>4</b> Through classroom and field experiences, provides an introduction to industrial hazards and familiarizes students with manufacturing and industrial processes in which industrial hygienists commonly work. Prerequisite: PUBH 3310 (may be taken concurrently). (F)</p> <p><b>PUBH 4320</b>      <b>Industrial Hygiene Chemical Hazard Evaluation</b>      <b>3</b> Survey of principles and methods used to evaluate industrial chemical health hazards. Practical application in a field sampling project. Prerequisite: PUBH 3310. (Sp)</p> <p><b>PUBH 4330</b>      <b>Industrial Hygiene Physical Hazards</b>      <b>3</b> Through lectures and labs, covers the potential health effects, methods of exposure evaluation, and principles of control of noise, vibration, heat and cold, and nonionizing and ionizing radiation hazards that can occur in the workplace. Prerequisite: PUBH 3310 or 4310. (Sp)</p> <p><b>PUBH 4380</b>      <b>Industrial Hygiene Internship</b>      <b>3-6<sup>®</sup></b> Field experience in the practice of industrial hygiene. Participation in an active program serving employees in either the private or public sector. Prerequisites: PUBH 4300, 4320, and 4330. (F,Sp,Su)</p> <p><b>PUBH 4410</b>      <b>Industrial Safety</b>      <b>3</b> Through lectures, demonstrations, and hands-on activities, covers recognition and control of industrial safety hazards (including power tools, fire, electricity, excavations, confined spaces, and falls), material handling, process safety, protective equipment, safety promotion and training, and standards and programs. (Sp)</p> <p><b>PUBH 4850</b>      <b>Special Topics in Public Health</b>      <b>1-3<sup>®</sup></b> Prerequisite: Junior standing in public health. (F,Sp,Su)</p> <p><b>PUBH 5000</b>      <b>Public Health Seminar</b>      <b>1<sup>®</sup></b> Participant seminar on current problems in public health. (Sp)</p> <p><b>PUBH 5330 QI</b>      <b>Industrial Hygiene Chemical Hazard Control</b>      <b>3</b> Covers methods to control chemical occupational health hazards, with an emphasis on the function, design, and management of local exhaust ventilation. Prerequisites: PUBH 4310, MATH 1210. (F)</p> <p><b>PUBH 5340</b>      <b>Industrial Hygiene and Safety Programs</b>      <b>2</b> Provides students with the foundation to administer and manage occupational health and safety programs commonly encountered in the workplace. Prerequisites: PUBH 4320 and 4330. (Sp)</p> <p><b>PUBH 5400</b>      <b>Environmental Toxicology</b>      <b>3</b> <b>(dual listing 6400)</b> Presents in-depth survey of toxic chemicals present in the environment, environmental factors impacting fate of chemicals, potential biological effects associated with chemical exposures, and methods of reducing associated risks. Also taught as ADVS 5400/6400 and BIOL 5400/6400. (Sp)</p>	<p><b>PUBH 5500 CI</b>      <b>Public Health Management</b>      <b>2</b> Presentation of basic organizational and financial management tools that students will utilize in written and oral reports on an educational, environmental, or occupational health problem of their choice. Prerequisite: PUBH 4000 or 4380 or permission of instructor. (F,Sp)</p> <p><b>PUBH 5670</b>      <b>Hazardous Chemicals Handling and Safety</b>      <b>2</b> Provides students with necessary skills and knowledge for working safely in areas associated with hazardous chemicals. Topics covered include: regulations, exposure routes, toxicology, chemical and physical hazards, personal protective equipment, sampling, monitoring, decontamination, and emergency response procedures. Prerequisite: CHEM 1210. Also taught as CEE 5670. (Sp)</p> <p><b>PUBH 5730</b>      <b>Analysis and Fate of</b> <b>(dual listing 6730)</b>      <b>Environmental Contaminants</b>      <b>3</b> Provides students with understanding of methods used in analysis of environmental samples for organic contaminants. Examines various properties and processes determining the fate of organic contaminants in the environment. Taught first half of fall semester. Prerequisites: Grades of C- or better in CHEM 1210 and 1215. Also taught as CEE 5730/6730. (F)</p> <p><b>PUBH 5790</b>      <b>Accident and Emergency Management</b>      <b>3</b> Introduction to fundamentals of accident, hazard, and emergency management. Topics include legislation; chemical safety fundamentals; fire, explosion, and spill fundamentals; contaminant air transport fundamentals; hazard and risk assessment; dispersion applications; and hazard and risk management applications. Prerequisite: CHEM 1220. Also taught as CEE 5790. (Sp)</p> <p><b>PUBH 6400</b>      <b>Environmental Toxicology</b>      <b>3</b> <b>(dual listing 5400)</b> Presents in-depth survey of toxic chemicals present in the environment, environmental factors impacting fate of chemicals, potential biological effects associated with chemical exposures, and methods of reducing associated risks. Also taught as ADVS 6400/5400 and BIOL 6400/5400. (Sp)</p> <p><b>PUBH 6730</b>      <b>Analysis and Fate of Environmental</b> <b>(dual listing 5730)</b>      <b>Contaminants</b>      <b>3</b> Provides students with understanding of methods used in analysis of environmental samples for organic contaminants. Examines various properties and processes determining the fate of organic contaminants in the environment. Taught first half of fall semester. Prerequisites: Grades of C- or better in CHEM 1210 and 1215. Also taught as CEE 6730/5730. (F)</p>
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<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.  
<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu>

## Rehabilitation Counseling (REH)

See *Department of Special Education and Rehabilitation, pages 463-467*

<p><b>REH 1010 BSS</b>      <b>Society and Disability</b>      <b>3</b> Discussion of definitions and types of disabilities, ethical issues, society's prejudice and discrimination against people with disabilities, and the individual's adjustment to the disability experience. Disability as a natural part of life. Also taught as SPED 1010. (F,Sp)<sup>DE</sup></p> <p><b>REH 6100</b>      <b>Introduction to the Profession of Rehabilitation Counseling</b>      <b>2</b> Overview of history, philosophy, and legal basis of rehabilitation programs, both public and private. Independent living programs. Roles of the rehabilitation counselor and the process of rehabilitation. Skill development including literature use, writing, and professional organizations. (F)<sup>DE</sup></p> <p><b>REH 6110</b>      <b>Medical Aspects of Disability</b>      <b>3</b> Overview of basic medical issues affecting employment and independent living for persons with disabilities. Explores basic anatomy and systems, as well as disorders and diseases of these systems. Covers medical terminology applicable to rehabilitation counseling. (F)<sup>DE</sup></p>
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# Course Descriptions

<p><b>REH 6120 Psychosocial Aspects of Disability 3</b> Explores psychological and sociological aspects of disabilities, including adjustment factors in living with disabilities (i.e., individual, family, sexuality, other service providers, etc.). Examines societal attitudes, women's issues, and deaf culture issues. Includes group counseling applications for persons with disabilities. (Su)<sup>DE</sup></p> <p><b>REH 6130 Rehabilitation Counseling Skill Development 3</b> Utilizes role playing of simulated interviews and rehabilitation counseling sessions to develop the basic skills necessary to function as a human service helper. Must be taken concurrently with REH 6140. Prerequisite: Permission of instructor. (Su)</p> <p><b>REH 6140 Practicum in Rehabilitation 3<sup>®</sup></b> Under faculty supervision, students receive minimum of 100 hours of firsthand experience working with persons with disabilities in rehabilitation agency or facility. Must be taken the first time concurrently with REH 6130. With faculty approval, may be repeated for credit. Prerequisite: Permission of instructor. (F,Sp,Su)<sup>DE</sup></p> <p><b>REH 6150 Rehabilitation Services and Resources 3</b> Coordination of community resources, individual assessment information, ethical issues, eligibility determination, and development of individualized rehabilitation programs and independent living plans. Time, fiscal, and caseload management skills for rehabilitation professionals. Emphasizes client choice in rehabilitation planning. (Sp)<sup>DE</sup></p> <p><b>REH 6160 Job Analysis, Development, and Placement for Persons with Disabilities 3</b> Applies career development theories to job placement. Presents job placement factors resulting in employment for persons with disabilities, including job analysis, job development and retention, advocacy, assistive technology, ADA, occupational information systems, and labor market analysis. (Sp)<sup>DE</sup></p> <p><b>REH 6170 Internship in Rehabilitation Counseling 6<sup>®</sup></b> Direct supervised provision of rehabilitation services to persons with disabilities in a community facility or agency. Total of 300 hours of direct service required for each 6 semester credits. Repeatable for up to 12 credits. Prerequisite: Permission of instructor. (F,Sp)<sup>DE</sup></p> <p><b>REH 6180 Rehabilitation of Persons with Severe Mental Illness 2</b> Overview of rehabilitation of persons with severe mental illness, including psychopharmacology, housing, case management, job placement, diagnosis (DSMIV-TR), and social learning programs. Includes information on rehabilitation of persons experiencing substance abuse, dual diagnoses, and learning disorders. (Sp)<sup>DE</sup></p> <p><b>REH 6190 Introduction to Assessment in Rehabilitation 2</b> Addresses vocational assessment for persons with disabilities. Includes overview of traditional vocational assessment, but focuses on contemporary methodology developed for individuals with severe disabilities. Discussion of functional assessment, including client choice and ecological assessment issues. (F)<sup>DE</sup></p> <p><b>REH 6200 Theories of Counseling Applied to Persons with Disabilities 3</b> Introduction to established counseling theories and their implications for providing services to persons with disabilities. Discussion of individual and group counseling paradigms. Emphasizes development of students' individual counseling philosophies. (F)<sup>DE</sup></p> <p><b>REH 6210 Advanced Assessment in Rehabilitation 2</b> Introduction to vocational evaluation principles and their application in using commercially available vocational evaluation systems. Actual practice with the systems (including integrated report writing) in the rehabilitation services clinic. (Su)</p>	<p><b>REH 6220 Culturally Valid Rehabilitation Practices 3</b> Analysis of the effect of cultural/ethnic/racial/linguistic background in the rehabilitation counseling setting, including acceptance/perception of disability, and successful application, process, and rehabilitation outcome. Practice applications include provision of culturally sensitive counseling, vocational evaluation, and job placement. (Su)</p> <p><b>REH 6230 Introduction to Rehabilitation Research 3</b> Provides introduction to research methods in rehabilitation and disability studies, including the various types of research designs and the use of statistical methods. Introduces students to empirical research journals in rehabilitation. (Sp)<sup>DE</sup></p> <p><b>REH 6240 Ethical Decision-Making in Counseling 2</b> Ethical standards and decision-making, current issues, and multicultural considerations concerning counseling, with emphasis on professional practice. Discussion of competency areas including professional identity, social and cultural diversity, counselor roles in social justice, advocacy, conflict resolution, and technological strategies. (Sp)<sup>DE</sup></p> <p><b>REH 6250 Group Counseling Techniques and Theories in Rehabilitation Counseling 3</b> Introduction to group counseling, including theory and practice specific to persons with disabilities. Students will participate in small and large group sessions while learning about group formation, significant stages of the group process, and ethical/legal issues related to group counseling. (Su)</p> <p><b>REH 6560 Special Topics in Rehabilitation 1-4<sup>®</sup></b> Opportunity to provide specialized training in topics unique to rehabilitation. Topics cover many disability, employment, and independent-living issues. (F,Sp,Su)</p> <p><b>REH 6900 Independent Study 1-3<sup>®</sup></b> Prerequisite: Permission of instructor. (F,Sp,Su)<sup>DE</sup></p> <p><b>REH 6910 Independent Research 1-3<sup>®</sup></b> Prerequisite: Permission of instructor. (F,Sp,Su)<sup>DE</sup></p> <p><b>REH 6970 Thesis 1-6<sup>®</sup></b> This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>REH 6990 Continuing Graduate Advisement 1-3<sup>®</sup></b> Graded Pass/Fail only. (F,Sp,Su)<sup>DE</sup></p> <p><b>REH 7060 Research Internship 1-3<sup>®</sup></b> Guided experience in conducting rehabilitation/disability research. Graded Pass/Fail only. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>REH 7070 Internship in Grant Writing 1-3<sup>®</sup></b> Guided experience in preparation of grant proposals. Prerequisite: Permission of instructor. Graded Pass/Fail only.</p> <p><b>REH 7080 Writing for Publication 1-3</b> In-depth, individualized experience in which student chooses a topic area and writes a scholarly manuscript, which is submitted for publication in an academic journal. (F,Sp,Su)</p> <p><b>REH 7090 Professional Conference Presentation 1-3</b> Individualized, supervised experience in which student makes professional conference presentation. Emphasizes value of intellectual discourse with one's colleagues on a topic of interest, chosen by the student. (F,Sp,Su)</p> <p><b>REH 7330 Supervision Internship 1-3<sup>®</sup></b> Guided experience in supervising master's students during practica and internship, as well as during other clinical experiences. Graded Pass/Fail only. (F,Sp,Su)</p> <p><b>REH 7340 College Teaching Internship 1-3<sup>®</sup></b> Guided experience in teaching university courses. Graded Pass/Fail only. (F,Sp,Su)</p>
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# Course Descriptions

<b>REH 7730</b>	<b>Disability Law and Policy**</b>	<b>3</b>
Examines disability issues as addressed through legislative process. Analyzes key statutes and case law, reflecting historical and current landmarks in disability policy, in the context of the disability rights movement, societal perceptions, and barriers to implementation. (Sp)		
<b>REH 7740</b>	<b>Sociopolitical Construction of Disability*</b>	<b>3</b>
Examines disability experience from four different perspectives: biomedical, environmental, functional, and sociopolitical. Also explores society's response to disability. Discusses history and perspective of the Disability Rights movement. (F)		
<b>REH 7820</b>	<b>Special Topics in Rehabilitation Counseling</b>	<b>1-3®</b>
Critical analysis of a variety of rehabilitation counseling issues and trends. Empirical and theoretical information presented in a seminar format. (F,Sp,Su)		
<b>REH 7840</b>	<b>Preliminary Examinations</b>	<b>1</b>
Preparation for the examination and successful completion of the written examination. Students analyze published rehabilitation research and demonstrate their ability to integrate knowledge of theoretical and empirical issues, providing an early assessment of doctoral-level competencies. (Su)		
<b>REH 7900</b>	<b>Independent Study</b>	<b>1-3®</b>
Individual discussion and intensive study of particular problem or area. Prerequisite: Permission of instructor. (F,Sp,Su)		
<b>REH 7910</b>	<b>Independent Research</b>	<b>1-3®</b>
Students outline and conduct research under supervision. Prerequisite: Permission of instructor. (F,Sp,Su)		
<b>REH 7930</b>	<b>Internship in Rehabilitation Counseling</b>	<b>1-12®</b>
Professional, supervised internship experience for doctoral students. Taught Pass/Fail <i>only</i> . Prerequisite: Permission of instructor. (F,Sp,Su)		
<b>REH 7940</b>	<b>Journal Reading Group</b>	<b>1-2®</b>
Seminar discussion of recent empirical and theoretical articles concerning rehabilitation counseling, disability policy, and related fields. (F,Sp,Su)		
<b>REH 7970</b>	<b>Dissertation</b>	<b>1-15®</b>
Variable credit for dissertation project associated with doctoral program in disability disciplines. Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>REH 7990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9®</b>
Graded Pass/Fail <i>only</i> . (F,Sp,Su)		

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

®E This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2009-2010.

\*\*Taught 2010-2011.

## Religious Studies (RELS)

See *Religious Studies Major and Minor*, pages 438-440

<b>RELS 1010</b>	<b>Introduction to Religious Studies</b>	<b>3</b>
Historical and comparative survey of the principal beliefs and practices of the world's religions, as well as an exploration of their interplay with the cultures in which they exist. Following general introduction to the study of religion, course includes units on Hinduism, Buddhism, Chinese and Japanese religions, Islam, Judaism, Christianity, and the "new religions" in America.		
<b>RELS 3010</b>	<b>Introduction to Buddhism</b>	<b>3</b>
General survey of historical development, basic doctrine, and practice of Hinayana and Mahayana Buddhism. Also taught as HIST 3010.		

<b>RELS 3020</b>	<b>Introduction to Hinduism</b>	<b>3</b>
Surveys history, doctrinal developments, and sociological concerns of Hinduism from the Vedic Period through the Modern Period. Focuses primarily on Hindu religious thought as applied to Hindu life through various modes of religious action. Also taught as HIST 3020.		

<b>RELS 3710 CI</b>	<b>Folklore Colloquium</b>	<b>3®</b>
Issues, problems, and methodologies in folklore study. Focus and instructor variable. Also taught as ENGL 3710 and HIST 3710. (Sp)		

<b>RELS 3990</b>	<b>Introduction to Religious Studies Methodology</b>	<b>3</b>
Pre-major course helping students to understand the discipline of religious studies. Explores the questions asked by religious studies, as well as the methods used to answer these questions. Helps students gain an understanding of the various approaches to the study of religion and the history of attempts to understand religion in cultural contexts.		

<b>RELS 4010</b>	<b>Buddhism in the West</b>	<b>3</b>
One-semester introduction to Buddhism in the Western world for nonspecialists in Buddhism. Focuses on development of Buddhism as a Western religious phenomenon. Presents interpretive, historical introduction to Buddhism in the West. Also taught as HIST 4010.		

<b>RELS 4910</b>	<b>Special Topics in Religious Studies</b>	<b>1-3®</b>
Examination of special areas and themes in religious studies.		

<b>RELS 4930</b>	<b>Directed Readings</b>	<b>1-3®</b>
Directed readings in any special religious studies field. For each credit granted, a minimum of four books must be read. Prerequisite: Permission of instructor.		

<b>RELS 4990</b>	<b>Religious Studies Capstone</b>	<b>3</b>
Students write a substantial research paper dealing with a religious studies topic and demonstrating their command of the research methods, documentation, and style of professional communications used in the discipline. (F,Sp)		

<b>RELS 5740</b>	<b>Art and Religion: Topics in Sacred Art</b>	<b>3</b>
Discussion-based course investigating relationships between religion and the arts. May focus on any period of history or region of the world, depending on scholarly interests of instructor. Also taught as ARTH 5740. (Sp)		

<b>RELS 6900</b>	<b>Directed Readings</b>	<b>1-3®</b>
Directed readings at the graduate level in any special religious studies field. For each credit granted, a minimum of four books must be read. Prerequisite: Permission of instructor.		

## Russian (RUSS)

See *Department of Languages, Philosophy, and Speech Communication*, pages 334-346

<b>RUSS 1010</b>	<b>Russian First Year I</b>	<b>4</b>
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Not open to those with more than one year high school Russian or equivalent. (F)		

<b>RUSS 1020</b>	<b>Russian First Year II</b>	<b>4</b>
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: RUSS 1010, or not more than three years of high school Russian. (Sp)		

<b>RUSS 2010</b>	<b>Russian Second Year I</b>	<b>4</b>
Further development of first-year competencies with emphasis on language structure, vocabulary expansion, reading, writing, and conversation in the context of culture. Prerequisite: RUSS 1020 or two or more years of high school Russian. (F)		

<b>RUSS 2020</b>	<b>Russian Second Year II</b>	<b>4</b>
Further development of first-year competencies with emphasis on language structure, vocabulary expansion, reading, writing, and conversation in the context of culture. Prerequisite: RUSS 2010 or three or more years of high school Russian. (Sp)		

# Course Descriptions

<b>RUSS 2880</b>	<b>Individual Readings</b>	<b>1-4<sup>®</sup></b>
Individual study of selected readings in Russian. Prerequisite: Instructor's permission. (F,Sp)		
<b>RUSS 3040</b>	<b>Advanced Russian Grammar and Composition</b>	<b>3</b>
Detailed presentation of Russian grammar. Class discussions and work on oral and written assignments. Prerequisite: RUSS 2020 or equivalent. (F)		
<b>RUSS 3050</b>	<b>Advanced Russian Grammar and Composition</b>	<b>3</b>
Detailed presentation of Russian grammar. Class discussions and work on oral and written assignments. Prerequisite: RUSS 2020 or equivalent. (Sp)		
<b>RUSS 3300 DHA</b>	<b>Contemporary Russian Language and Culture</b>	<b>3</b>
Discussion of contemporary Russia, including its geography, business, government, literature, art, etc. Prerequisite: RUSS 2020 or equivalent.		
<b>RUSS 3510 CI</b>	<b>Business Russian</b>	<b>3</b>
Study of current Russian business and commercial terminology and practices. Development of communication skills for international Russian business purposes. Prerequisite: RUSS 2020 or equivalent.		
<b>RUSS 3540</b>	<b>Russian Translation for Science, Business, and Culture</b>	<b>3</b>
Familiarization with approaches to translation, special grammatical structures, specialized vocabulary, and reference materials and aids. Practical exercises. Prerequisite: RUSS 2020 or equivalent.		
<b>RUSS 4880</b>	<b>Individual Readings<sup>1</sup></b>	<b>1-4<sup>®</sup></b>
Readings in technical, scientific, or literary Russian. Prerequisite: Instructor's permission. (F,Sp)		
<b>RUSS 4920</b>	<b>Russian Language Tutoring<sup>1</sup></b>	<b>1<sup>®</sup></b>
Allows students to develop tutoring skills by assisting professors in lower-division courses or fulfilling instructional duties for a comparable amount of time in the language laboratory, public schools, or similar activities with departmental approval. May be repeated to a maximum of 3 credits. Prerequisite: Permission of instructor. (F,Sp)		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>1</sup>This course is repeatable for credit and may be taken a maximum of three times.

## Secondary Education (SCED)

See *Secondary Education Program, School of Teacher Education and Leadership (TEAL)*, pages 441-445

**Note:** Effective Fall Semester 2009, many of the courses previously listed under the SCED prefix will be taught under the TEAL prefix. (TEAL courses are shown on pages 667-671.) Students registering for Summer Semester 2009 Secondary Education courses during can find them under the SCED prefix by logging into Access at: <http://www.usu.edu/myusu/>

<b>SCED 1000</b>	<b>Volunteer Experience</b>	<b>1</b>
Optional course providing orientation to agencies coordinating volunteer experiences in the community; such experiences are part of standards for admission to secondary teacher education. (F,Sp,Su)		
<b>SCED 3100</b>	<b>Motivation and Classroom Management</b>	<b>3</b>
Designed to lead pre-service secondary school teachers to address two questions: (1) What diverse traits, talents, attitudes, and experiences do pre-adolescent and adolescent students bring to the middle school, junior high school, and high school environment? and (2) In light of these diverse traits, talents, attitudes, and experiences, how should teachers work with students to build cooperative classroom communities where students are motivated to engage in productive learning activities? (F,Sp) <sup>DE</sup>		

<b>SCED 3210 DSS/CI</b>	<b>Educational and Multicultural Foundations</b>	<b>3</b>
Provides preservice teachers with the opportunity to critically examine the political, economic, and educational policies influencing students' access to equitable educational experiences. Examines historical and philosophical foundations influencing the nature of multicultural education in our democratic society, how personal biases can influence instructional practices, and development of multicultural curriculum relevant to specific content areas. (F,Sp) <sup>DE</sup>		
<b>SCED 3300</b>	<b>Clinical Experience I</b>	<b>1</b>
First clinical practicum (30 hours minimum) in middle and secondary schools, arranged by special methods instructors in department. Required at level 1. Graded Pass/Fail only. Prerequisite: Program admission. (F,Sp) <sup>DE</sup>		
<b>SCED 3400</b>	<b>Teaching Science I</b>	<b>3</b>
Laboratory practicum focused on design, practice, and performance of secondary science demonstrations and investigative lab activities. Must be taken at Level 1. Prerequisite: Program admission. (Sp) <sup>DE</sup>		
<b>SCED 3500</b>	<b>Teaching Social Studies</b>	<b>3</b>
Methods course focused on social studies curriculum and instruction for preservice secondary teachers with teaching majors or minors in history or any of the social sciences. Should be taken at Level 1. Prerequisite: Program admission. (F,Sp) <sup>DE</sup>		
<b>SCED 3600</b>	<b>Teaching English</b>	<b>3</b>
Methods course focused on English curriculum and instruction for preservice secondary teachers with teaching majors or minors in English. May be taken at either Level 1 or Level 2. Prerequisite: Program admission. (F,Sp) <sup>DE</sup>		
<b>SCED 4200 CI</b>	<b>Reading, Writing, and Technology</b>	<b>3</b>
Performance-based class focused on a wide range of academic skills related to reading, writing, and advanced technology access. Prerequisite: Program admission and completion of Level 1. (F,Sp) <sup>DE</sup>		
<b>SCED 4210</b>	<b>Cognition and Evaluation of Student Learning</b>	<b>3</b>
Designed to lead the preservice secondary school teacher to address two questions: (1) How do students construct concepts; discover relationships; and develop knowledge-level skills, comprehension and communication skills, and problem-solving abilities? (2) How do teachers monitor students' progress, evaluate and communicate their achievement, and interpret the results of system-wide and standardized test results to students and their parents? (F,Sp) <sup>DE</sup>		
<b>SCED 4300</b>	<b>Clinical Experience II</b>	<b>1</b>
Second clinical practicum (30 hours minimum) in middle and secondary schools, arranged by special methods instructors in department. Required at level 2. Graded Pass/Fail only. Prerequisite: Program admission and completion of Level 1. (F,Sp) <sup>DE</sup>		
<b>SCED 4400</b>	<b>Teaching Science II</b>	<b>3</b>
Methods course focused on science curriculum and instruction for preservice secondary teachers with teaching majors in any of the science areas. Must be taken at Level 2. Prerequisite: Program admission, completion of Level 1, and SCED 3400. (F) <sup>DE</sup>		
<b>SCED 4420</b>	<b>Multiple Talent Approach to Thinking</b>	<b>2</b>
Explores one model for the teaching of creative and critical thinking embedded in regular curricula. Includes practical application requirements. Also taught as ELED 4420. (Su)		
<b>SCED 4710</b>	<b>Diversity in Education</b>	<b>3</b>
Provides educators with background and techniques for more effectively addressing the needs of students in a culturally and linguistically diverse society. Diversity topics also include religion, socioeconomic class, ability differences, race, gender, and sexual orientation. Prerequisite: Admission into a teacher education program. Also taught as ELED 4710. (Sp,Su) <sup>DE</sup>		
<b>SCED 4900</b>	<b>Senior Thesis</b>	<b>1-6</b>
Student-initiated research project under faculty supervision. Requires prior approval of department head, honors committee, and instructor. Prerequisite: Approval of department head. (F,Sp)		

# Course Descriptions

<b>SCED 5400</b>	<b>Laboratory Practicum</b>	<b>3</b>
Laboratory practicum for inservice teachers, focused on design, practice, and performance of secondary science demonstrations and investigative lab activities. (F,Sp)		
<b>SCED 5500</b>	<b>Student Teaching Seminar</b>	<b>2</b>
Ten-week capstone seminar focused upon student teaching issues, professional development, and principles of effective instruction, emphasizing reflective teaching. Graded Pass/Fail <i>only</i> . Prerequisites: Level 1 and Level 2 completion, and student teaching placement. (F,Sp) <sup>DE</sup>		
<b>SCED 5630</b>	<b>Student Teaching in Secondary Schools</b>	<b>10</b>
Thirteen-week culminating practicum in which students assume full-time teaching responsibilities under direction of cooperating teachers in major and minor fields. Prerequisites: Level 1 and Level 2 completion, and student teaching placement. Graded Pass/Fail <i>only</i> . (F,Sp) <sup>DE</sup>		
<b>SCED 5700</b>	<b>Modified Student Teaching</b>	<b>2-4</b>
Culminating practicum experience for students seeking dual licensure, earning half of their student teaching credit in a secondary school setting. Graded Pass/Fail <i>only</i> . Prerequisite: Program admission and completion of Level 1 and Level 2. (F,Sp)		
<b>SCED 5800</b>	<b>Secondary School Internship</b>	<b>2-6</b>
Advanced practical teaching experience under combined public school and University supervision. Offered only by arrangement with Director of Field Experiences. Graded Pass/Fail <i>only</i> . Prerequisites: Level 1 and Level 2 completion, and special recommendation. (F,Sp) <sup>DE</sup>		
<b>SCED 5810</b>	<b>Social Studies Teaching Methods</b>	<b>3</b>
Guides students in developing a philosophical rationale for teaching social studies. Includes strategies for integrating best practices in and across the curriculum. (Sp) <sup>DE</sup>		
<b>SCED 5820</b>	<b>Science Teaching Methods</b>	<b>3</b>
Guides students in understanding and identifying attributes of teaching and learning science that are critical to effective instruction. Focuses on developing a safe science learning environment. (Sp) <sup>DE</sup>		
<b>SCED 5830</b>	<b>English Teaching Methods</b>	<b>3</b>
Designed to give in-service ARL teachers the theoretical grounding for making decisions about all aspects of the secondary English curriculum, including: reading, writing, viewing, listening, and speaking. Examines instruction and assessment. (F) <sup>DE</sup>		
<b>SCED 5900</b>	<b>Independent Study</b>	<b>1-3<sup>®</sup></b>
Prerequisite: Instructor approval. (F,Sp)		
<b>SCED 6270</b>	<b>Introduction to Methods, Planning, Assessment, and Technology</b>	<b>4</b>
As one of the pedagogical knowledge requirements for the Alternative Route to Secondary Licensure, this course introduces new teachers to effective teaching methods. Teachers learn how to integrate research-based teaching methods, formal and informal assessments, and technology into their lessons. (Sp) <sup>DE</sup>		
<b>SCED 6555</b>	<b>Practicum Improvement in Instruction/Seminar</b>	<b>1<sup>®</sup></b>
To meet the requirements of the Alternative Route to Secondary Licensure program, students should take this practicum during fall semester and then again during spring semester. (F,Sp) <sup>DE</sup>		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Science (SCI)

See *College of Science*, pages 141-142

<b>SCI 4300</b>	<b>Science in Society</b>	<b>2</b>
Investigation of interactions between current scientific topics and societal goals and concerns. Intended as a capstone course for science teaching majors. Prerequisite: Senior standing and consent of instructor. (F,Sp) <sup>DE</sup>		

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Sociology (SOC)

See *Department of Sociology, Social Work and Anthropology*, pages 448-462

<b>SOC 1010</b>	<b>BSS Introductory Sociology</b>	<b>3</b>
Examination of social behavior of humans and social institutions. Theories and methods for studying society and social issues, along with insights from related disciplines. (F,Sp) <sup>DE</sup>		

<b>SOC 1020</b>	<b>Social Problems</b>	<b>3</b>
Study of major U.S. and international social problems. Examination of how issues are defined as social problems and ways groups attempt to solve the problems. (F,Sp) <sup>DE</sup>		

<b>SOC 3010</b>	<b>Social Inequality</b>	<b>3</b>
Examines theories and research concerning how race, class, and gender intersect in the lives of societal members. (F,Sp)		

<b>SOC 3110</b>	<b>CI Methods of Social Research</b>	<b>3</b>
Methods and techniques of analyzing social data. Examines surveys, field research, observational studies, and other social science techniques. Emphasizes analysis of data and published research. Prerequisite: Completion of 6 credits in departmental courses. (F,Sp)		

<b>SOC 3120</b>	<b>QI Social Statistics I</b>	<b>3</b>
Examines use of statistics in social sciences. Particular focus on use of statistical analysis with surveys and census-type data. Includes parametric and nonparametric statistics utilized most in social analysis. Prerequisites: Completion of 6 credits in departmental courses and grade of C- or better in STAT 1040 or equivalent. (F,Sp,Su) <sup>DE</sup>		

<b>SOC 3200</b>	<b>DSS Population and Society</b>	<b>3</b>
Examination of interrelationships between population change and social structure in national and international context. Examines contributions of fertility, mortality, and migration to population characteristics, particularly sex, age, and ethnic composition. Stresses demographic data and analysis. (F,Sp) <sup>DE</sup>		

<b>SOC 3320</b>	<b>Sociology of Work and Organization</b>	<b>3</b>
Stresses contribution of sociology to the understanding of industry as a social system. (Sp)		

<b>SOC 3330</b>	<b>Medical Sociology</b>	<b>3</b>
In-depth analysis of major contributions of sociology to field of medicine. (F)		

<b>SOC 3410</b>	<b>Juvenile Delinquency</b>	<b>3</b>
Focuses on nature, extent, and causes of delinquent behavior. Examines workings of juvenile justice system and programs for delinquency prevention. (F,Sp) <sup>DE</sup>		

<b>SOC 3420</b>	<b>Criminology</b>	<b>3</b>
Examines theoretical explanations for crime in the U.S. Describes characteristics of major forms of criminal behavior. (F,Sp) <sup>DE</sup>		

<b>SOC 3430</b>	<b>Social Deviance</b>	<b>3</b>
Examination of sociological perspectives on deviance as they apply to lifestyles, commitment, and social control in American society. (F)		

<b>SOC 3500</b>	<b>Social Psychology</b>	<b>3</b>
Explores interaction between the social system and the individual. Examines human behavior in terms of positions people occupy in the social structure. (F,Sp)		

# Course Descriptions

<p><b>SOC 3600</b>                    <b>Sociology of Urban Places</b>                    <b>3</b> Provides historical and international perspective on social, cultural, and spatial characteristics of urban places. Examines changes associated with urbanization processes and the effect of urbanization on community, crime, neighborhoods, and urban space. (F)</p> <p><b>SOC 3610</b>    <b>DSS</b>            <b>Rural Sociology</b>                    <b>3</b> Examines patterns and processes of social change in rural and nonmetropolitan sectors of the U.S. and other advanced industrial societies. Considers how rural social change is influenced by demographic, economic, political, and natural resource conditions at regional, national, and global scales. (F)</p> <p><b>SOC 3750</b>                    <b>Sociology of Aging</b>                    <b>3</b> Examination of social context in which aging occurs, the social implications of aging, and attendant social policy issues. Considers both individual and societal aging, using an historical and global approach. (F)<sup>DE</sup></p> <p><b>SOC 4010</b>                    <b>Contemporary Sociological Theory</b>                    <b>3</b> Critical analysis of major theorists and schools of theory in sociology from the late nineteenth century through recent and current works. Emphasizes contemporary issues, insights, and uses of sociological theory. (F,Sp)</p> <p><b>SOC 4330</b>                    <b>Religion, Science, and Society</b>                    <b>3</b> Discussion of theories and research used by sociologists to understand social dimensions of religion. Includes ways in which religion influences and is influenced by other societal institutions, such as politics, the economy, and the class system. (Sp)</p> <p><b>SOC 4350</b>                    <b>Political Sociology*</b>                    <b>3</b> Examines prevalent theories and concepts related to global development, underdevelopment, and social change, while building an understanding of contemporary global social issues accompanying these processes. Particular emphasis placed on understanding global inequality and regional differences. (Sp)</p> <p><b>SOC 4370</b>                    <b>Sociology of Gender</b>                    <b>3</b> Examines impacts of social constructions of gender on individual and collective experience. Investigates how gender is shaped through social processes and through the effects of social institutions. Particular attention given to relation of gender to social stratification. (F)</p> <p><b>SOC 4420</b>    <b>CI</b>                    <b>Criminal Law and Justice</b>                    <b>3</b> Sociological analysis of relationship between law and social control and social change, especially regarding law enforcement, courts, and corrections. (Sp)<sup>DE</sup></p> <p><b>SOC 4600</b>                    <b>Senior Research Capstone Seminar</b>                    <b>3</b> Students undertake sociological analysis from research question through hypotheses, research design, data collection, data analysis, and presentation. Synthesis of student training in critical thinking and substantive areas in sociology. Prerequisites: SOC 1010, 3010, 3110, 3120, 4010, or permission of instructor. (F,Sp)</p> <p><b>SOC 4620</b>    <b>DSS</b>                    <b>Sociology of the Environment and Natural Resources</b>                    <b>3</b> Social aspects associated with the environment and natural resources. Topics include: environmental attitudes and perceptions, environmentalism as a social movement, resource scarcity and land use, and social change in resource-based communities. (Sp)</p> <p><b>SOC 4710</b>                    <b>Asian Societies</b>                    <b>3</b> Explores history; social, economic, and political institutions; and peoples and cultures of Asian Societies. (Sp)</p> <p><b>SOC 4720</b>                    <b>Applied Community Development</b>                    <b>3</b> <b>(dual listing 6720)</b> Uses asset-building model to explore current practice and theory of community development. Organized around service-learning placements with local and regional organizations. Includes reflective evaluation of theories based upon the service-learning experiences. Prerequisites: SOC 1010, 3010, 3110, 3120, 4010; or permission of instructor. (Sp)</p> <p><b>SOC 4730</b>                    <b>Women in International Development</b>                    <b>3</b> Examines status of women in developing countries, and the role they play in the development process. (Sp)</p>	<p><b>SOC 4800</b>                    <b>Seminar in Sociology</b>                    <b>1-3<sup>®</sup></b> Seminars in various areas of sociology: (a) theory, (b) methodology, (c) demography, (d) social organization, (e) social deviance, (f) social psychology, (g) human ecology, (h) gerontology. (Sp)</p> <p><b>SOC 4900</b>                    <b>Independent Readings in Sociology</b>                    <b>1-5<sup>®</sup></b> Independent readings in various areas of sociology: (a) theory, (b) methodology, (c) demography, (d) social organization, (e) social deviance, (f) social psychology, (g) human ecology. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>SOC 5100</b>                    <b>Interpreting Social Research</b>                    <b>3</b> Examines research design issues (conceptualization and measurement, sampling), modes of observation (experiments, surveys, field research, evaluation research), and interpreting social research findings (basic understanding of statistical analysis), as well as focusing on the ethics and politics of social research. (F,Su)</p> <p><b>SOC 5130</b>                    <b>Ethnographic Field School</b>                    <b>3-6</b> <b>(dual listing 6130)</b> Provides practical training in use of ethnographic field methods, qualitative data analysis, and ethnographic report-writing. Combines classroom instruction with supervised off-campus field research, while living in a cross-cultural setting. Fulfills program methods requirement. Application and additional fee required. Also taught as ANTH 5130/6130. (Su)</p> <p><b>SOC 5640</b>                    <b>Conflict Management in Natural Resources</b>                    <b>3</b> <b>(dual listing 6640)</b> Introduction to conflict management techniques for those involved in natural resource management. Also taught as ENVS 5640/6640. (Sp)</p> <p><b>SOC 5650</b>    <b>DSS</b>                    <b>Developing Societies</b>                    <b>3</b> <b>(dual listing 6650)</b> Reviews how sociology, cultural geography, and economic anthropology analyze processes of globalization in postcolonial societies. Examines changing livelihoods, patterns of spatial incorporation and societal evolution, and emergent policy problems associated with rapid socioeconomic change. Also taught as ANTH 5650/6650 and GEOG 5650/6650. (F)<sup>DE</sup></p> <p><b>SOC 6010</b>                    <b>Development of Sociological Theory</b>                    <b>3</b> Examines development of social theory from early to premodern times. Special attention given to nineteenth century European influences on development of American sociological theory. (F)</p> <p><b>SOC 6020</b>                    <b>Modern Social Theory</b>                    <b>3</b> Examines current analytical and empirical theories from sociology as science perspective. Also explores network, exchange, conflict, functional, and interactionist approaches to, and difficulties with, scientific theorizing. (F)</p> <p><b>SOC 6100</b>                    <b>Advanced Methods of Social Research</b>                    <b>3</b> Examines philosophical bases, techniques, and political and ethical aspects of social research. (F)</p> <p><b>SOC 6130</b>                    <b>Ethnographic Field School</b>                    <b>3-6</b> <b>(dual listing 5130)</b> Provides practical training in use of ethnographic field methods, qualitative data analysis, and ethnographic report-writing. Combines classroom instruction with supervised off-campus field research, while living in a cross-cultural setting. Fulfills program methods requirement. Application and additional fee required. Also taught as ANTH 6130/5130. (Su)</p> <p><b>SOC 6150</b>                    <b>Social Statistics II</b>                    <b>3</b> Statistical procedures for sociological analysis; nonparametric statistics; inferential statistics, cross-tabulation, and log-linear analysis; correlation; regression; ANOVA; and other multivariable social science statistical treatments. (Sp)</p> <p><b>SOC 6200</b>                    <b>Social Demography*</b>                    <b>3</b> Focuses on relationships between demographic and sociological processes. Study of theoretical perspectives and empirical analyses of the determinants. Consequences of change in population size, composition, and distribution, as well as changes in demographic processes. (F)</p>
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# Course Descriptions

<p><b>SOC 6230</b>                    <b>Techniques of Demographic Analysis*</b>                    <b>3</b> Provides instruction in use of rates, ratios, life tables, and related measures to describe, analyze, and estimate population. Review of measures designed to examine the three demographic processes: fertility, mortality, and migration. Utilization of analytical tools to explore population composition. Special emphasis placed on use of U.S. Census data to create population profiles. (Sp)</p> <p><b>SOC 6250</b>                    <b>Sociology Internship/Co-op</b>                    <b>1-6</b> Professional level of educational work experience in an internship/cooperative education position for graduate students. (F,Sp,Su)</p> <p><b>SOC 6310</b>                    <b>Sociology of Work and Occupations*</b>                    <b>3</b> Uses an applied and comparative cross-cultural perspective to examine work in pre-industrial (agricultural/pastoral), industrializing, industrialized, and post-industrial societies. (Sp)</p> <p><b>SOC 6420</b>                    <b>Gender and Social Inequality*</b>                    <b>3</b> Contemporary American gender stratification, including (1) What is the problem? (2) Why is it a problem? (3) How does it interact with other stratifiers? (4) What caused or is causing it? (5) How and why is it maintained? and (6) When does it vary and why? Comparison of different views on these issues. (Sp)</p> <p><b>SOC 6450</b>                    <b>Special Topics in Social Problems</b>                    <b>3®</b> Seminars on various topics appropriate to sociological analysis of contemporary social problems. Subject matter will reflect current faculty research and interests. (F,Sp)</p> <p><b>SOC 6460</b>                    <b>Sociology of Health*</b>                    <b>3</b> Examination of social and cultural factors influencing health. Analysis of health behaviors as consequences of variety of diverse personal and social processes. (F)</p> <p><b>SOC 6620</b>                    <b>Environment, Technology, and Social Change*</b>                    <b>3</b> Focuses on human interactions with the physical environment and changes brought about by this interaction. Topics of major emphasis include: approaches to environmental sociology; environmental values and attitudes; social movements pertaining to environmental concern; and social change responses to technology and resource scarcity. (Sp)</p> <p><b>SOC 6630</b>                    <b>Natural Resources and Social Development*</b>                    <b>3</b> Focuses on social dimensions of natural resources use, development, scarcity, and allocations. Examines ways in which changing resource conditions impact human social organization. Emphasis on topics including: social characteristics of resource-dependent communities and areas; social organizational responses to changes in availability of, or access to, natural resources; and social impacts of natural resource development activities. (Sp)</p> <p><b>SOC 6640</b>                    <b>Conflict Management in Natural Resources</b>                    <b>3</b> <b>(dual listing 5640)</b> Introduction to conflict management techniques for those involved in natural resource management. Also taught as ENV 6640/5640. (Sp)</p> <p><b>SOC 6650</b>                    <b>Developing Societies</b>                    <b>3</b> <b>(dual listing 5650)</b> Reviews how sociology, cultural geography, and economic anthropology analyze processes of globalization in postcolonial societies. Examines changing livelihoods, patterns of spatial incorporation and societal evolution, and emergent policy problems associated with rapid socioeconomic change. Also taught as ANTH 6650/5650 and GEOG 6650/5650. (F)</p> <p><b>SOC 6700</b>                    <b>Advanced Rural Sociology*</b>                    <b>3</b> Analysis of major developments in the study of rural society and rural communities. Emphasis on rural social changes related to economic, demographic, organizational, and technological trends at societal and global levels. (Sp)</p> <p><b>SOC 6720</b>                    <b>Applied Community Development</b>                    <b>3</b> <b>(dual listing 4720)</b> Uses asset-building model to explore current practice and theory of community development. Organized around service-learning placements with local and regional organizations. Includes reflective evaluation of theories based upon the service-learning experiences. Prerequisites: SOC 1010, 3010, 3110, 3120, 4010; or permission of instructor. (Sp)</p>	<p><b>SOC 6730</b>                    <b>Gender and International Development*</b>                    <b>3</b> Examines gender issues in economic and social development. Focuses on theory and methodologies for gender analysis. (Sp)</p> <p><b>SOC 6750</b>                    <b>Social Change and Development*</b>                    <b>3</b> Readings from both domestic and international scholarship are used to examine the important social, economic, and political forces that shape patterns of social change and development. (Sp)</p> <p><b>SOC 6800</b>                    <b>Seminar in Sociology</b>                    <b>1-3®</b> Seminars in various areas of sociology: (a) theory, (b) methodology, (c) demography, (d) social organization, (e) social deviance, (f) social psychology, (g) social problems, (h) international development, (i) domestic development, (j) rural sociology, (k) environmental sociology, (l) other. (F,Sp,Su)</p> <p><b>SOC 6900</b>                    <b>Independent Readings in Sociology</b>                    <b>1-3®</b> Independent readings in various areas of sociology: (a) theory, (b) methodology, (c) demography, (d) environmental/natural resource sociology, (e) sociology of development, (f) social problems. (F,Sp,Su)</p> <p><b>SOC 6970</b>                    <b>Thesis Research</b>                    <b>1-12®</b> Graded Pass/Fail only. (F,Sp,Su)</p> <p><b>SOC 6990</b>                    <b>Continuing Graduate Advisement</b>                    <b>1-3®</b> Graded Pass/Fail only. (F,Sp,Su)</p> <p><b>SOC 7010</b>                    <b>Issues in Sociological Theory*</b>                    <b>3</b> Explores current philosophical discussions on theoretical approaches to understanding society. Examines feminist, post-structuralist, and post-modernist conceptualizations of power, knowledge, and identity. (Sp)</p> <p><b>SOC 7100</b>                    <b>Advanced Survey Techniques*</b>                    <b>3</b> Examines the empirical and methodological literature regarding techniques for designing and implementing mail, telephone, and internet surveys for sociological research. Focuses on practical lessons for sampling, data collection, and survey data organization. (Sp)</p> <p><b>SOC 7110</b>                    <b>Advanced Sociological Analysis*</b>                    <b>3</b> Provides review of several quantitative approaches utilized in contemporary social research. Students undertake small-scale analytical exercises in topics including, but not limited to, log-linear and structural equation modeling, logistic regression, and event history analysis. (F)</p> <p><b>SOC 7150</b>                    <b>Advanced Qualitative Methods in Sociology*</b>                    <b>3</b> Examines the empirical and methodological literature regarding techniques for designing and implementing qualitative data collection and analysis for sociological research. Emphasizes practical tools for graduate students seeking to use qualitative methods for their thesis or dissertation research. (Sp)</p> <p><b>SOC 7210</b>                    <b>Teaching Sociology</b>                    <b>3</b> Provides a learning opportunity for graduate students who will be graduate instructors or teaching assistants. Reviews teaching strategies (meeting a class for the first time, teaching a large lecture class) and course development (constructing a syllabus, developing tests and writing assignments). (F)</p> <p><b>SOC 7250</b>                    <b>Advanced Seminar in Social Demography*</b>                    <b>3</b> Detailed comparative and multilevel examination of substantive and methodological issues in the study of nuptiality, fertility, morbidity and mortality, migration, and social mobility. Covers theories, data collection strategies, measurement issues, and analytical techniques. (Sp)</p> <p><b>SOC 7400</b>                    <b>Perspectives on Inequality and Social Problems*</b>                    <b>3</b> Examines major theoretical and empirical approaches to the sociological analysis of inequality and social problems. (F)</p> <p><b>SOC 7440</b>                    <b>Crime and Society*</b>                    <b>3</b> Explores the field of criminology, which is primarily concerned with describing and explaining patterns of deviance violating criminal laws. Reviews the epistemological foundations of criminology, and then addresses specific topics surrounding various legal definitions of criminal behavior. (Sp)</p>
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# Course Descriptions

**SOC 7620 Sociology of Environmental Hazards and Risks\*** **3**  
Focuses on how individuals and organizations respond to environmental hazards and risks resulting from either natural events or human technological and industrial processes. (F)

**SOC 7640 Population and Environment\*** **3**  
In-depth exploration of relationship between human populations and their environment. Heavy emphasis placed on developing an understanding of contemporary research in this area, especially with regard to the association between environmental factors and population organization, change, and growth. (Sp)

**SOC 7660 The Environment and Social Inequality\*** **3**  
Explores the intersection of social inequality and the physical environment. Examines how social structures and individual actions both perpetuate and combat various forms of inequality, including class, race, ethnicity, gender, and "expert knowledge." (F)

**SOC 7720 Community Theory and Research\*** **3**  
Explores theoretical and empirical sociological literature on the human community. Topics include: conceptualization and measurement of community well-being, dynamics and impacts of social and economic change on community life, and comparison of community research conducted in different settings. (Sp)

**SOC 7800 Topical Seminar in Sociology** **3®**  
Seminars in various areas of sociology: (a) theory, (b) methodology, (c) demography, (d) environmental/natural resource sociology, (e) sociology of development, (f) social problems. (F,Sp)

**SOC 7900 Independent Study** **1-3®**  
Independent study in sociological areas emphasizing (a) theory, (b) methodology, (c) demography, (d) environmental/natural resource sociology, (e) sociology of development, (f) social problems. (F,Sp,Su)

**SOC 7970 Dissertation Research** **1-12®**  
Graded Pass/Fail only. (F,Sp,Su)

**SOC 7990 Continuing Graduate Advisement** **1-9®**  
Graded Pass/Fail only. (F,Sp,Su)

\*This course is taught alternating years. Check with department for information about when course will be taught.  
®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.  
®This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Soil Science (SOIL)

See *Department of Plants, Soils, and Climate*, pages 415-423

**Note:** Effective Spring Semester 2010, courses listed with the SOIL prefix will use the Plants, Soils, and Climate (PSC) prefix.

**SOIL 2000 BPS Soils, Waters, and the Environment** **3**  
Introduction to principles of physical and biological science. Discussion of current environmental topics, focusing on soil and the waters that contact the soil. Topics include water quality, global climate change, deforestation, soil conservation, and agricultural sustainability. (Sp)

**SOIL 3000 Fundamentals of Soil Science** **4**  
Fundamentals of soil science, emphasizing physical, chemical, mineralogical, and biological properties of soils, and how these properties relate to plant growth and environmental quality. (F)<sup>DE</sup>

**SOIL 3100 DSC Soils and Civilization** **3**  
Lectures, readings, and discussions to explore effects of soil physical, chemical, and biological properties on civilization throughout history. Influence of soils on settlement patterns, land use/management, and civilization decline. Case studies focus on current soil and land use issues in western North America. (Sp)

**SOIL 3200 DSC Microbes in Environmental Action** **3**  
Microorganisms play a central role in maintaining the biosphere. In this course, the diversity of microbial lifestyles is introduced. Current examples and case studies used to demonstrate microbial actions in composting, waste water treatment, and bioremediation of pollutants in the environment. Prerequisite: Completion of Breadth Life Sciences (BLS) University Studies requirement. (Sp)

**SOIL 4000 Soil and Water Conservation** **4**  
Applied soil and water conservation in an agronomic setting. Management of soil-water-plant-atmosphere continuum. Soil conservation techniques as they apply to actual situations. (F)

**SOIL 4500 Soil Reclamation** **3**  
Provides in-depth information on causes of soil degradation (both natural and man-made) and rehabilitation procedures. (Sp)

**SOIL 4700 Irrigated Soils** **3**  
Soil salinity, soil-moisture-plant relationships, water supply and quality, irrigation water measurements, soil moisture movement, and irrigation methods. Prerequisite: SOIL 3000 or equivalent, or instructor's consent. Taught during first half of semester. (Sp)

**SOIL 5050 Principles of Environmental (dual listing 6050) Soil Chemistry** **3**  
Introduction to common chemical processes occurring among solid, liquid, and gas phases in soil systems. Emphasis placed on chemistry of arid land soils. Prerequisites: CHEM 1110 or higher, MATH 1050 or higher. (Sp odd)

**SOIL 5130 Soil Genesis, Morphology, (dual listing 6130) and Classification** **4**  
Morphology, development, and classification of soils. Lectures and weekly field exercises emphasize soil as a natural body of the landscape: its properties, distribution, behavior, and interpretations for diverse land uses. Prerequisite: Understanding of fundamental soil science; SOIL 3000 recommended. (F)

**SOIL 5310 Soil Microbiology** **3**  
Ecology and diversity of microorganisms in soils. Emphasis on factors controlling microbial activity and the role of microorganisms in organic matter decomposition and nutrient cycling. Prerequisites: BIOL 1610, 1620; CHEM 2300 or 2310; SOIL 3000. Also taught as BIOL 5310. (F even)

**SOIL 5320 Soil Microbiology Laboratory** **2**  
Techniques for measuring microbial activity and diversity in soils. Includes use of molecular and isotope methods. Prerequisite: Concurrent or prior enrollment in BIOL/SOIL 5310. Also taught as BIOL 5320. Contact Biology Department for further information. (F)

**SOIL 5350 Wildland Soils (dual listing 6350)** **3**  
Application of basic principles of soil science to wildland ecosystems. Effects of disturbance and land use on wildland soil properties. Role of soils in natural resource management. Prerequisites: CHEM 1110, SOIL 3000, and one additional upper-division Soils course, or permission of instructor. Also taught as WILD 5350/6350. (Sp)

**SOIL 5550 QI Soils and Plant Nutrient Bioavailability (dual listing 6550)** **3**  
Description of forms, transformations, and movement of plant nutrients in soils. Discussion of factors affecting nutrient supply, both qualitatively and quantitatively, for nutrient elements essential for plant growth. Prerequisites: SOIL 3000; CHEM 1110 or 1210. (Sp)

**SOIL 5560 Analytical Techniques for the (dual listing 6560) Soil Environment** **2**  
Analysis of chemical and biological soil characteristics. Results interpreted for soil fertility, land use, and environmental remediation. Graduate credit requires a paper reviewing analysis of element or compound class. Prerequisite: SOIL 5050/6050 or 5550/6550 (may be taken concurrently), or instructor's permission. (Sp)

**SOIL 5600 Surface Hydrologic Field Methods (dual listing 6600)** **3**  
Hydrologic concepts and terminology taught through collection, analysis, and interpretation of hydrologic data. Emphasizes principles and practice of several hydrologic measurements and water sampling in natural and manmade



# Course Descriptions

environments. Prerequisite: SOIL 3000 or instructor's permission. Also taught as WATS 5600/6600. Not currently being taught. Contact department for further information.

**SOIL 5620 Aquatic Chemistry 3**  
Provides students with understanding of principles of aquatic chemistry, emphasizing chemical equilibria, acid-base reactions, complex formation, oxidation-reduction reactions, complex formation, and dissolution chemistry. Prerequisite: CHEM 1210 or equivalent. Also taught as CEE 5620. (F)

**SOIL 5650 Environmental Soil Physics 4**  
**(dual listing 6650)**  
Characterization of the physical properties of soils and other porous media. Measurement, prediction, and control of processes taking place in and through soils (e.g., water flow and solute transport), including atmospheric and groundwater interactions. (F)

**SOIL 5750 Environmental Quality: Soil and Water 2**  
Senior capstone course for Environmental Soil/Water Science (ESWS) major. Students analyze current soil and water environmental quality problem(s), formulate remediation or mitigation plans, and present findings in oral and written reports. Prerequisites: SOIL 5130 and two 5000-level Soil courses. (Sp)

**SOIL 6050 Principles of Environmental 3**  
**(dual listing 5050) Soil Chemistry**  
Introduction to common chemical processes occurring among solid, liquid, and gas phases in soil systems. Emphasis placed on chemistry of arid land soils. Prerequisites: CHEM 1110 or higher, MATH 1050 or higher. (Sp odd)

**SOIL 6130 Soil Genesis, Morphology, 4**  
**(dual listing 5130) and Classification**  
Morphology, development, and classification of soils. Lectures and weekly field exercises emphasize soil as a natural body of the landscape: its properties, distribution, behavior, and interpretations for diverse land uses. Prerequisite: Understanding of fundamental soil science; SOIL 3000 recommended. (F)

**SOIL 6140 Unsaturated Flow and Transport 3**  
Measurement, prediction, and control of transport processes taking place in and through partially saturated porous formations (e.g., water flow and solute transport), emphasizing parameter estimation and multi-dimensional flow. (F odd)

**SOIL 6190 Salt-affected Soils 2**  
Emphasis on chemistry of salt-affected soils. Topics include carbonate chemistry, cation exchange, and reclamation of sodium and salt-affected soils. Exploration of effects of sodium accumulation on soil hydraulic conductivity and the biochemistry of salt and potentially toxic elements. Not currently being taught. Contact department for further information.

**SOIL 6200 Biogeochemistry of 3**  
**Terrestrial Ecosystems**  
Inputs, outputs, and cycling patterns of major nutrients. Emphasis on mechanisms for transformations, factors influencing process rates, and the impacts of management and global change on nutrient cycles and air and water quality. Prerequisites: BIOL 1620, SOIL 3000, CHEM 2300 or 2310, or permission of instructor. Also taught as BIOL 6200 and WILD 6200. (F odd)

**SOIL 6350 Wildland Soils 3**  
**(dual listing 5350)**  
Application of basic principles of soil science to wildland ecosystems. Effects of disturbance and land use on wildland soil properties. Role of soils in natural resource management. Prerequisites: CHEM 1110, SOIL 3000, and one additional upper-division Soils course, or permission of instructor. Also taught as WILD 6350/5350. (Sp)

**SOIL 6550 Soils and Plant Nutrient Bioavailability 3**  
**(dual listing 5550)**  
Description of forms, transformations, and movement of plant nutrients in soils. Discussion of factors affecting nutrient supply, both qualitatively and quantitatively, for nutrient elements essential for plant growth. Prerequisites: SOIL 3000; CHEM 1110 or 1210. (Sp)

**SOIL 6560 Analytical Techniques for 2**  
**(dual listing 5560) the Soil Environment**  
Analysis of chemical and biological soil characteristics. Results interpreted for soil fertility, land use, and environmental remediation. Graduate credit requires

a paper reviewing analysis of element or compound class. Prerequisite: SOIL 6050/5050 or 6550/5550 (may be taken concurrently), or instructor's permission. (Sp)

**SOIL 6600 Surface Hydrologic Field Methods 3**  
**(dual listing 5600)**

Hydrologic concepts and terminology taught through collection, analysis, and interpretation of hydrologic data. Emphasizes principles and practice of several hydrologic measurements and water sampling in natural and manmade environments. Prerequisite: SOIL 3000 or instructor's permission. Also taught as WATS 6600/5600. Not currently being taught. Contact department for further information.

**SOIL 6650 Environmental Soil Physics 4**  
**(dual listing 5650)**

Characterization of the physical properties of soils and other porous media. Measurement, prediction, and control of processes taking place in and through soils (e.g., water flow and solute transport), including atmospheric and groundwater interactions. (F)

**SOIL 7200 Soil Interfacial Processes and 3**  
**Reactive Transport**

Course divided into two blocks. Subject matter for first block is soil electrochemistry and surface chemistry. Second block applies material from first block to system in which transport limits reaction time. (Sp odd)

**SOIL 7210 Advanced Topics in Pedology 2<sup>®</sup>**

Strategies for designing and critiquing pedological research through literature, discussions, and field trips. Topics will change, depending upon student interest, and can include factors and processes involved in pedogenesis, soil mineralogy, soil-biota relationships, and landscape evolution. Prerequisite: SOIL 6130/5130. (Sp)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Spanish (SPAN)

See *Department of Languages, Philosophy, and Speech Communication*, pages 334-346

### Lower Division

**SPAN 1010 Spanish First Year I 4**

Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: No more than one year of Spanish in high school or placement in this specific class by examination. (F,Sp)<sup>DE</sup>

**SPAN 1020 Spanish First Year II 4**

Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: SPAN 1010 (or equivalent coursework) or placement in this specific class by examination. (F,Sp)<sup>DE</sup>

**SPAN 1050 Intensive First Year Spanish 8**

Intensive one-semester alternative course to SPAN 1010 and 1020, emphasizing active usage. (Su)

**SPAN 1800 Spanish I Study Abroad 1-4<sup>®</sup>**

Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Taught *only* in Studies Overseas in Spanish Program. (Su)

**SPAN 2010 Spanish Second Year I 4**

Continued development of communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: SPAN 1020 (or equivalent coursework) or placement in this specific class by examination. (F,Sp)

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**SPAN 2020 Spanish Second Year II 4**  
Continued development of communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: SPAN 2010 (or equivalent coursework) or placement in this specific class by examination. (F,Sp)

**SPAN 2800 Spanish II Study Abroad 1-4®**  
Continued development of communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: SPAN 1020 or equivalent. Taught *only* in Studies Overseas in Spanish Program. (Su)

## Upper Division

Upper-division Spanish courses (3000 level and above) are available *only* to students who have completed SPAN 2020 or who can demonstrate equivalent proficiency through testing.

**SPAN 3010 Hispanic Outreach Practicum 1-4®**  
Allows students of Spanish to improve their language skills and cultural awareness within a Hispanic community setting. Graded Pass/Fail *only*. Prerequisite: Permission of instructor. May be repeated to a maximum of 4 credits, only 3 of which can be applied toward the Spanish major or minor. (F,Sp,Su)

**SPAN 3040 Advanced Spanish Grammar 3**  
Intense review of selected problematic areas of Spanish grammar for students with advanced language skills. Prerequisite: SPAN 2020 (or equivalent coursework) or placement in this specific class by examination. (F,Sp)<sup>DE</sup>

**SPAN 3060 CI Advanced Spanish Conversation and Composition 3**  
Development of advanced conversation and writing skills through debate and composition on contemporary controversial topics. (F,Sp)

**SPAN 3100 Spanish for Healthcare Professionals 3**  
Study of medical terminology in Spanish. Explores Hispanic cultural issues in the health professions. Features guest lectures by medical professionals having experience in treating U. S. Hispanics/Latin Americans. Provides conversational practice for medical situations. Includes field trips to clinics/hospitals. Prerequisite: SPAN 3040 or permission of instructor. (Sp)

**SPAN 3510 Business Spanish 3**  
Development of communication skills in Spanish for international Hispanic business purposes. (F,Sp)

**SPAN 3520 Business Spanish Practicum 1-4®**  
Allows students of Spanish to gain practical work experience in a Hispanic Business context. Graded Pass/Fail *only*. Prerequisite: Permission of instructor. May be repeated to a maximum of 4 credits, only 3 of which can be applied toward the Spanish major or minor. (F,Sp,Su)

**SPAN 3550 DHA Spanish Culture and Civilization 3**  
Historical, social, political, economic, and cultural conditions and institutions of Spain. (F,Sp)<sup>DE</sup>

**SPAN 3570 DHA Latin American Culture and Civilization 3**  
Historical, social, political, economic, and cultural conditions and institutions of Latin American countries. (F,Sp)<sup>DE</sup>

**SPAN 3600 DHA Survey of Spanish Literature I 3**  
Selective readings and discussions of major works and authors in Spanish literature from El Cid through Calderon. Prerequisites: Fulfillment of Communications Literacy CL2 requirement; SPAN 3040 or permission of instructor. (F,Sp)

**SPAN 3610 DHA Survey of Spanish Literature II 3**  
Selective readings and discussions of major works and authors in Spanish literature from the eighteenth to twentieth centuries. Prerequisites: Fulfillment of Communications Literacy CL2 requirement; SPAN 3040 or permission of instructor. (F,Sp)

**SPAN 3620 DHA Survey of Latin American Literature I 3**  
Selective readings and discussions of major works and authors in Latin American literature from Pre-Columbian works through the beginnings of Modernism. Prerequisites: Fulfillment of Communications Literacy CL2 requirement; SPAN 3040 or permission of instructor. (F,Sp)

**SPAN 3630 DHA Survey of Latin American Literature II 3**  
Selective readings and discussions of major works and authors in Latin American literature from Modernism to the present. Prerequisites: Fulfillment of Communications Literacy CL2 requirement; SPAN 3040 or permission of instructor. (F,Sp)

**SPAN 3650 Spanish Literature—Study Abroad 1-4®**  
Selective readings and discussions of major works and authors in Spanish literature. Taught *only* in Studies Overseas in Spanish program. Prerequisites: Fulfillment of Communications Literacy CL2 requirement; SPAN 3040 or permission of instructor. (F,Sp)

**SPAN 3660 Latin American Literature—Study Abroad 1-4®**  
Selective readings and discussions of major works and authors in Latin American literature. Taught *only* in Studies Overseas in Spanish program. Prerequisites: Fulfillment of Communications Literacy CL2 requirement; SPAN 3040 or permission of instructor. (F,Sp)

**SPAN 3800 Spanish III Study Abroad 1-4®**  
Intense review of selected problematic areas of Spanish grammar for students with advanced language skills. Taught *only* in Studies Overseas in Spanish Program. (Su)

**SPAN 4200 Applied Spanish Linguistics and Phonetics 3**  
Analysis of selected phonological, morphological, syntactic, and semantic features of the Spanish language, including Spanish-English contrastive analysis. Prerequisite: SPAN 3040. (Sp)

**SPAN 4800 Hispanic Culture and Civilization—Study Abroad 1-4®**  
Historical, social, political, economic, and cultural conditions and institutions of Hispanic countries. Taught *only* in Studies Overseas in Spanish Program. (Su)

**SPAN 4880 Individual Readings 1-4®**  
Individual readings or projects in Spanish. Prerequisite: Instructor's permission. (F,Sp)

**SPAN 4900 Topics of Spanish Literature 3®**  
Repeatable for additional credit when topics vary. Prerequisites: At least two of the following: SPAN 3600, 3610, 3620, and 3630. (F,Sp)

**SPAN 4910 Topics of Latin American Literature 3®**  
Repeatable for additional credit when topics vary. Prerequisites: At least two of the following: SPAN 3600, 3610, 3620, and 3630. (F,Sp)

**SPAN 4920 Spanish Language Tutoring 1®**  
Allows students to develop tutoring skills by assisting professors in lower-division courses or fulfilling instructional duties for a comparable amount of time in the language laboratory, public schools, or similar activities with departmental approval. May be repeated to a maximum of 3 credits. Graded Pass/Fail *only*. Prerequisite: Permission of instructor. (F,Sp)

**SPAN 4990 Spanish Degree Assessment 1**  
Includes review of coursework and comprehensive exit examination, individualized according to the courses taken for the degree. Prerequisite: Permission of instructor.

**SPAN 6200 Spanish Linguistics and Phonetics 3**  
Analysis of phonology, morphology, and syntax of the Spanish language. Prerequisite: SPAN 2020, another 3000-level or higher SPAN course, or demonstrated proficiency through testing. (Sp)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

# Course Descriptions

## Speech Communication (SPCH)

See *Department of Languages, Philosophy, and Speech Communication*, pages 334-346

<b>SPCH 1020 CI</b>	<b>Public Speaking</b>	<b>3</b>
Speaking in formal public communication situations. Development of skills in speech preparation, audience adaptation, and delivery. Two lectures and one one-hour lab per week. (F,Sp) <sup>DE</sup>		
<b>SPCH 2110 CI</b>	<b>Interpersonal Communication</b>	<b>3</b>
Examination of theories, methods, and competencies relevant to studying, establishing, and maintaining interpersonal relationships in family, intercultural, professional, and other contexts. Classroom experiences with topics such as perception, language, nonverbal behavior, conflict resolution, and listening. (F,Sp) <sup>DE</sup>		
<b>SPCH 2250</b>	<b>Introductory Internship/Co-op</b>	<b>1-6</b>
Introductory level educational work experience in an internship or cooperative education position approved by the department and advisor. Internship project and number of credits must be approved by advisor. (F,Sp,Su)		
<b>SPCH 2270</b>	<b>Argumentation and Debate</b>	<b>3</b>
Techniques of analysis, investigation, evidence, reasoning, brief making, refutation, and construction and delivery of the argumentative speech and academic debate. (F)		
<b>SPCH 2280</b>	<b>Listening</b>	<b>2</b>
Development of comprehension, critical, and relationship listening skills. Experience in developing listening training for kindergarten to adult education. This course is not currently being taught. For information about when it may be taught, contact the Department of Languages, Philosophy, and Speech Communication.		
<b>SPCH 3000</b>	<b>Speech Communication Teaching Practicum</b>	<b>1<sup>®</sup></b>
Intensive speech teaching workshop. Supervised on-campus teaching experience. Must be completed prior to student teaching experience. Repeatable to a maximum of 2 credits. (Sp)		
<b>SPCH 3050 DSS</b>	<b>Technical and Professional Communication*</b>	<b>3</b>
Skill development in oral technical reporting, interviewing, and interpersonal communication to meet the unique communication requirements of business, industry, and the professions. (Sp)		
<b>SPCH 3250 CI</b>	<b>Organizational Communication</b>	<b>3</b>
Study of internal communication requirements of organizations. Analysis of communication problems associated with conflict, diversity, interpersonal influence, communication technology, and information flow. Development of effective communication practices. (F)		
<b>SPCH 3300</b>	<b>Clinical Experience I</b>	<b>1</b>
First clinical practicum in middle and secondary schools. Arranged by special methods instructor. Required at Level I. Must be taken concurrently with SPCH 5370. Prerequisites are set by the Secondary Education Department. (F)		
<b>SPCH 3330 DSS</b>	<b>Intercultural Communication</b>	<b>3</b>
Study of how communication shapes culture and how culture, in turn, affects communication. Development of active intercultural communication in professional and personal contexts. (F,Sp)		
<b>SPCH 3400 CI</b>	<b>Persuasion</b>	<b>3</b>
Survey of theory and research investigating the process of social influence. Topics include: compliance-gaining strategies, enactment and detection of deception, verbal and nonverbal influence, attitude change, conformity, communicator characteristics, credibility, emotional appeals, and ethics. (F)		
<b>SPCH 3600</b>	<b>Communication and Conflict</b>	<b>3</b>
Study of contemporary theories on conflict and communication. Analyses of the roles of culture, gender, and personal and/or organizational ethics in conflict and disputes. Discussion and application of negotiation, mediation, and facilitation skills. (F)		

<b>SPCH 4200</b>	<b>Language, Thought, and Action</b>	<b>3</b>
Examines the influence of language on perception, interpretation, and evaluation in a wide variety of communication contexts, from organizational communication to mass media to interpersonal relations. (Sp)		
<b>SPCH 4250</b>	<b>Advanced Internship/Co-op</b>	<b>1-6</b>
Internship or cooperative education at a more professional level, with increased complexity, approved by the department and advisor. Internship project and number of credits must be approved by advisor. (F,Sp,Su)		
<b>SPCH 4300</b>	<b>Clinical Experience II</b>	<b>1</b>
Second clinical practicum in middle and secondary schools. Arranged by special methods instructor. Required at Level II. Must be taken concurrently with SPCH 5370. Prerequisites are set by the Secondary Education Department. (F)		
<b>SPCH 4460</b>	<b>Communication Criticism</b>	<b>3</b>
Introduction to analysis of public communication from a variety of critical perspectives. With an approach including theory and practice, teaches students how to critically analyze discursive messages. (F)		
<b>SPCH 5000</b>	<b>Studies in Speech Communication</b>	<b>1-5<sup>®</sup></b>
Study of special topics in interpersonal, small group, organizational, or intercultural communication theory and research. Prerequisite: Permission of instructor. (F,Sp)		
<b>SPCH 5090</b>	<b>Small Group Theory*</b>	<b>3</b>
Study of theories of group processes such as decision-making, leadership, power, conflict, deviance, and the development of group structures, functions, norms, and roles. (Sp)		
<b>SPCH 5100 CI</b>	<b>Theories of Speech Communication</b>	<b>3</b>
Social, scientific, and humanistic inquiry into the process of human communication. Multi-theoretical approach, including perspectives and research on interpersonal, persuasive, organizational, intrapersonal, group, and intercultural communication. (Sp)		
<b>SPCH 5250</b>	<b>Environmental Rhetoric</b>	<b>3</b>
Study of persuasive tactics and strategies as used by social advocates. Focuses on environmental issues and organizations. Analysis of environmental messages with an emphasis on the development of writing and critical thinking skills. (Sp)		
<b>SPCH 5280</b>	<b>Communication Education Theory*</b>	<b>3</b>
Study of contemporary theories and research in communication education. Emphasis on communication competency development, communication apprehension, critical thinking, communication assessment, development of communication ethics, freedom of speech, instructional communication, and history of communication education. (Sp)		
<b>SPCH 5370</b>	<b>Methods in Teaching Speech Communication</b>	<b>3</b>
Development of materials and strategies for teaching secondary school speech communication. Prerequisite: Admission to teacher education. (F)		

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2009-2010.

## Special Education (SPED)

See *Department of Special Education and Rehabilitation*, pages 463-467

<b>SPED 0100</b>	<b>Strategies for Reading</b>	<b>1-3<sup>®</sup></b>
Practical course with major emphasis on improvement of reading, writing, and comprehension skills that are essential for academic success. Remedial class not carrying USU or transfer credit. Remedial fee required. Graded Pass/Fail only. (F,Sp)		
<b>SPED 1000</b>	<b>Principles of Effective Peer Teaching</b>	<b>2<sup>®</sup></b>
Students receive information about careers in working with individuals who have disabilities. Practical experience given in assessment, instruction, and advocacy. Teachers offer systematic instruction, close supervision, and mentoring on career		

# Course Descriptions

directions and professional alternatives. Available only to high school students at preapproved sites. (F,Sp)<sup>DE</sup>

**SPED 1010 BSS Society and Disability 3**  
Discussion of definitions and types of disabilities, ethical issues, society's prejudice and discrimination against people with disabilities, and the individual's adjustment to the disability experience. Disability as a natural part of life. Also taught as REH 1010. (F,Sp)<sup>DE</sup>

**SPED 2010 Effective Behavior Management Practices for Paraeducators 1-3<sup>®</sup>**  
Teaches paraeducators to apply effective behavior management practices to individuals with disabilities in a variety of settings. Introduction to proactive behavior management strategies, basic concepts of behavior management, and the application of intervention plans.

**SPED 2150 Introductory Experience with Students with Disabilities 1-4<sup>®</sup>**  
Introductory seminar from which students learn basic instructional techniques from video simulations, then apply techniques in public schools. (F,Sp,Su)

**SPED 2790 Special Topics 1-4<sup>®</sup>**

**SPED 3030 Educational and Multicultural Foundations 3**  
Explores historical and cultural aspects of schooling and the inclusion of students with disabilities and bilingual students in general education classrooms. Examines how schooling practices change from elementary to high school and commonalities that bind the teaching profession. (Sp)

**SPED 4000 Education of Exceptional Individuals 2**  
Characteristics of all types of exceptional children with emphasis on the educational and psychological implications of these conditions to the development of the child. (F,Sp,Su)<sup>DE</sup>

**SPED 4790 Special Topics 1-4<sup>®</sup>**

**SPED 4910 Undergraduate Research and Creative Opportunities 1-4<sup>®</sup>**  
Individually directed study at the undergraduate level. Graded Pass/Fail *only*. Permission of instructor required. (F,Sp,Su)<sup>DE</sup>

**SPED 4970 Honors Thesis 1-6<sup>®</sup>**  
Provides an opportunity for honors students in the Department of Special Education and Rehabilitation to interact with other honors students in the College of Education and Human Services and explore an interdisciplinary area of interest. A written paper will be required. (F,Sp,Su)

**SPED 5010 QI Applied Behavioral Analysis 1: Principles, Assessment, and Analysis 3**  
Covers topics related to collecting data, using data to make decisions, analyzing data, graphing data, and applying principles of behavior management and instruction to children and youth. Prerequisite: Admission to special education major or permission of instructor. (F)<sup>DE</sup>

**SPED 5040 Foundations of Effective Assessment and Instructional Practices 3**  
Principles of standardized and curriculum-based assessment. Foundations for designing effective instructional programs to help students achieve mastery and proficiency. Prerequisite: Admission to special education major and SPED 5010 or permission of instructor. (F)<sup>DE</sup>

**SPED 5050 Applied Behavioral Analysis 2: Applications 3**  
Expands knowledge of basic applied behavior analysis principles. Develops skills for remediating behavior problems using functional behavioral assessment. Prerequisite: Admission to special education major or permission of instructor. (Sp)<sup>DE</sup>

**SPED 5060 Consulting with Parents and Teachers 3**  
Provides strategies for communicating with parents and teachers, as members of a multidisciplinary team, to assist parents and other teachers in collaborative problem solving. Prerequisite: Admission to special education major or permission of instructor. (Sp)<sup>DE</sup>

**SPED 5070 Policies and Procedures in Special Education 1-3<sup>®</sup>**  
Provides an understanding of federal and state laws for persons with disabilities and procedures for organizing a special education classroom and auxiliary staff. Prerequisite: Admission to special education major or permission of instructor. (F)<sup>DE</sup>

**SPED 5200 CI Student Teaching in Special Education 3-15**  
Graded Pass/Fail *only*. Prerequisite: Admission to special education major or permission of instructor. (F,Sp,Su)<sup>DE</sup>

**SPED 5210 CI Student Teaching in Special Education: Dual Majors 3-15**  
Undergraduate student teaching for dual majors. Graded Pass/Fail *only*. (F,Sp,Su)<sup>DE</sup>

**SPED 5220 Special Education Student Teaching Seminar 3**  
Weekly seminar taken concurrently with student teaching (SPED 5200 or 5210). Focuses on problems arising during student teaching and the development of a teaching portfolio. Prerequisites: Admission to teacher education and completion of the SPED sequence. (F,Sp,Su)

**SPED 5230 Student Teaching in Special Education: Alternative Preparation 3-15**  
Student teaching for students in alternative teacher preparation programs. Graded Pass/Fail *only*. (F,Sp,Su)<sup>DE</sup>

**SPED 5300 Orientation to Teaching Students with Mild/Moderate Disabilities 2**  
Provides preservice teachers with overview of information and resources, examples, and practice in applying effective instructional and behavior management strategies in their classrooms. Emphasizes knowledge/skills first day and first week of school. (Su)<sup>DE</sup>

**SPED 5310 Teaching Reading and Language Arts to Students with Mild/Moderate Disabilities 2-4**  
Curriculum, instructional methods, assessment, and data-based decision making related to teaching reading and language arts to students with mild/moderate disabilities. (F)<sup>DE</sup>

**SPED 5320 Teaching Content Areas and Transition to Students with Mild/Moderate Disabilities 3**  
Students learn to teach content area material, learning strategies, and transition-related skills to students with mild/moderate disabilities. Also includes assessment and decision making strategies related to these curricular areas. (Sp)<sup>DE</sup>

**SPED 5330 Eligibility Assessment for Students with Mild/Moderate Disabilities 1**  
Covers topics of choosing and administering eligibility assessment tests for students who may have mild/moderate disabilities. Interpretation of test results and applying results to decisions regarding students' eligibility for special education services. Graded Pass/Fail *only*. (F)<sup>DE</sup>

**SPED 5340 Teaching Math to Students with Mild/Moderate Disabilities 3**  
Explains procedures for teaching mathematics to students with mild/moderate disabilities, so that each progresses as fast as his or her capabilities will allow. Prerequisite: Admission to special education major or permission of instructor. (Sp)<sup>DE</sup>

**SPED 5350 Teaching Students with Mild/Moderate Disabilities I 3**  
Provides students with information and skills in the area of classroom and individual behavior management procedures. Emphasizes research-validated strategies that students will apply to everyday instructional situations. Prerequisite: Admission to the Alternative Teacher Preparation Licensure Program. (F)<sup>DE</sup>

**SPED 5360 Teaching Students with Mild/Moderate Disabilities II 3**  
Provides students with instructional and management skills. Through case studies and classroom simulations, students learn research-validated

# Course Descriptions

instructional and management skills. Prerequisite: Admission to the Alternative Preparation Licensure Program. (Sp)<sup>DE</sup>

**SPED 5400                      Orientation to Teaching Students with Severe Disabilities                      2**

Provides preservice teachers with overview of information, resources, examples, and practices in applying effective instructional and behavior management strategies to students with severe disabilities. (F)<sup>DE</sup>

**SPED 5410                      Practicum: Direct Instruction Reading and Language Arts for Students with Mild/Moderate Disabilities                      1-3**

Students learn to use Direct Instruction techniques, positive management, curriculum-based assessment, and data-based decision-making to teach reading and language arts to children with mild/moderate disabilities. Students are placed in a classroom, where they teach a group of children daily. (F)<sup>DE</sup>

**SPED 5420                      Practicum: Teaching Mathematics to Students with Mild/Moderate Disabilities                      4**

Covers use of effective instructional techniques, positive management, curriculum-based assessment, and data-based decision making to teach mathematics content to children with mild/moderate disabilities. Students placed in a classroom, where they teach one or more group(s) of children daily. (Sp)<sup>DE</sup>

**SPED 5430                      Field-Based Applications for Students with Mild/Moderate Disabilities                      3**

Designed to help students acquire and consistently demonstrate effective teaching practices to aid students with mild/moderate disabilities. Teaches students to analyze and solve instructional and management problems. Graded Pass/Fail *only*. Prerequisite: Admission to the Alternative Teacher Preparation Licensure Program. (F)<sup>DE</sup>

**SPED 5510                      Curriculum for Students with Severe Disabilities                      3-4**

Provides information about commercially available curricular materials, as well as how to plan for and design functional academic curricula, for persons with severe disabilities. Prerequisite: Admission to Special Education major or permission of instructor. (F)<sup>DE</sup>

**SPED 5520                      Curriculum for Secondary-Level Students with Severe Disabilities                      3**

Provides information on developing and implementing secondary-level classroom, community, domestic, leisure, and transition instructional programs. Prerequisite: Admission to Special Education major or permission of instructor. (Sp)

**SPED 5530                      Technology for Teaching Exceptional Learners                      3**

Familiarizes students with existing technology (IT and AT), federal and state technology legislation, and resources to fund technology in the classroom. Teaches methods for evaluating technology needs of individuals with disabilities. Prerequisite: Admission to Special Education major or permission of instructor. Taught on campus during spring semester *only*. Occasionally offered off campus during fall semester. (F,Sp)<sup>DE</sup>

**SPED 5540                      Assessment of Persons with Severe Disabilities                      1**

Provides students with knowledge and skills necessary for conducting assessment activities with pupils having severe disabilities. Covers norm-referenced/standardized, criterion-referenced, and alternative assessment instruments. Students complete assignments in administering, interpreting, and communicating results of each type of assessment. (Sp)

**SPED 5550                      Field-Based Applications for Students with Severe Disabilities                      3**

Designed to help students acquire and consistently demonstrate effective teaching practices to aid students with severe disabilities. Teaches students to analyze and solve instructional and management problems. Prerequisite: Admission to Severe Alternative Teacher Preparation Program. (Sp)<sup>DE</sup>

**SPED 5560                      Practicum in Improving School System Programs                      1-4<sup>®</sup>**

Practicum or seminar providing information/experience in public school instruction. Permission of instructor required.

**SPED 5570                      Advanced Field-Based Applications for Students with Severe Disabilities                      3**

Designed to help students become competent in various effective teaching practices with students who have severe disabilities. Prerequisites: Admission to Severe Alternative Teacher Preparation Program and completion of SPED 5550. (F)<sup>DE</sup>

**SPED 5600                      Practicum: Instruction in Academic Skills                      3**

A field-based class providing experience in observing and teaching functional academic curricula to students with severe disabilities. Prerequisite: Permission of instructor. (F)<sup>DE</sup>

**SPED 5610                      Practicum: Instruction in Daily Living Skills                      4**

Provides opportunity to assess students' needs and to design programs for community, domestic, leisure, and transitional skills. Prerequisite: Permission of instructor. (Sp)

**SPED 5710                      Young Children with Disabilities: Characteristics and Services                      3**

Provides information about young children with disabilities, including historical development of services, skill areas, family involvement, teaming, and the array of service environments. Prerequisite: Admission to Special Education major or permission of instructor. (Sp)

**SPED 5720                      Behavior Analysis Practicum                      3**

Students receive supervised training in applying behavior analysis principles in community, school, and institutional settings. Either SPED 5050 or PSY/SPED 5720 fulfill part of practicum requirement for Behavior Analysis track. Prerequisite: Permission of instructor. Also taught as PSY 5720.

**SPED 5730                      Intervention Strategies for Young Children with Disabilities                      3**

Provides information on curricula, instructional strategies, service environments, and staffing roles for teachers of young children (0-5) with disabilities. (F)

**SPED 5790                      Special Topics                      1-4<sup>®</sup>**

(F,Sp,Su)<sup>DE</sup>

**SPED 5810                      Seminar and Field Experiences with Infants and Families                      4**

Participation with an infant and family in both the home and early intervention setting. Seminar topics include infant medical issues, health, safety, syndromes, and low incidence characteristics. (Sp)

**SPED 5820                      Preschool Practicum with Young Children with Disabilities in Community Environments                      1-4<sup>®</sup>**

Students participate in variety of environments serving preschoolers with disabilities, assist in developing a family service plan, and teach other staff to implement techniques. (F)

**SPED 5830                      Seminar Working with Peers on Multidisciplinary Teams                      1**

Seminar for discussion of topics pertaining to how teams work with children, with and without disabilities, in a practicum. Students are assigned to a team for planning and problem solving throughout the semester. (F,Sp)

**SPED 5840                      Seminar: Preschool Practicum with Young Children with Disabilities                      2**

Students participate in variety of environments, problem solving and teaming about their experiences. Must be taken concurrently with SPED 5820. (F)

**SPED 5900                      Independent Study                      1-3<sup>®</sup>**

Permission of instructor required. (F,Sp,Su)<sup>DE</sup>

**SPED 5910                      Independent Research                      1-3<sup>®</sup>**

Permission of instructor required. (F,Sp,Su)

**SPED 6010                      Interventions for Parents and Families                      2**

Explores special challenges faced by parents and families of at-risk students and students with disabilities. Emphasizes intervention strategies, supportive resources, and parent programs.

# Course Descriptions

<p><b>SPED 6020</b>      <b>Design and Evaluation of Instruction</b>      <b>3</b> Presents curriculum in which diagnosis and instruction are welded as a unit into the regular teaching procedures. (Sp)<sup>DE</sup></p> <p><b>SPED 6030</b>      <b>Clinical Practicum: Student Teaching</b>      <b>2-12</b> Supervised practicum in a clinical teaching setting. Graded Pass/Fail <i>only</i>. Prerequisite: Permission of instructor. <sup>DE</sup></p> <p><b>SPED 6040</b>      <b>Functional and Augmentative Communication Approaches and Technology</b>      <b>3</b> Theory and methods of symbolic and nonsymbolic communication acquisition, especially for students with dual sensory impairments. Application of instruction and systems within natural routines. (F)</p> <p><b>SPED 6050</b>      <b>Issues with the Delivery of Services for Students with Dual Sensory Impairments</b>      <b>2</b> In-depth presentation of best practices for educational services for students with dual sensory impairments. (F)</p> <p><b>SPED 6060</b>      <b>Legal Issues in Special Education</b>      <b>3</b> Provides knowledge of a wide range of legal issues concerning the provision of special education services to students with disabilities. (F,Sp,Su)<sup>DE</sup></p> <p><b>SPED 6070</b>      <b>Infusing Mobility and Communication for Students with Dual Sensory Impairments</b>      <b>2</b> Reviews methods for providing orientation and mobility training to students with dual sensory impairments. Provides methods for infusing these and communication objectives into normal age-based routine activities. (Sp)</p> <p><b>SPED 6080</b>      <b>Collaboration and Management of Services for Students with Dual Sensory Impairments</b>      <b>2</b> Reviews methods of planning and coordination of services for students with dual sensory impairments (e.g., transition, lifestyle planning, transition team coordination). Service management addressing issues of scheduling, monitoring, and training of staff and peers. (Sp)</p> <p><b>SPED 6090</b>      <b>Curriculum and Environmental Variations and Management</b>      <b>2</b> Presents instructional and curricular strategies to promote utilization of residual vision or hearing skills. Overviews tactile cuing and movement-based approaches, with emphasis on integration within natural context and functional activities. Review of model delivery methods. (Sp)</p> <p><b>SPED 6110</b>      <b>Social and Psychological Implications of Visual Impairments</b>      <b>2</b> Explores attitudes and beliefs related to visual impairment and blindness. Emphasizes impact of vision loss on the psychosocial functioning of individuals and their families. Studies self-concept, self-esteem, and strategies to enhance these areas in visually impaired children. (Su)</p> <p><b>SPED 6120</b>      <b>Ocular Disorders and Examination Techniques of Low Vision</b>      <b>4</b> Students demonstrate the ability to identify the important parts of the visual system, to understand and interpret eye reports, and to translate the information into an educational plan. Participants also conduct and supervise vision screening clinics. In addition, participants demonstrate a basic understanding of approaches and practices of low-vision services. Includes low-vision aids, optics, and environmental modifications. (F)<sup>DE</sup></p> <p><b>SPED 6130</b>      <b>Literary Braille Codes and Technologies</b>      <b>4</b> Focuses on reading and writing literary braille. Includes literary braille contractions, short-form words, punctuation, and rules of usage for basic Grade 2 braille, using the Perkins Braille Writer. Emphasizes accuracy, beginning formatting, and ability to apply the rules. Using a slate and stylus, as well as computerized braille writers, students learn to write literary braille. (F)<sup>DE</sup></p> <p><b>SPED 6140</b>      <b>Nemeth Braille Codes and Braille Technologies</b>      <b>3</b> Transcription of print mathematical symbols into appropriate formats, using Nemeth Braille Code of Mathematics. Computation skills using adapted abacus for basic mathematical operation. Explores braille music, foreign language braille, computer braille, and Grade 3 braille. Emphasizes literary braille in more extended writing projects. (Sp)<sup>DE</sup></p>	<p><b>SPED 6150</b>      <b>Teaching Children with Dual Sensory Impairments (Deaf/Blind)</b>      <b>3</b> Provides basic understanding of the needs of learners (ages 0-22) having sensory impairments with multiple disabilities. Includes role and characteristics of the transdisciplinary team, learning environments, resources, assessment procedures, and instructional strategies. Identifies inclusion procedures, transitional issues, and methods of encouraging parental involvement. (Su)</p> <p><b>SPED 6160</b>      <b>Introduction to Orientation and Mobility</b>      <b>2</b> Introduces students to orientation and mobility, as well as basic assessment techniques. Students learn to use the results of these assessments, along with specific teaching techniques in pre-cane orientation and mobility skills, in teaching children with visual impairments. Students also become familiar with basic indoor (non-cane) mobility techniques, learn to identify and teach orientation cues in the environments, and develop lesson plans to teach concepts necessary for future cane travel. (Su)</p> <p><b>SPED 6170</b>      <b>Instructional Management for Students with Visual Impairments (0-21)</b>      <b>4<sup>@</sup></b> Emphasizes best practices for instructional management of children with visual impairments in early intervention settings, preschool programs, and early elementary grades. Also addresses practices for older students in upper elementary through high school grades. Explores strategies for development of basic concepts, socialization skills, emergent literacy, effective braille reading and writing, daily living skills, career understanding, and recreational and leisure skills. Focuses on understanding agency and community resources, family collaboration, modification and adaptation of materials and environments, and adapted technology. (Sp)<sup>DE</sup></p> <p><b>SPED 6180</b>      <b>Field Studies in Visual Impairments</b>      <b>1</b> Participants work with visually impaired students in a variety of educational sites. Emphasizes use of adapted technology, implementation of teaching activities, student assessment, and modification of educational materials. Corequisite: SPED 6130 or 6170. (F,Sp)<sup>DE</sup></p> <p><b>SPED 6220</b>      <b>Characteristics of Children with Emotional and Behavioral Disorders</b>      <b>3</b> Explores characteristics of children and youth with emotional and behavioral disorders. Covers definitions, prevalence and incidence, classification, causal factors, and facets of disordered behavior. (3 cr)</p> <p><b>SPED 6230</b>      <b>Education of Students with Emotional and Behavioral Disorders</b>      <b>2</b> Methods of teaching students with emotional and behavioral disorders, including educational strategies and behavioral treatments.</p> <p><b>SPED 6260</b>      <b>Intervention Strategies for Young Children with Disabilities</b>      <b>3</b> (<b>dual listing 5730</b>) Provides information on curricula, instructional strategies, service environments, and staffing roles for teachers of young children (0-5) with disabilities. (F)</p> <p><b>SPED 6280</b>      <b>Instructional Leadership for At-Risk Students</b>      <b>3</b> Examines theories and practices of instructional leadership for at-risk students. Instructs students in services and programs available for at-risk students. (Sp,Su)<sup>DE</sup></p> <p><b>SPED 6290</b>      <b>Teaching Social Skills, Self-Management, and Values</b>      <b>3</b> Discussion of current research and practices related to teaching social skills, self-management, and values. Explores teaching procedures and curriculum programs. (Sp)</p> <p><b>SPED 6300</b>      <b>Collaboration Skills for Classroom Teachers</b>      <b>3</b> Emphasizes knowledge, attitudes, and skills which special educators must possess to effectively collaborate with parents and professionals. (F)<sup>DE</sup></p> <p><b>SPED 6320</b>      <b>Seminars in Learning Characteristics of Students with Dual Sensory Impairments</b>      <b>2</b> Investigates characteristics of dual sensory impairment, learning styles, and environmental demands. Awareness of eye and ear anatomy. Interpretation of formal assessments. Development of instructional strategies. (Su)</p>
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# Course Descriptions

<p><b>SPED 6410</b>      <b>Field Studies I: Analysis of Service for Students with Dual Sensory Impairments</b>      <b>2</b> First of three field experiences for students in the DSI program. Emphasizes team-based review and analysis of services. (F)</p> <p><b>SPED 6420</b>      <b>Field Studies II: Analysis of Service for Students with Dual Sensory Impairments</b>      <b>2</b> Practicum in integrated programs for students with dual sensory impairments within the context of the model classroom. Emphasizes transdisciplinary methods for assessment, instructional design, and planning skills.</p> <p><b>SPED 6430</b>      <b>Field Studies III: Analysis of Service for Students with Dual Sensory Impairments</b>      <b>2</b> Advanced practicum in integrated programs for students with dual sensory impairments. Emphasizes an overall management of instructional environment and services.</p> <p><b>SPED 6500</b>      <b>Interdisciplinary Workshop</b>      <b>1-3®</b> Series of self-instructional modules and videos and a variety of elective training. Module topics include developmental disabilities, legal aspects and issues, assessment, intervention, assistive technology, transition, and prevention/intervention for aggression and violence. (F,Sp,Su)</p> <p><b>SPED 6550</b>      <b>Practicum in the Evaluation of Instruction</b>      <b>1-4®</b> Field-based research course contributing toward graduate degrees and supervisory licensure related to the assessment of an ongoing or newly proposed program of instruction. (F,Sp,Su)</p> <p><b>SPED 6560</b>      <b>Improvement of Instruction</b>      <b>1-4®</b> Focuses on effective teaching methodologies, teaching performance, and curriculum decision making. (F,Sp,Su)</p> <p><b>SPED 6700 (dual listing 7700)</b>      <b>Single-Subject Research Methods and Designs</b>      <b>3</b> Examines single-subject research methods for applied research, including measurement, design, and analysis issues. Also taught as EDUC 6700/7700. (F)<sup>DE</sup></p> <p><b>SPED 6720</b>      <b>Advanced Behavior Analysis in Education</b>      <b>3</b> Discussion of advanced behavior analytic assessment and intervention techniques used in classroom settings. Topics include: functional analysis, function-based interventions, behavioral teaching procedures, reinforcer identification strategies, and strategies for promoting generalization and maintenance of behavior. (Sp)<sup>DE</sup></p> <p><b>SPED 6790</b>      <b>Special Topics</b><sup>DE</sup>      <b>1-4®</b></p> <p><b>SPED 6810</b>      <b>Seminar in Special Education</b>      <b>1-3®</b> (F,Sp,Su)</p> <p><b>SPED 6900</b>      <b>Independent Study</b>      <b>1-2®</b> Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>SPED 6910</b>      <b>Independent Research</b>      <b>1-2®</b> Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>SPED 6930</b>      <b>Internship in Special Education</b>      <b>2-10</b> Professional and supervised intern experience for master's program. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>SPED 6960</b>      <b>Creative Project</b>      <b>1-6®</b> Culminating experience of MEd program. Prerequisite: Proposal approval by supervisory committee. (F,Sp,Su)<sup>DE</sup></p> <p><b>SPED 6970</b>      <b>Thesis</b>      <b>1-9®</b> Culminating experience of MS program. Graded Pass/Fail <i>only</i>. Prerequisite: Proposal approval by supervisory committee. (F,Sp,Su)<sup>DE</sup></p> <p><b>SPED 6990</b>      <b>Continuing Graduate Advisement</b>      <b>1-8®</b> Graded Pass/Fail <i>only</i>. (F,Sp,Su)<sup>DE</sup></p>	<p><b>SPED 7050</b>      <b>Internship in Program Evaluation</b>      <b>1-5®</b> Guided experience in evaluation of educational programs in schools, treatment centers, homes, and communities. Graded Pass/Fail <i>only</i>. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>SPED 7060</b>      <b>Research Internship</b>      <b>1-5®</b> Guided experience in conducting educational research. Graded Pass/Fail <i>only</i>. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>SPED 7070</b>      <b>Grant Writing</b>      <b>1-3®</b> Guided experience in preparation of grant proposals. Graded Pass/Fail <i>only</i>. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>SPED 7080</b>      <b>Writing for Publication</b>      <b>1-3</b> In-depth individualized experience in which the student chooses a topic area, then writes a scholarly manuscript which is submitted for publication in a peer-reviewed academic journal. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>SPED 7090</b>      <b>Conference Presentation</b>      <b>1-3</b> Individualized, supervised experience in which the student identifies an important topic and appropriate conference, and then makes a professional conference presentation. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>SPED 7330</b>      <b>Supervision Internship</b>      <b>1-5®</b> Guided experience in supervising undergraduate and master's students during practica, student teaching, and other field experiences. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>SPED 7340</b>      <b>College Teaching Internship</b>      <b>1-3®</b> Guided experience in teaching university courses. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>SPED 7400</b>      <b>Cultural and Linguistic Diversity and Disability**</b>      <b>3</b> Surveys major issues, topics, and perspectives related to the intersection of cultural/linguistic diversity and disability. (F)</p> <p><b>SPED 7500</b>      <b>Interdisciplinary Workshop</b>      <b>1-3®</b> Workshop on current interdisciplinary issues and topics in special education and related fields. (F,Sp,Su)</p> <p><b>SPED 7700 (dual listing 6700)</b>      <b>Single-Subject Research Methods and Designs</b>      <b>3</b> Examines single-subject research methods for applied research, including measurement, design, and analysis issues. Also taught as EDUC 7700/6700. (F,Su)<sup>DE</sup></p> <p><b>SPED 7710</b>      <b>Advanced Single-Subject Research Methods and Design</b>      <b>3</b> Explores advanced concepts and procedures in within-subject research methods. Builds on knowledge and skills acquired in SPED 7700 regarding scientific questions, measures, research designs, data analysis, and inference. Students analyze research and design, conduct, and report a scientific study. Prerequisite: SPED 7700. (Sp)</p> <p><b>SPED 7720</b>      <b>Advanced Applied Behavior Analysis**</b>      <b>3</b> Discussion of advanced topics in applied behavior analysis including: functional analysis, function-based interventions, behavioral acquisition procedures, and strategies for promoting generalization and maintenance of behavior. Specific discussion of how applied behavior analytic principles can be used in educational contexts. (Sp)</p> <p><b>SPED 7730</b>      <b>Advanced Topics in Behavior Analysis*</b>      <b>3</b> Discusses advanced topics and issues in behavior analysis, including generalization, higher-order learning, variability, novelty, rule-governed behavior, and private events. (Sp)</p> <p><b>SPED 7800</b>      <b>Seminar: Issues in Special Education and Rehabilitation</b>      <b>1-3®</b> Critical analysis of variety of special education and rehabilitation issues and trends. Empirical and theoretical information presented in a seminar format. (F,Sp,Su)</p>
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# Course Descriptions

**SPED 7810 Research Seminar in Special Education and Rehabilitation 1-3<sup>®</sup>**  
 Identification of research problems and discussion of research strategies and methods. Applications of research, data analysis, and statistical concepts. (F,Sp,Su)

**SPED 7820 Seminar: Special Topics 1-3<sup>®</sup>**  
 In-depth study of special topics in special education and rehabilitation. Seminars examine historical aspects, relevant research, and theoretical positions on selected topics. (F,Sp,Su)

**SPED 7830 Special Education Personnel Preparation Methods 2**  
 Focuses on critical issues in preparing special education teachers. Includes teaching, supervision, and overall program development. Students demonstrate supervision and teaching competencies. (Sp)

**SPED 7900 Independent Study 1-3<sup>®</sup>**  
 Graded Pass/Fail only. Prerequisite: Permission of instructor. (F,Sp,Su)

**SPED 7910 Independent Research 1-3<sup>®</sup>**  
 Graded Pass/Fail only. Prerequisite: Permission of instructor. (F,Sp,Su)

**SPED 7920 Doctoral Program Professional Seminar 3**  
 Orients new students to doctoral program, utilizing five goals: (1) familiarize students with requirements of the program and of the Graduate School, (2) acquaint students with the faculty and the resources available, (3) initiate a career planning process, (4) teach students some fundamental concepts underlying scientific research, and (5) teach students to conduct literature reviews. (F)

**SPED 7930 Internship in Special Education 1-12<sup>®</sup>**  
 Professional, supervised internship experience for doctoral students. Graded Pass/Fail only. Prerequisite: Permission of instructor. (F,Sp,Su)

**SPED 7940 Journal Reading Group 1-2<sup>®</sup>**  
 Seminar discussion of recent empirical and theoretical journal articles in special education and related fields. Graded Pass/Fail only. (F,Sp,Su)

**SPED 7970 Dissertation 1-15<sup>®</sup>**  
 Variable credit for dissertation project in connection with doctoral program in special education. Graded Pass/Fail only. (F,Sp,Su)

**SPED 7990 Continuing Graduate Advisement 1-9<sup>®</sup>**  
 Graded Pass/Fail only. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

## Statistics (STAT)

See Department of Mathematics and Statistics, pages 359-368

**STAT 1040 QL Introduction to Statistics 3**  
 Descriptive and inferential statistical methods. Emphasis on conceptual understanding and statistical thinking. Examples presented from many different areas. Prerequisite: C or better in MATH 1010 or Math ACT score of at least 23 (Math SAT score of at least 540) within the Math prerequisite acceptability time limit; or satisfactory score on Math Placement Test. (F,Sp,Su)<sup>DE</sup>

**STAT 2000 QI Statistical Methods 3**  
 Introduction to statistical concepts, graphical techniques, probability, distributions, estimation, one and two sample testing, chi-square tests, and simple linear regression. Prerequisite: C- or better in MATH 1050 or Math ACT score of at least 23 (Math SAT score of at least 540) within the Math prerequisite acceptability time limit; or satisfactory score on Math Placement Test. (F,Sp)<sup>DE</sup>

**STAT 2250 Internship and Cooperative Studies 1-6**  
 Lower-division internship/cooperative work experience in statistics. (F,Sp,Su)

**STAT 2300 QL Business Statistics 4**  
 Descriptive and inferential statistics, probability, sampling, estimation, tests of hypotheses, linear regression and correlation, chi-square tests, analysis of variance, and multiple regression. Prerequisite: C- or better in MATH 1050 or Math ACT score of at least 25 (Math SAT score of at least 580) within the Math prerequisite acceptability time limit; or satisfactory score on Math Placement Test. (F,Sp,Su)<sup>DE</sup>

**STAT 2950 Directed Reading and Conference 1-3<sup>®</sup>**  
 Prerequisite: Prior arrangement with specific instructor. (F,Sp,Su)

**STAT 3000 QI Statistics for Scientists 3**  
 Introduction to statistical concepts, graphical techniques, discrete and continuous distributions, parameter estimation, hypothesis testing, and chi-square tests. Prerequisite: C- or better in MATH 1100 or 1210. (F,Sp,Su)<sup>DE</sup>

**STAT 4250 Advanced Internship/Co-op 1-6<sup>®</sup>**  
 Advanced educational work experience in statistics. Prerequisite: Approval of instructor. (F,Sp,Su)

**STAT 4500 Methods of Teaching Statistics in Secondary and Middle School 3**  
 Teaching methods course required for all prospective mathematics and statistics composite teaching majors. Corequisite: MATH 4500. Prerequisites: MATH 3110; MATH 4200 or 4310; STAT 2000 or 3000. (F,Sp)

**STAT 4950 Directed Reading and Conference 1-3<sup>®</sup>**  
 Prerequisite: Prior arrangement with specific instructor. (F,Sp,Su)

**STAT 5100 CI/QI Linear Regression and Time Series 3**  
 Methods for prediction and hypothesis testing in multiple linear regression models, including analysis of variance and covariance, logistic regression, introduction to time series, and signal processing. Prerequisite: C- or better in STAT 2000 or 3000. (F)<sup>DE</sup>

**STAT 5120 Categorical Data Analysis 3**  
 Analysis of categorical data, contingency tables, goodness of fit, random sampling, log-linear and logistic regression models, and sampling for proportions, as well as stratified and cluster sampling. Prerequisite: C- or better in STAT 5100. (F)

**STAT 5200 Design of Experiments 3**  
 Design, analysis, and interpretation of experiments, split plots, incomplete blocks, confounding, fractional factorials, nested designs, two- and three-way analysis of variance, covariance, and multiple regression. Prerequisite: C- or better in STAT 2000 or 3000. (Sp)<sup>DE</sup>

**STAT 5300 QI Statistical Process Control 3**  
 Techniques and applications of statistics in modern management of industrial processes. Control charts, acceptance sampling, design of industrial experiments, and analysis of process failures. Prerequisite: C- or better in STAT 2000 or 3000. This course is not currently being offered. For information about when it may be offered, contact the department.

**STAT 5410 Applied Spatial Statistics 3 (dual listing 6410)**  
 Explores spatial point patterns, spatially continuous data, area (grid) data, nearest neighbor distances, K function, complete spatial randomness, variogram, kriging, correlogram, and Moran's I. For graduate (6000-level credit), a major project is required. Prerequisite: C- or better in STAT 3000. Knowledge of a statistical package (e.g., S-Plus, R, SAS, etc.) or any programming language (e.g., C/C++, FORTRAN, etc.) is *strongly recommended*. (F)

**STAT 5570 Statistical Bioinformatics 3 (dual listing 6570)**  
 Introduction to current statistical issues in bioinformatics, primarily gene expression and sequence analysis, using bioconductor tools. Topics include data normalization and visualization, differential expression, annotation, scoring alignments, HMMs, and phylogenetic trees. For graduate (6000-level) credit, major project required. Prerequisite: C- or better in STAT 5100 or 5200. (Sp)

**STAT 5600 CI Applied Multivariate Statistics 3**  
 Introduction to multivariate statistical procedures for data analysis. Topics include MANOVA, principal component analysis, factor analysis, clustering, and classification. Prerequisite: C- or better in STAT 5100. (Sp)



# Course Descriptions

<b>STAT 5810</b>	<b>Topics in Statistics</b>	<b>1-3<sup>®</sup></b>	<b>STAT 6560</b>	<b>Graphical Methods***</b>	<b>3</b>
<b>STAT 5820</b>	<b>Topics in Statistics</b>	<b>1-3<sup>®</sup></b>			
Prerequisite: Consent of instructor. (F) <sup>DE</sup> (Sp) <sup>DE</sup>			Statistical graphics and scientific visualization of one, two, and higher dimensional data. Well-chosen and designed graphics are vital in exploratory data analysis, model diagnostics, and data presentation. Includes specific methods and general principles, such as effective use of color and motion. Prerequisites: C- or better in STAT 3000 and programming experience. (F)		
<b>STAT 5890</b>	<b>CI Problem Solving in Statistics</b>	<b>3</b>	<b>STAT 6570</b>	<b>Statistical Bioinformatics</b>	<b>3</b>
Capstone course for Statistics majors, applying course material covered in the undergraduate major. Prerequisite: Permission of instructor. (Sp)			<b>(dual listing 5570)</b> Introduction to current statistical issues in bioinformatics, primarily gene expression and sequence analysis, using bioconductor tools. Topics include data normalization and visualization, differential expression, annotation, scoring alignments, HMMs, and phylogenetic trees. For graduate (6000-level) credit, major project required. Prerequisite: C- or better in STAT 5100 or 5200. (Sp)		
<b>STAT 5940</b>	<b>Directed Reading and Conference</b>	<b>1-3<sup>®</sup></b>	<b>STAT 6600</b>	<b>Multivariate Analysis</b>	<b>3</b>
Prerequisite: Prior arrangement with specific instructor. (F,Sp,Su)			Statistical methods for analyzing multivariate data and the theory behind them. Topics include multivariate normal distribution and multivariate distributions derived from it, multivariate t-tests, regression, MANOVA, principal components and factor analysis, multidimensional scaling, classification, and cluster analysis. Prerequisites: C- or better in MATH 5720. This course is not currently being offered. For information about when it may be offered, contact the department.		
<b>STAT 5950</b>	<b>Senior Honors Project</b>	<b>1-4</b>	<b>STAT 6650</b>	<b>Statistical Learning: Multivariate Statistical Analysis for Bioinformatics, Data Mining, and Machine Learning**</b>	<b>3</b>
A senior project, required for completion of the departmental honors program and developed under the direction of a departmental faculty member. Prerequisite: Permission of instructor. (F,Sp,Su)			Explores supervised learning, linear methods for regression and classification, model assessment and selection, model inference and averaging, additive models, boosting, neural networks, support vector machines, and unsupervised learning. Prerequisites: C- or better in MATH 5720 and STAT 5100. Programming experience in R or a related language is <i>strongly recommended</i> . (F)		
<b>STAT 5970</b>	<b>Seminar</b>	<b>1-3<sup>®</sup></b>	<b>STAT 6710</b>	<b>Mathematical Statistics I</b>	<b>3</b>
Review of current literature and developments in the field of statistics. (F,Sp)			Modes of convergence of random variables, laws of large numbers, characteristic functions, and the central limit theorem. Prerequisite: C- or better in MATH 5720. (F)		
<b>STAT 6100</b>	<b>Advanced Regression Analysis*</b>	<b>3</b>	<b>STAT 6720</b>	<b>Mathematical Statistics II</b>	<b>3</b>
Explores the following topics in the theory of linear models: least squares estimation, the general linear hypothesis, regression diagnostics for multicollinearity, outliers, and influential points. Also includes discussion of robust regression, nonlinear regression, generalized linear models, ACE, generalized additive models, and regression models for survival data. Prerequisites: C- or better in MATH 5720 and STAT 5100. (F)			Consistency, loss functions, risk, and notions of optimality of estimations. Hypothesis testing and confidence regions. Large sample theory, notions of robustness. Prerequisite: C- or better in STAT 6710. (Sp)		
<b>STAT 6180</b>	<b>Time Series</b>	<b>3</b>	<b>STAT 6740</b>	<b>Bayesian Statistics**</b>	<b>3</b>
The domain and frequency domain time series analysis, including Box-Jenkins methods, spectral analysis and filtering, introduction to state space methodology. Prerequisites: C- or better in STAT 5100, MATH 5720. This course is not currently being offered. For information about when it may be offered, contact the department.			Conditional probability, Bayes' theorem, conjugate and objective priors, Bayesian inference and decision theory, model averaging, multi-parameter and hierarchical models, sampling and numerical integration methods, linear models, generalized linear models, and models for correlated data. Prerequisites: MATH 5720 and STAT 5100. (Sp)		
<b>STAT 6190</b>	<b>Wavelet Methods for Time Series**</b>	<b>3</b>	<b>STAT 6810</b>	<b>Topics in Statistics (Topic)***</b>	<b>3<sup>®</sup></b>
Explores time series models, time and frequency domain analysis, discrete wavelet transform, and wavelet ANOVA, as well as applications in physics and finance. Prerequisites: C- or better in MATH 5720 and STAT 5100. (Sp)			<b>STAT 6820</b>	<b>Topics in Statistics (Topic)***</b>	<b>3<sup>®</sup></b>
<b>STAT 6200</b>	<b>Analysis of Unbalanced Data and Complex Experimental Designs*</b>	<b>3</b>	Prerequisite: Permission of instructor. (F) (Sp)		
Examines means and effects models, estimability, and type I-IV hypotheses. Contrasts and sums of squares. Generalized linear models for experimental data. Linear mixed models. Generalized linear mixed models. Analysis of complex experimental designs. Nonreplicated experiments. Tests for additivity. Half-normal plots. Prerequisite: C- or better in STAT 5200. (Sp)			<b>STAT 6890</b>	<b>Practical Statistical Consulting***</b>	<b>1-3<sup>®</sup></b>
<b>STAT 6250</b>	<b>Graduate Internship/Co-op***</b>	<b>1-8<sup>®</sup></b>	Introduction to statistical consulting for graduate students, for faculty in other research departments, and for business, industry, and government. Prerequisite: Permission of instructor. (F,Sp,Su)		
Educational work experience at the graduate level. Prerequisite: Permission of instructor.			<b>STAT 6910</b>	<b>Seminar in Statistics***</b>	<b>1-3<sup>®</sup></b>
<b>STAT 6410</b>	<b>Applied Spatial Statistics</b>	<b>3</b>	Review of current literature and developments in statistics. Prerequisite: Permission of instructor. (F,Sp)		
<b>(dual listing 5410)</b> Explores spatial point patterns, spatially continuous data, area (grid) data, nearest neighbor distances, K function, complete spatial randomness, variogram, kriging, correlogram, and Moran's I. For graduate (6000-level credit), a major project is required. Prerequisite: C- or better in STAT 3000. Knowledge of a statistical package (e.g., S-Plus, R, SAS, etc.) or any programming language (e.g., C/C++, FORTRAN, etc.) is <i>strongly recommended</i> . (F)			<b>STAT 6950</b>	<b>Directed Reading and Conference***</b>	<b>1-4<sup>®</sup></b>
<b>STAT 6530</b>	<b>Modern Nonparametric Statistics**</b>	<b>3</b>	Prerequisite: Prior arrangement with specific instructor. (F,Sp,Su)		
Examines topics in resampling methods including: the jackknife and the bootstrap, bias, variance, and confidence intervals. Also explores the following topics in smoothing methods: histograms, kernel density estimates, and local polynomial regression. Includes testing procedures using ranks and empirical cumulative distribution functions. Prerequisites: C- or better in MATH 5710 and STAT 3000. (Sp)			<b>STAT 6970</b>	<b>Thesis and Research</b>	<b>1-6<sup>®</sup></b>
<b>STAT 6550</b>	<b>Statistical Computing***</b>	<b>3</b>	Outlining and conducting research in statistics. Thesis preparation. Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
Survey of algorithms and tools for modern statistical computing. Topics include simulation design and implementation, algorithms for linear regression and subset selection, smoothing algorithms, fast fourier transform, EM algorithm, numerical methods for maximum likelihood estimation, and neural networks. Prerequisites: C- or better in MATH 5720 and knowledge of a programming language. (Sp)			<b>STAT 6990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>
			Graded Pass/Fail <i>only</i> . (F,Sp,Su)		
<b>STAT 7110</b>	<b>Linear Models (Topic)***</b>	<b>3<sup>®</sup></b>	<b>STAT 7120</b>	<b>Linear Models (Topic)***</b>	<b>3<sup>®</sup></b>
			(F) (Sp)		

# Course Descriptions

<b>STAT 7180</b>	<b>Time Series Analysis (Topic)***</b>	<b>3®</b>
<b>STAT 7190</b>	<b>Time Series Analysis (Topic)***</b>	<b>3®</b>
(F) (Sp)		
<b>STAT 7210</b>	<b>Experimental Design (Topic)***</b>	<b>3®</b>
<b>STAT 7220</b>	<b>Experimental Design (Topic)***</b>	<b>3®</b>
(F) (Sp)		
<b>STAT 7310</b>	<b>Business and Industrial Statistics (Topic)***</b>	<b>3®</b>
<b>STAT 7320</b>	<b>Business and Industrial Statistics (Topic)***</b>	<b>3®</b>
(F) (Sp)		
<b>STAT 7510</b>	<b>Nonparametric Statistics (Topic)***</b>	<b>3®</b>
<b>STAT 7520</b>	<b>Nonparametric Statistics (Topic)***</b>	<b>3®</b>
(F) (Sp)		
<b>STAT 7550</b>	<b>Computational and Graphical Statistics (Topic)***</b>	<b>3®</b>
<b>STAT 7560</b>	<b>Computational and Graphical Statistics (Topic)***</b>	<b>3®</b>
(F) (Sp)		
<b>STAT 7610</b>	<b>Multivariate Statistics (Topic)***</b>	<b>3®</b>
<b>STAT 7620</b>	<b>Multivariate Statistics (Topic)***</b>	<b>3®</b>
(F) (Sp)		
<b>STAT 7710</b>	<b>Mathematical Statistics (Topic)***</b>	<b>3®</b>
<b>STAT 7720</b>	<b>Mathematical Statistics (Topic)***</b>	<b>3®</b>
(F) (Sp)		
<b>STAT 7730</b>	<b>Bayesian Statistics and Decision Theory (Topic)***</b>	<b>3®</b>
<b>STAT 7740</b>	<b>Bayesian Statistics and Decision Theory (Topic)***</b>	<b>3®</b>
(F) (Sp)		
<b>STAT 7810</b>	<b>Topics in Statistics (Topic)</b>	<b>1-3®</b>
<b>STAT 7820</b>	<b>Topics in Statistics (Topic)</b>	<b>1-3®</b>
(F) (Sp)		
<b>STAT 7970</b>	<b>Dissertation Research</b>	<b>1-15®</b>
Graded Pass/Fail only. (F,Sp,Su)		
<b>STAT 7990</b>	<b>Continuing Graduate Advisement</b>	<b>1-9®</b>
Graded Pass/Fail only. (F,Sp,Su)		

® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

DE This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

\*\*\*This course will be taught as needed. For information about availability, contact the Department of Mathematics and Statistics.

## Social Work (SW)

See Department of Sociology, Social Work and Anthropology, pages 448-462

<b>SW 1010</b>	<b>Introduction to Social Welfare</b>	<b>3</b>
Foundation course to facilitate development of an approach to thinking about social welfare. Explores broad common base of social work professional values, knowledge, skills, social policies, and programs. (F,Sp) DE		
<b>SW 2100</b>	<b>Human Behavior in the Social Environment</b>	<b>3</b>
Interrelatedness of social, cultural, and environmental factors that combine with biological and psychological components to mold human behavior. Relevance of these factors to generalist social work practice. Prerequisite: SW 1010. (Sp) DE		

<b>SW 2400</b>	<b>Social Work with Diverse Populations</b>	<b>3</b>
Examines characteristics of various populations, including patterns, dynamics, and consequences of discrimination, economic deprivation, and oppression. Emphasis placed on empowerment of groups and individuals, as well as the accumulation of multicultural competence. Prerequisite: SW 1010. (Sp) DE		
<b>SW 3050</b>	<b>Practice I</b>	<b>3</b>
Introduction of generalist social work framework as an integrative tool, with special attention shown to strengths and empowerment perspective. Individuals as targets for change. Prerequisite: Admission to advanced standing in social work bachelor's program, SW 1010, 2100, 2400. (F)		
<b>SW 3350</b>	<b>Child Welfare</b>	<b>3</b>
Developments in programs for meeting such needs of children as substitute parental care, adoptions, delinquency problems, mental retardation, and unmarried motherhood. Prerequisites: SW 1010, 2100, 2400.		
<b>SW 3360</b>	<b>Adolescents: Theories, Problems, and Issues*</b>	<b>3</b>
Focuses on major social problems confronting youth today: teenage pregnancy, substance abuse, unemployment, education, and mental health. Investigation of theories explaining these problems and society's efforts to resolve these problems. Prerequisites: SW 1010, 2100, 2400.		
<b>SW 3450</b>	<b>School Social Work*</b>	<b>3</b>
Overview of social work practice in an educational setting. Prerequisite: SW 1010. (Sp)		
<b>SW 3550</b>	<b>Social Gerontology*</b>	<b>3</b>
Overview of field of aging and its connection to the practice of social work. Prerequisite: SW 1010. (Sp)		
<b>SW 3650</b>	<b>Mental Health*</b>	<b>3</b>
Services offered for the prevention and treatment of mental illness and the feasibility of social action programs on a community level. Prerequisites: SW 1010, 2100, 2400.		
<b>SW 3750</b>	<b>Medical Social Services*</b>	<b>3</b>
Introduction to role of social worker in health settings. Emphasizes definition of health and disease, patient rights, and consumer participation. Examination of basic health programs, major trends in health planning, and alternate models of health delivery. Prerequisites: SW 1010, 2100, 2400.		
<b>SW 3850</b>	<b>Spirituality and Social Work*</b>	<b>3</b>
Provides a framework of knowledge, values, skills, and experiences for spiritually sensitive social work practice. Prerequisite: SW 1010. (F)		
<b>SW 4100</b>	<b>Social Work Research</b>	<b>3</b>
Survey of qualitative and quantitative scientific methods of research in social work. Articulation of research with practice and policy. Prerequisites: SW 1010, 2100, 2400. (F)		
<b>SW 4150</b>	<b>Practice II</b>	<b>3</b>
Introduction to generalist social work practice at the micro level. Emphasizes study of skills from a strengths and empowerment perspective with individuals, families, and small groups. Special attention paid to ethical issues and working with diverse population. Prerequisite: SW 3050. (Sp)		
<b>SW 4160</b>	<b>Practice III</b>	<b>3</b>
Introduction to generalist social work practice at the macro level. Emphasizes study of skills from a strengths and empowerment perspective with groups, organizations, and community systems. Special attention paid to ethical issues and working with diverse populations. Prerequisite: SW 4150. (Sp)		
<b>SW 4870</b>	<b>Beginning Field Practicum</b>	<b>6®</b>
Practical experience in a social service agency. Seminar integrates field work experiences and academic knowledge. Emphasizes use of self and integration of knowledge, values, skills, and methods of practice, with special emphasis given to the code of ethics. Prerequisite: Instructor's permission and by application. (F)		
<b>SW 4900</b>	<b>Topical Issue Seminar</b>	<b>3-6®</b>
Advanced seminar, designed as a forum for students from varied social science disciplines. Seminars may include issues involved in social work values and ethics, diversity, promotion of social and economic justice, and/or populations-at-risk. Prerequisites: SW 1010, 2100, 2400, and permission of instructor. DE		

# Course Descriptions

<p><b>SW 4950</b>                    <b>Directed Readings</b>                    <b>1-5®</b> Independent readings in various areas of social work: practice, policy, HBSE, research, populations-at-risk, values and ethics, social and economic justice, and diversity. Prerequisite: Instructor's permission and a plan for study. (F,Sp)</p> <p><b>SW 5350</b>    <b>CI</b>            <b>Social Welfare Policy</b>                    <b>3</b> Introduction to policy making in social welfare. Principles of social and economic justice used to analyze selected social policies and programs within a historical and contemporary context. Attention given to differential impact on at-risk populations. Prerequisites: SW 1010, 2100, 2400. (F)</p> <p><b>SW 5550</b>                    <b>Family Violence: Interpersonal and Intergroup Conflict</b>                    <b>3</b> Examines various types of family and interpersonal violence (i.e., date rape, partner abuse, child abuse, elder abuse, etc.). Focuses on factors leading to violence, as well as consequences for individuals and society. (F)</p> <p><b>SW 5870</b>                    <b>Advanced Field Practicum</b>                    <b>6®</b> Supervised social work practice and projects. Provides opportunities for advanced social work students to apply classroom learning in a field setting. Minimum of 240 hours in a social service agency required. Prerequisite: Instructor's permission and SW 4870. (Sp)</p>	<p><b>SW 6475</b>                    <b>Foundation Block Field Practicum</b>                    <b>9</b> Provides a concentrated supervised educational and practical social work experience with specified educational objectives in a human-service organization. (F,Sp,Su)<sup>DE</sup></p> <p><b>SW 6500</b>                    <b>Advanced Child Welfare Practice in Rural Settings</b>                    <b>3</b> Provides overview of services provided to abused/neglected children and their families, with emphasis on rural contexts. Explores assessment and treatment of problems commonly experienced by child welfare populations. (F)<sup>DE</sup></p> <p><b>SW 6550</b>                    <b>Advanced Practice with Victims and Perpetrators of Family Violence</b>                    <b>3</b> Familiarizes students with problem of family violence, as well as with micro and macro intervention approaches to working with individuals and families impacted by family violence. (Sp,Su)<sup>DE</sup></p> <p><b>SW 6575</b>                    <b>Social Work Practice with Substance Abusing Clients</b>                    <b>3</b> Addresses practice in the field of substance abuse, including understanding of substance abuse policy and treatment issues. (F,Sp,Su)<sup>DE</sup></p> <p><b>SW 6600</b>                    <b>Policy and Administration</b>                    <b>3</b> Addresses planning and program development of human service organizations. Studies theories, types, levels, applications, and issues of planning and policy implementation. (Sp)<sup>DE</sup></p> <p><b>SW 6650</b>                    <b>Advanced Research Methods</b>                    <b>3</b> Students apply their understanding of research methods, theories, and social work values (learned in SW 6200) while completing a research project. (Sp,Su)<sup>DE</sup></p> <p><b>SW 6700</b>                    <b>Advanced Generalist Practice I: Individuals and Families</b>                    <b>3</b> Focuses on advanced application of generalist problem-solving theories and skills in working with individuals and families. (F)<sup>DE</sup></p> <p><b>SW 6750</b>                    <b>Advanced Generalist Practice II: Groups</b>                    <b>3</b> Focuses on advanced application of generalist problem-solving theories and skills in working with task and treatment groups. (Sp)<sup>DE</sup></p> <p><b>SW 6775</b>                    <b>Forensic Social Work Practice</b>                    <b>3</b> Provides introduction to and overview of forensic social work practice. (F,Sp,Su)<sup>DE</sup></p> <p><b>SW 6800</b>                    <b>Law and Ethics for Social Workers</b>                    <b>3</b> Provides students with basic understanding of law and ethics within the context of social work practice, including legal rights of individuals, legal processes, the legal system, and ethical dilemmas and issues. (F,Su)<sup>DE</sup></p> <p><b>SW 6850</b>                    <b>Advanced Clinical Practice with Individuals and Families</b>                    <b>3</b> Emphasizes differential assessment and treatment of individuals, families, and family subsystems. Introduction to primary mental disorders in children and adults. Examines causal theory and prognosis, as well as theories about family dysfunction. (Sp,Su)<sup>DE</sup></p> <p><b>SW 6875</b>                    <b>Clinical Practice with Women</b>                    <b>3</b> Explores treatment approaches for working with women in both individual and group settings.<sup>DE</sup></p> <p><b>SW 6900</b>                    <b>Field Practicum III</b>                    <b>6</b> Provides advanced supervised educational and practical social work experience with specified educational objectives in a human-service organization reflecting the student's selected focus area. (F,Sp)<sup>DE</sup></p> <p><b>SW 6950</b>                    <b>Field Practicum IV</b>                    <b>6</b> Continuation of SW 6900, providing advanced supervised educational and practical social work experience with specified educational objectives in a human-service organization reflecting the student's selected focus area. (Sp)<sup>DE</sup></p> <p><b>SW 6975</b>                    <b>Advanced Block Field Practicum</b>                    <b>12</b> Provides concentrated advanced supervised educational and practical social work experience with specified educational objectives in a human-service organization reflecting the student's selected focus area. (F,Sp,Su)<sup>DE</sup></p>
<p><b>Master of Social Work Courses</b></p> <p>Students should be admitted to the Master of Social Work Program <i>prior to enrolling</i> in the following courses.</p>	
<p><b>SW 6000</b>                    <b>Principles and Philosophy of Social Work</b>                    <b>3</b> Explores history, traditions, ethics, purpose, philosophy, and knowledge base of the social work profession. Introduces generalist social work problem-solving approach. (F)<sup>DE</sup></p> <p><b>SW 6050</b>                    <b>HBSE I: Individuals and Families in Their Environment</b>                    <b>3</b> Presents and critiques knowledge of human development from infancy to late adolescence in the context of individuals and families. Identifies relationships between theoretical frameworks and various biopsychosocial environments. (F)<sup>DE</sup></p> <p><b>SW 6100</b>                    <b>Generalist Practice I: SW Practice with Individuals, Families, and Groups</b>                    <b>3</b> Provides a beginning and general base of practice knowledge, values, and skills for work with individuals, families, and treatment groups in a variety of community and agency contexts. (F)<sup>DE</sup></p> <p><b>SW 6150</b>                    <b>Generalist Practice II: SW Practice with Groups, Organizations, and Communities</b>                    <b>3</b> Provides a beginning and general base of practice knowledge, values, and skills for work with groups, organizations, and communities. (Sp)<sup>DE</sup></p> <p><b>SW 6200</b>                    <b>Social Work Research Methods</b>                    <b>3</b> Introduction to qualitative and quantitative social work research in context of generalist problem-solving approach. (F,Su)<sup>DE</sup></p> <p><b>SW 6250</b>                    <b>HBSE II: Groups, Organizations, and Communities</b>                    <b>3</b> Presents and critiques knowledge of human development in the context of groups, communities, organizations, and institutions. (Sp)<sup>DE</sup></p> <p><b>SW 6300</b>                    <b>Social Policy Analysis</b>                    <b>3</b> Foundation policy course providing comprehensive exploration of theory, history, structure, and impact of social welfare policy on individuals, families, groups, organizations, and institutions. (Sp)<sup>DE</sup></p> <p><b>SW 6400</b>                    <b>Field Practicum I</b>                    <b>4</b> Provides supervised educational and practical social work experience with specified educational objectives in a human-service organization. (F)<sup>DE</sup></p> <p><b>SW 6450</b>                    <b>Field Practicum II</b>                    <b>5</b> Continuation of SW 6400, providing supervised educational and practical social work experience with specified educational objectives in a human-service organization. (Sp)<sup>DE</sup></p>	

# Course Descriptions

**SW 6990 Independent Study 1-3<sup>®</sup>**  
Independent Study courses contracted between faculty member in the Social Work Program and MSW student. Prerequisite: Approval of Social Work Program director and department head. (F,Sp,Su)<sup>DE</sup>

**SW 6993 Research Project 1-3<sup>®</sup>**  
MSW student research projects supervised by a faculty member in the Social Work Program. Prerequisite: Approval of the Social Work Program director and the department head. (F,Sp,Su)<sup>DE</sup>

**SW 6995 Special Topics on Social Work Practice 1-3<sup>®</sup>**  
Course content varies. Follows strict guidelines determined by the Social Work Program. (F,Sp,Su)<sup>DE</sup>

\*This course is taught alternating years. Check with department for information about when course will be taught.

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Teacher Education and Leadership (TEAL)

See *Elementary Education Program, School of Teacher Education and Leadership (TEAL)*, pages 243-252

Also see *Secondary Education Program, School of Teacher Education and Leadership (TEAL)*, pages 441-445

**Note:** Effective Fall Semester 2009, many of the courses previously listed under the EDUC, ELED, and SCED prefixes will be taught under the TEAL prefix. These TEAL courses are listed below. Students registering for Summer Semester 2009 courses can find them under their previous prefixes by logging into Access at: <http://www.usu.edu/myusu/>

**TEAL 1010 Exploring Education as a Potential Career 3**  
Students assess themselves as prospective teachers. Opportunities provided for students to observe in public schools (K-12), as well as to complete volunteer service in other community educational settings.

**TEAL 4600 Philosophy and Organization of the Middle Level School\*\* 3**  
(dual listing 6600)  
Focuses on characteristics of young adolescents and how middle level schools can be organized to meet those characteristics through interdisciplinary teaming, advisory programs, and exploratory mini-courses. (F)

**TEAL 4610 Curriculum, Methods, and Assessment for the Middle Grades\*\* 3**  
(dual listing 6610)  
Integrates current approaches to curriculum design with instructional models and assessment of learning appropriate for grades 5-9. (Sp)

**TEAL 4620 Service Learning Applications for the Middle Grades 3**  
(dual listing 6620)  
Examines literature related to service learning for the middle grades and application of service learning in curriculum. (Su)

**TEAL 4630 Methods for Teaching Middle-Level Mathematics\*\* 3**  
(dual listing 6630)  
Teaching methods course for elementary teachers seeking a middle-level (Level II) mathematics endorsement. Prerequisites: Satisfactory completion of MATH 1210 and ELED 4060 or an equivalent elementary mathematics methods course. (F)<sup>DE</sup>

**TEAL 4730 Educational Linguistics 3**  
(dual listing 6730)  
Examines theoretical foundations, functions, and characteristics of first language acquisition and language variation in the Pre-K-12 classroom context. Also emphasizes social context of language in K-12 classroom interaction, instruction, and curriculum. Additional requirements for graduate students. (F)<sup>DE</sup>

**TEAL 4745 Second Language Acquisition in the Classroom 3**  
(dual listing 6745)  
Explores the processes of second language acquisition, including the influences of linguistic, cognitive, and sociocultural factors, as well as the relationship to first language acquisition. Emphasizes implications for teaching in the K-12 classroom environment. Additional requirements for graduate students. (Sp)

**TEAL 4760 ESOL Instructional Strategies 3**  
(dual listing 6760)  
Includes strategies for promoting oral language, reading, and writing for K-12 English language learners. Methods for integration for second language learners into the larger school community. Discussion of parental involvement. Prerequisite: Admission into a teacher education program. (F,Su)

**TEAL 4770 ESOL Instructional Strategies in the Content Areas 3**  
(dual listing 6770)  
Focuses on methods which help English language learners in content-area classrooms to increase academic learning and integration into the larger school community. Prerequisite: Admission into a teacher education program. (F,Sp,Su)

**TEAL 4780 Assessment for Language Learners 3**  
(dual listing 6780)  
Explores principles and techniques for developing, analyzing, and interpreting assessment measures for English language learners, including oral, writing, reading, and content-area assessment, as well as assessments used in public schools. Prerequisite: Admission into a teacher education program. (F,Su)<sup>DE</sup>

**TEAL 5560 Special Topics 0.5-4<sup>®</sup>**  
(dual listing 6560)  
Field-based program focusing upon characteristics of effective teaching methodologies, teaching performance, curriculum decision making, value guidelines, and the characteristics of the learner. May be graded with a letter grade or graded as Pass/Fail, as determined by the instructor. Also taught as EDUC 5560/6560. (F,Sp,Su)<sup>DE</sup>

**TEAL 6010 Critical Issues in Secondary Education 3**  
(dual listing 7010)  
Introduces graduate students to critical issues affecting secondary education. Particular attention given to nature of the high school as an institution, its development, and how it functions in today's environment. (Sp,Su)<sup>DE</sup>

**TEAL 6020 Foundations and Change in Early Childhood Education 3**  
(dual listing 7020)  
Survey course designed to acquaint professionals with historical and philosophical foundations of early childhood education, leading to examination of contemporary trends and issues. (Sp)<sup>DE</sup>

**TEAL 6040 Designing and Interpreting Measurements for Assessing Student Learning 3**  
Teachers and instructional supervisors develop their talents for (a) designing and interpreting measurements for monitoring students' learning and (b) interpreting scores from standardized and government-mandated tests. (F,Su)

**TEAL 6050 Theories of Instructional Supervision 3**  
(dual listing 7050)  
Principles and theoretical base of supervision as they relate to improving instructional practices. Emphasizes research findings and recommended practices. Differentiated syllabi provided between master's and doctoral versions. (F,Su)

**TEAL 6080 Leadership and the School Principal\* 3**  
Focuses on the school principalship. Provides an overview of the roles and responsibilities of the principal, with emphasis placed on understanding leadership and instructional leadership. Introduces students to knowledge, dispositions, and skills required of successful school principals. (F,Sp,Su)<sup>DE</sup>

**TEAL 6090 Theories of Organizational Leadership in Education 3**  
(dual listing 7090)  
Introduces prospective school administrators to theories of organizational behavior and practices of managing and leading people within the context of the school organization. Differentiated syllabi provided between master's and doctoral versions. (Sp,Su)

# Course Descriptions

<p><b>TEAL 6100</b>      <b>Motivation and Management in Inclusive Settings</b>      <b>3</b> Leads in-service teachers to develop classroom management strategies for gaining and maintaining students' cooperation. (Sp,Su)<sup>DE</sup></p> <p><b>TEAL 6150</b>      <b>Foundations of Curriculum</b>      <b>3</b> Examination of theories, principles, and foundations of curriculum, emphasizing program planning and current curriculum trends. (F,Su)<sup>DE</sup></p> <p><b>TEAL 6190</b>      <b>Theories of Learning and Models of Teaching</b>      <b>3</b> Reviews the philosophical, psychological, and sociological genealogies behind historical and current theories of learning. Analyzes the approaches, metaphors, and models of teaching that these theories inform. (Sp,Su)<sup>DE</sup></p> <p><b>TEAL 6200</b>      <b>Curriculum and Issues in Early Childhood Education</b>      <b>2</b> Examination of current issues and research topics in early childhood education important to the improvement of K-3 programs. (F)</p> <p><b>TEAL 6220</b>      <b>Workshop in Early Childhood Education</b>      <b>1-6<sup>®</sup></b> Exploration of current topics important in teaching young children. (Su)<sup>DE</sup></p> <p><b>TEAL 6230</b>      <b>Literacy Learning in Early Childhood</b>      <b>3</b> Investigation of early literacy development and effective classroom practices in kindergarten and the primary grades. Relevant research is examined. (F,Su)<sup>DE</sup></p> <p><b>TEAL 6240</b>      <b>Workshop in Science Education</b>      <b>1-6<sup>®</sup></b> Exploration of current topics in science education. (Su)<sup>DE</sup></p> <p><b>TEAL 6250</b>      <b>Graduate Cooperative Work Experience</b>      <b>1-10<sup>®</sup></b> Cooperative education work experience at a professional level. Prior approval required. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>TEAL 6255</b>      <b>Mathematics Curriculum and Instruction</b>      <b>2</b> Examination of current curriculum standards, trends, and effective methods of instruction for mathematics in middle and secondary schools. (Su)</p> <p><b>TEAL 6260</b>      <b>Supervised Practicum in Early Childhood Education</b>      <b>2</b> Encompasses approximately 125 hours of supervised practicum in a kindergarten classroom and observations in prekindergarten settings. Participants demonstrate their ability to integrate and apply early childhood theory and research in kindergarten.<sup>DE</sup></p> <p><b>TEAL 6300</b>      <b>Workshop in Mathematics Education</b>      <b>1-6<sup>®</sup></b> Exploration of current topics and methods in mathematics education. In the past, topics have included: relevant mathematics in rural settings, integration of mathematics and children's literature, and ethnomathematics. (Su)</p> <p><b>TEAL 6305</b>      <b>Secondary English Curriculum and Instruction</b>      <b>2</b> Examination of current curriculum standards, trends, and effective methods of instruction for English/language arts in middle and secondary schools. (Su)</p> <p><b>TEAL 6310</b>      <b>Literacy and Cognition</b>      <b>3</b> Practical approaches for teaching reading/writing and learning skills to elementary, middle, and high school students in all content areas. (F,Su)<sup>DE</sup></p> <p><b>TEAL 6340</b>      <b>Adolescent Literacy Development</b>      <b>3</b> Focuses on instructional practices, as well as research and theory related to fostering the literacy development of middle school and high school students (Sp,Su)<sup>DE</sup></p> <p><b>TEAL 6350</b>      <b>Reading Assessment and Intervention</b>      <b>3</b> Covers the correlates and diagnosis of reading problems, as well as methods and materials for remedial reading instruction. Prerequisites: ELED 3100, 4040; or teaching experience in elementary, middle, or secondary school. (Sp)<sup>DE</sup></p>	<p><b>TEAL 6370</b>      <b>Supervised Internship in Reading and Writing</b>      <b>1-3</b> Individual practicum experience designed to allow graduate students to implement and focus on one or more aspects of reading and writing instruction in a classroom or clinical setting. Prerequisite: Consent of instructor.<sup>DE</sup></p> <p><b>TEAL 6380</b>      <b>Effective Writing Instruction</b>      <b>3</b> Investigates the nature of writing and its theoretical/research base, in order to help students better understand instructional strategies for teaching composition. Primarily focuses on effective methods for teaching and assessing student writing. (Sp,Su)<sup>DE</sup></p> <p><b>TEAL 6390</b>      <b>Teaching with Tradebooks in the Elementary and Middle Level Classroom</b>      <b>3</b> Explores the use of trade books in the elementary and middle level classroom. Focuses on how teachers can use various genres to invite children to read and write. Prerequisite: TEAL 6310. (Su)<sup>DE</sup></p> <p><b>TEAL 6400</b>      <b>Multiple Talent Approach to Teaching</b>      <b>2</b> Explores one model for embedding the teaching of creative and critical thinking in regular curricula. Includes practical application requirements. (Su)</p> <p><b>TEAL 6410</b>      <b>Social Foundations of Education</b>      <b>2</b> Examines current educational issues and trends within contexts of history, philosophy, and cultural foundations. (F,Su)<sup>DE</sup></p> <p><b>TEAL 6420</b>      <b>Education of Gifted and Talented Learners</b>      <b>2</b> Provides multiple cultural and historical perspectives on giftedness and talent. Explores characteristics of gifted individuals, with emphasis on identifying needs. Provides general overview of possible services for gifted learners. Must be taken concurrently with TEAL 6430. (F)<sup>DE</sup></p> <p><b>TEAL 6430</b>      <b>Practicum: Individual Case Study</b>      <b>1</b> Practicum experience in association with TEAL/SCED 6420. Requires intensive supervised study of gifts and talents of individual child of student's choice. Graded Pass/Fail <i>only</i>. Must be taken concurrently with TEAL 6420. (F)<sup>DE</sup></p> <p><b>TEAL 6440</b>      <b>Creativity in Education</b>      <b>2</b> Exploration of theories, research, and strategies concerning creativity, and their application to personal creativity and to improvement of classroom practice. (Su)<sup>DE</sup></p> <p><b>TEAL 6460</b>      <b>Identification and Evaluation in Gifted Education</b>      <b>2</b> Provides educators with theory and models for identifying students as gifted, creative, and talented. Presents models for evaluation of programs for gifted learners. Explores instruments for use in identification and evaluation. Must be taken concurrently with TEAL 6470. (Sp)<sup>DE</sup></p> <p><b>TEAL 6470</b>      <b>Practicum: Team Consultation</b>      <b>1</b> Practicum experience in association with TEAL/SCED 6460. Requires participation, as part of a consultative team, to improve practice in an approved setting for a specific child, classroom, school, school district, or other educational entity. Graded Pass/Fail <i>only</i>. Must be taken concurrently with TEAL 6460. (Sp)<sup>DE</sup></p> <p><b>TEAL 6480</b>      <b>Methods and Materials in Gifted Education</b>      <b>2</b> Explores programming and curriculum models in gifted education, with special attention to the development of instructional materials for use with students. Must be taken concurrently with TEAL 6490. (F)<sup>DE</sup></p> <p><b>TEAL 6490</b>      <b>Practicum: Classroom Applications</b>      <b>1</b> Practicum experience in association with TEAL 6480. Requires application of at least three curriculum, cognitive, or affective models in the student's current teaching assignment. Graded Pass/Fail <i>only</i>. Must be taken concurrently with TEAL 6480. (F)<sup>DE</sup></p> <p><b>TEAL 6500</b>      <b>School Finance and Resource Management</b>      <b>3</b> Focuses on generating, allocating, and managing revenues and resources for public schools. Emphasizes law and policy regarding Utah school finance. (Sp,Su)<sup>DE</sup></p>
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# Course Descriptions

<p><b>TEAL 6505</b>                    <b>Science Curriculum and Instruction</b>                    <b>2</b> Examination of current curriculum standards, trends, and effective methods of instruction for science in middle and secondary schools. Emphasizes science program improvement through investigative lab activities. (Su)</p> <p><b>TEAL 6540</b>                    <b>Data-Based Decision Making for School Leaders</b>                    <b>3</b> Prepares prospective school leaders to conduct research and to collect and analyze data for decision making and program evaluation in schools. (F)</p> <p><b>TEAL 6550</b>                    <b>Practicum in the Evaluation of Instruction</b>                    <b>1-4<sup>®</sup></b> Field-based research study contributing toward graduate degrees. Supervisory licensure related to assessment of ongoing or newly proposed program of instruction. (F,Sp,Su)</p> <p><b>TEAL 6555</b>                    <b>Science Education and the Meaning of Science*</b>                    <b>3</b> Examines the theories and influences shaping the activity of science. Also explores how these theories have been challenged over time, as well as how they influence science education. (Su)</p> <p><b>TEAL 6560</b>                    <b>Special Topics</b>                    <b>0.5-4<sup>®</sup></b> <b>(dual listing 5560)</b> Field-based program focusing upon characteristics of effective teaching methodologies, teaching performance, curriculum decision making, value guidelines, and the characteristics of the learner. May be graded with a letter grade or graded as Pass/Fail, as determined by the instructor. Also taught as EDUC 6560/5560. (F,Sp,Su)</p> <p><b>TEAL 6570</b>                    <b>Advanced Comprehension</b>                    <b>3</b> Designed to enhance teachers' understanding of research and practice related to teaching vocabulary and reading comprehension and fostering motivation for reading. Prerequisite: TEAL 6310. (Alt years)<sup>DE</sup></p> <p><b>TEAL 6580</b>                    <b>Character and Values Education</b>                    <b>2</b> Overview of research, theory, and practical approaches to values education, emphasizing processes of moral development and socialization. (Su)<sup>DE</sup></p> <p><b>TEAL 6590</b>                    <b>Supervising School Reading Program</b>                    <b>3</b> Examines strategies for improving school reading programs. Emphasizes simulations, guided practice, and small group discussions. Prerequisite: TEAL 6350. (F)<sup>DE</sup></p> <p><b>TEAL 6600</b>                    <b>Philosophy and Organization of the Middle Level School**</b>                    <b>3</b> <b>(dual listing 4600)</b> Focuses on characteristics of young adolescents and how middle level schools can be organized to meet those characteristics through interdisciplinary teaming, advisory programs, and exploratory mini-courses. Graduate students have additional course requirements for design and implementation of a project. (F)</p> <p><b>TEAL 6610</b>                    <b>Curriculum, Methods, and Assessment for the Middle Grades**</b>                    <b>3</b> <b>(dual listing 4610)</b> Integrates current approaches to curriculum design with instructional models and assessment of learning appropriate for grades 5-9. To receive credit for 6610, graduate students design and implement an action research project related to curricular or pedagogical interests, then share their findings in class. Project will include review of literature related to student's interest. Prerequisite: TEAL 6600. (Sp)</p> <p><b>TEAL 6620</b>                    <b>Service Learning Applications for the Middle Grades</b>                    <b>3</b> <b>(dual listing 4620)</b> Examines literature related to service learning for the middle grades and application of service learning in curriculum. (Su)</p> <p><b>TEAL 6630</b>                    <b>Methods for Teaching Middle-Level Mathematics**</b>                    <b>3</b> <b>(dual listing 4630)</b> Teaching methods course for elementary teachers seeking a middle-level (Level II) mathematics endorsement. Prerequisites: Satisfactory completion of MATH 1210 and ELED 4060 or an equivalent elementary mathematics methods course.<sup>DE</sup></p>	<p><b>TEAL 6700</b>                    <b>Improvement of Science Instruction</b>                    <b>3</b> For practicing elementary and middle-school teachers or those seeking alternative licensure in science education. Survey of current research in science education and strategies for implementing best practice in classroom settings. Considers a Science/Technology/Society approach to teaching science, as well as the use of action research to improve practice. (F)<sup>DE</sup></p> <p><b>TEAL 6710</b>                    <b>Diversity in Education</b>                    <b>3</b> Analyzes the role of education in a culturally and linguistically diverse society. Examines the place multicultural education and inclusive pedagogies have in advancing educational equity and social justice. Explores multiple ways educators work with and for transnational communities. (Sp,Su)<sup>DE</sup></p> <p><b>TEAL 6720</b>                    <b>Practicum in Science Instruction</b>                    <b>1</b> Optional practicum to be taken semester following enrollment in TEAL 6700. (Sp)<sup>DE</sup></p> <p><b>TEAL 6730</b>                    <b>Educational Linguistics</b>                    <b>3</b> <b>(dual listing 4730)</b> Examines theoretical foundations, functions, and characteristics of first language acquisition and language variation in the Pre-K-12 classroom context. Also emphasizes social context of language in K-12 classroom interaction, instruction, and curriculum. Additional requirements for graduate students. (F,Su)<sup>DE</sup></p> <p><b>TEAL 6740</b>                    <b>School Law*</b>                    <b>3</b> Acquaints students with legal issues relating to public education. Considers rights and responsibilities of students, teachers, and educational practitioners. Relates these rights to school programs and operations as determined by state and federal laws and court decisions. (F,Su)<sup>DE</sup></p> <p><b>TEAL 6745</b>                    <b>Second Language Acquisition in the Classroom</b>                    <b>3</b> <b>(dual listing 4745)</b> Explores the processes of second language acquisition, including the influences of linguistic, cognitive, and sociocultural factors, as well as the relationship to first language acquisition. Emphasizes implications for teaching in the K-12 classroom environment. Additional requirements for graduate students. (Sp)</p> <p><b>TEAL 6750</b>                    <b>Improvement of Mathematics Instruction</b>                    <b>2</b> Examines advanced concepts in curriculum theory and methods of teaching mathematics in the elementary and middle school. Prerequisite: ELED 4060 or teaching experience in elementary or middle school. (Sp)</p> <p><b>TEAL 6760</b>                    <b>ESOL Instructional Strategies</b>                    <b>3</b> <b>(dual listing 4760)</b> Includes strategies for promoting oral language, reading, and writing for K-12 English language learners. Methods for integration for second language learners into the larger school community. Discussion of parental involvement. Prerequisite: Admission into a teacher education program. (F,Sp)</p> <p><b>TEAL 6770</b>                    <b>ESOL Instructional Strategies in the Content Areas</b>                    <b>3</b> <b>(dual listing 4770)</b> Focuses on methods which help English language learners in content-area classrooms to increase academic learning and integration into the larger school community. Prerequisite: Admission into a teacher education program. (F,Sp,Su)</p> <p><b>TEAL 6780</b>                    <b>Assessment for Language Learners</b>                    <b>3</b> <b>(dual listing 4780)</b> Explores principles and techniques for developing, analyzing, and interpreting assessment measures for English language learners, including oral, writing, reading, and content-area assessment, as well as assessments used in public schools. Prerequisite: Admission into a teacher education program. (F,Su)<sup>DE</sup></p> <p><b>TEAL 6800</b>                    <b>Improvement of Social Studies Instruction</b>                    <b>3</b> Emphasizes contemporary research and practice related to K-12 social studies programs. Examines curriculum and methods of instruction surrounding topics such as the interrelationships between global education, multicultural education, and civic education. Prerequisite: ELED 4050 or teaching experience in elementary or middle school. (Su)</p> <p><b>TEAL 6840</b>                    <b>Workshop: Intermountain Conference on Education of the Gifted and Talented</b>                    <b>1-2<sup>®</sup></b> Provides instruction by leading national authorities in gifted and talented education, as well as networking with educators of the gifted from throughout the Intermountain West. Graded Pass/Fail <i>only</i>. (Su)</p>
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# Course Descriptions

<b>TEAL 6900</b> (F,Sp,Su) <sup>DE</sup>	<b>Independent Study</b>	<b>0.5-3<sup>®</sup></b>	<b>TEAL 7055</b> Experience in practical aspects of program evaluation through planned, supervised evaluation project participation approved by student's supervisory committee. Prerequisite: Instructor's approval. (F,Sp,Su)	<b>Internship in Program Evaluation</b>	<b>1-6<sup>®</sup></b>
<b>TEAL 6910</b> (F,Sp,Su)	<b>Independent Research</b>	<b>0.5-3<sup>®</sup></b>	<b>TEAL 7065</b> Experience in conducting research through planned, supervised research project participation approved by student's supervisory committee. Prerequisite: Instructor's approval. (F,Sp,Su)	<b>Internship in Research</b>	<b>1-6<sup>®</sup></b>
<b>TEAL 6930</b> Jointly (with TEAL 6940) provides experience in supervision and administration in elementary school settings as they relate to the performances of the six Interstate School Leaders Licensure Consortium (ISLLC) Standards for School Leaders. Graded Pass/Fail <i>only</i> . Prerequisite: TEAL 6080. (F,Sp,Su) <sup>DE</sup>	<b>Supervision and Administrative Internship—Elementary</b>	<b>3</b>	<b>TEAL 7090</b> Introduces prospective school administrators to theories of organizational behavior and practices of managing and leading people within the context of the school organization. Differentiated syllabi provided between master's and doctoral versions. (Sp,Su)	<b>Theories of Organizational Leadership in Education</b>	<b>3</b>
<b>TEAL 6940</b> Jointly (with TEAL 6930) provides experience in supervision and administration in secondary school settings as they relate to the performances of the six Interstate School Leaders Licensure Consortium (ISLLC) Standards for School Leaders. Graded Pass/Fail <i>only</i> . Prerequisite: TEAL 6080. (F,Sp,Su) <sup>DE</sup>	<b>Supervision and Administrative Internship—Secondary</b>	<b>3</b>	<b>TEAL 7100</b> Application of instructional supervisory theories and practices of supervisory behaviors as they relate to improvement of instruction. Prerequisite: TEAL 7050. (Su)	<b>Practices of Instructional Supervision*</b>	<b>2</b>
<b>TEAL 6945</b> Provides experience in supervision and administration in school systems. (F,Sp,Su)	<b>Supervision and Administration Internship</b>	<b>3</b>	<b>TEAL 7150</b> Examines the origins and development of major historical and contemporary curriculum theories. Considers how these theories affect the organization of the school, while also affecting the lives and work of teachers, administrators, students, and the community. Prerequisite: TEAL 6150. (Sp) <sup>DE</sup>	<b>Curriculum Theory*</b>	<b>3</b>
<b>TEAL 6950</b> Creation of leadership portfolio as culminating activity for completion of Administrative/Supervisory Endorsement. Portfolio includes leadership vision, educational philosophy, and professional resume. Graded Pass/Fail <i>only</i> . (F,Sp,Su) <sup>DE</sup>	<b>Leadership Portfolio Development</b>	<b>1</b>	<b>TEAL 7300</b> Examines relationship of modern school in terms of historical, cultural, and social foundations of education. Prerequisites: TEAL 6410, 7020/6020, or permission of instructor. (F)	<b>Historical, Social, and Cultural Foundations of Education</b>	<b>3</b>
<b>TEAL 6960</b> Individually directed creative project, with a focus closely related to coursework or to area of teaching specialization. Only students pursuing the Plan B MEd option should enroll in this course. Prerequisite: Instructor's approval. (F,Sp,Su) <sup>DE</sup>	<b>Master's Creative Project</b>	<b>3</b>	<b>TEAL 7310</b> Seminar in which learning theories and teaching models/skills are demonstrated, critically examined, and integrated. Prerequisite: Graduate course in educational psychology or equivalent. (Sp) <sup>DE</sup>	<b>Teaching-Learning Foundations in Education</b>	<b>3</b>
<b>TEAL 6970</b> Individually directed work in thesis writing, with guidance from committee chair. Designed for use on MA and MS degrees only. Graded Pass/Fail <i>only</i> . Prerequisite: Instructor's approval. (F,Sp,Su)	<b>Thesis</b>	<b>3-6</b>	<b>TEAL 7320</b> Examination of cognitive and sociocultural research related to K-12 students' acquisition and use of reading, writing, and learning strategies. Explores implications for school policies and classroom instruction. (Sp) <sup>DE</sup>	<b>Theories and Modes of Reading</b>	<b>3</b>
<b>TEAL 6980</b> Individually directed portfolio for students in the MEd Plan B degree, only to be taken at the end of student's program of study. Designed for students to integrate and apply concepts learned in the master's program. Prerequisite: Instructor's approval. (F,Sp,Su)	<b>Portfolio Project</b>	<b>3</b>	<b>TEAL 7325</b> Emphasizes application of theory, research, and effective practice to instructional and curricular improvement. Examines educational change.	<b>Instructional Leadership</b>	<b>3</b>
<b>TEAL 6990</b> Graded Pass/Fail <i>only</i> . (F,Sp,Su) <sup>DE</sup>	<b>Continuing Graduate Advisement</b>	<b>1-9<sup>®</sup></b>	<b>TEAL 7330</b> Directed experiences in supervision with selected public school personnel in approved settings. Experiences arranged by student's graduate committee. Prerequisite: Instructor's approval. (F,Sp,Su)	<b>Internship in Supervision</b>	<b>1-3</b>
<b>TEAL 7000</b> Considers ways and means of providing desirable experiences for student teachers in the public schools. Analysis of roles of classroom teacher and college supervisor. (F,Sp)	<b>Student Teaching Supervision</b>	<b>1-3<sup>®</sup></b>	<b>TEAL 7350</b> Directed experiences in curriculum development with selected public school personnel in approved settings. Experiences arranged by student's graduate committee. Prerequisite: Instructor's approval. (F,Sp,Su) <sup>DE</sup>	<b>Internship in Curriculum Development</b>	<b>1-3</b>
<b>TEAL 7010</b> Introduces graduate students to critical issues affecting secondary education. Particular attention given to nature of the high school as an institution, its development, and how it functions in today's environment. (Sp,Su)	<b>Critical Issues in Secondary Education</b>	<b>3</b>	<b>TEAL 7360</b> Covers classical, historical, and contemporary research studies in literacy, with an emphasis upon understanding and translating findings into classroom practices or clinical settings. Doctoral students complete additional course assignments. Prerequisite: Permission of instructor. (Su) <sup>DE</sup>	<b>Research in Literacy</b>	<b>3</b>
<b>TEAL 7020</b> Survey course designed to acquaint professionals with historical and philosophical foundations of early childhood education, leading to examination of contemporary trends and issues. (Sp)	<b>Foundations and Change in Early Childhood Education</b>	<b>3</b>	<b>TEAL 7500</b> (F,Sp,Su)	<b>Interdisciplinary Workshop</b>	<b>1-2<sup>®</sup></b>
<b>TEAL 7050</b> Principles and theoretical base of supervision as they relate to improving instructional practices. Emphasizes research findings and recommended practices. Differentiated syllabi provided between master's and doctoral versions. (F,Su) <sup>DE</sup>	<b>Theories of Instructional Supervision</b>	<b>3</b>	<b>TEAL 7550</b> Program for graduate students to become acquainted with and demonstrate competency in supervision. (F,Sp,Su)	<b>Evaluation of Supervisory Performance</b>	<b>1-4<sup>®</sup></b>

# Course Descriptions

**TEAL 7810 Research Seminar 1-3<sup>®</sup>**  
 Identification of research problems and critical issues, consideration of critical issues and research methods, and application of data analysis procedures under faculty direction. (F,Sp,Su)

**TEAL 7900 Independent Study 0.5-3<sup>®</sup>**  
 (F,Sp,Su)

**TEAL 7910 Independent Research 0.5-3<sup>®</sup>**  
 (F,Sp,Su)<sup>DE</sup>

**TEAL 7970 Dissertation 1-9<sup>®</sup>**  
 Individual work on research problems in PhD or EdD program. Emphasizes writing and editorial techniques. Graded Pass/Fail *only*. (F,Sp,Su)

**TEAL 7990 Continuing Graduate Advisement 1-9<sup>®</sup>**  
 Graded Pass/Fail *only*. (F,Sp,Su)

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup> This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

## Theatre Arts (THEA)

See *Department of Theatre Arts, pages 468-477*

**THEA 1000 Theatre Orientation for Majors 1**  
 Departmental policies, procedures, requirements, and philosophy. Introduction to fundamental audition and portfolio presentation techniques. (F)

**THEA 1013 BCA Understanding Theatre 3**  
 Survey of dramatic principles and structure, genre, and conventions for nonmajors. Functions and contributions of theatre artists and practices of the contemporary stage. (F,Sp,Su)<sup>DE</sup>

**THEA 1023 BCA Introduction to Film 3**  
 Study of elements of film narrative in fictional and nonfictional movies to provide a deeper understanding of content and film form. (F)<sup>DE</sup>

**THEA 1030 BHU Exploring Performance Through Aesthetic Texts 3**  
 Introduces concepts and practices of performance studies and oral language arts. Integrates interpretation, analysis, and performance of major literary genres and oral forms of communication that contain aesthetic qualities. Students learn theatre techniques to create original performance pieces. (F,Sp,Su)

**THEA 1033 Beginning Acting 3**  
 Demonstration of skills in actor awareness (personal and group), organic acting techniques, scene study with partners, and monologue preparation. Provides understanding of theories and methodologies. Skills demonstrated in areas of body movement, diction, observation, concentration, imagination, and "action." (F,Sp)

**THEA 1113 Beginning Voice 3**  
 Training in basic vocal principles (Rodenburg, Linklater). Covers proper breath placement and support, physical alignment, projection, and resonance. Students learn basic warm-up to prepare the voice for performance. (F)

**THEA 1223 Stage Makeup 2**  
 Emphasizes one-dimensional and three-dimensional illusionary work, focusing on knowledge and skills in "corrective" aging and period makeup, with introductions to related areas, such as hair, hands, and prosthetics. Enrollment restricted to students who are theatre arts majors or who have received departmental authorization. (F,Sp)

**THEA 1430 Movement for Actors I 2**  
 Introductory, experiential course in movement, including Laban Movement Analysis, Alexander Technique, and authentic movement. Improvisation will be emphasized to develop a creative approach to character, emotion, and action through movement. (F,Sp)

**THEA 1513 Stage and Costume Crafts 3**  
 Introduction to different physical theatre forms, standard stage equipment, and methods of staging plays. Basic practices in set construction, stage lighting, sound, and costume construction. Enrollment limited to Theatre Arts majors and to students receiving departmental permission. (F,Sp)

**THEA 1713 Introduction to Playscript Analysis 3**  
 Introductory course focusing on plot, character, language, and thematic analysis of varied historical and modern performance texts in the context of contemporary staging practice. Enrollment limited to theatre majors and minors *only*. (F,Sp)

**THEA 2410 Directing 3**  
 Provides instruction and practice in play selection, script analysis, research, blocking, leadership, communication skills, conduct of rehearsals, self-awareness, production organization and operation, and personal organization for stage direction. Principles apply in professional, civic, and educational settings. Prerequisite: THEA 1033 (F,Sp)

**THEA 2420 Intermediate Acting: Scene Study 3**  
 Scene study from the modern and contemporary theatre using the principles studied in THEA 1033. Prerequisite: THEA 1033. (F,Sp)

**THEA 2430 Movement for Actors II 2**  
 Theory and practice in physical theatre movement styles, including Grotowski, Mime, Commedia dell'Arte, and others. Emphasis on creative approach for projecting character, emotion, and action through use of the body. History and practical experience in advanced movement styles. Prerequisite: THEA 1430. (F,Sp)

**THEA 2440 Introduction to Dance for Theatre: Jazz, Ballet, and Tap 2**  
 Offers an introduction to the three most influential styles of dance in musical theatre: jazz, ballet, and tap. Enables dancers to learn new steps quickly by utilizing the appropriate techniques. Time steps and turns are mastered. (F,Sp)

**THEA 2470 Movement: Stage Combat 3**  
 Techniques in stage combat. Prerequisite: THEA 1430. (F,Sp)

**THEA 2480 Intermediate Voice for Theatre 3**  
 Training in vocal technique, incorporating breath support, vocal range, power, and projection. Training in speech and articulation. Work in various vocal theories (Berry, Linklater, Hart). Instruction in the International Phonetic Alphabet. Prerequisite: THEA 1113. (Sp)

**THEA 2490 Intermediate Acting: Shakespeare 3**  
 Exploring language and techniques of playing Shakespeare through scene study and monologues. Prerequisite: THEA 1033. (F,Sp)

**THEA 2510 Scene Painting 3**  
 Instruction in scene painting techniques. For theatrical technicians and designers. Demonstration and lab work included. Prerequisite: THEA 1513. (F,Sp)

**THEA 2540 Lighting Design 3**  
 Introduction to basic elements of lighting design. Demonstration of techniques used to create and execute a lighting design. Provides basic understanding of light energy, angle, color, and technology available for designing with this medium. (F,Sp)

**THEA 2550 Stage Management 3**  
 Provides problem-solving environment for students to acquire knowledge and skills necessary for becoming a competent stage manager. Discussion of organization, delegation, scheduling, and personnel management. Prerequisite: Permission of instructor. (F,Sp)

**THEA 2555 Production Practicum 1<sup>®</sup>**  
 Specialized crew work in ongoing Theatre Arts Department productions. Assignments made upon meeting with technical director. (F,Sp,Su)

**THEA 2556 Production Run Crew 1<sup>®</sup>**  
 Specialized crew work for Theatre Arts Department productions. Assignments made upon meeting with technical director. (F,Sp,Su)

**THEA 2560 Theatre and Studio Sound 3**  
 Sound recording, reinforcement, and control operation skills for theatrical production. (F,Sp)



# Course Descriptions

<b>THEA 2666</b>	<b>Performance Practicum I</b>	<b>1<sup>®</sup></b>	Performance work in ongoing Theatre Arts Department productions, upon casting by the director. (F,Sp)	<b>THEA 4250</b>	<b>Playwriting</b>	<b>3</b>	Study of dramatic theory and sample plays, combined with practice in writing short plays. Minimum of three plays required. Prerequisite: THEA 1713. Also taught as ENGL 4250. (Sp)
<b>THEA 2667</b>	<b>Performance Practicum II</b>	<b>1<sup>®</sup></b>	Performance work in ongoing Theatre Arts Department productions, upon casting by the director. (F,Sp)	<b>THEA 4300</b>	<b>Clinical Experience in Teaching II</b>	<b>1</b>	Clinical apprenticeship of teaching theatre in local schools, including observation, tutorial work, small group discussions, whole class instruction, and lesson/unit planning. Graded Pass/Fail <i>only</i> . Prerequisite: THEA 3300. (F)
<b>THEA 3050</b>	<b>DHA Period Styles/Historic Interiors</b>	<b>3</b>	Intensive instruction in architecture, furniture, and interior design of major Western European periods from Egyptian to the present. Taught through lectures, slide presentations, and student-compiled source book with examples of major styles. (F,Sp)	<b>THEA 4330</b>	<b>Drama and Theatre for Youth: Grades K-6</b>	<b>3</b>	<b>(dual listing 6330)</b> Practical teaching strategies, tools, and performance techniques for integrating drama and theatre in the classroom and beyond, with special emphasis on language arts curriculum. For graduate credit, students must participate in microteaching sessions with additional research, writing, and/or service assignments. (F,Sp,Su) <sup>DE</sup>
<b>THEA 3230</b>	<b>DHA/CI Survey of Western Theatre</b>	<b>3</b>	History of performance traditions, theatre architecture, management systems, personnel, and written drama in the West from ancient Egypt to mid-20th Century. (F) <sup>DE</sup>	<b>THEA 4400</b>	<b>Company Workshop</b>	<b>3<sup>®</sup></b>	Company workshop of theatrical productions emphasizing process and instruction. Supervised rehearsals, technical preparation, and public performances. Prerequisite: Permission of instructor. (F,Sp)
<b>THEA 3300</b>	<b>Clinical Experience in Teaching I</b>	<b>1</b>	Clinical apprenticeship consisting of teaching theatre in local schools. Includes observation, tutorial work, small group discussions, whole class instruction, and lesson/unit planning. Graded Pass/Fail <i>only</i> . (F,Sp)	<b>THEA 4450</b>	<b>Advanced Voice for Theatre</b>	<b>3</b>	Advanced vocal training includes units in microphone technique, radio drama, classical Greek theatre, and vocal improvisation. Prerequisites: THEA 1113 and 2480. (Sp)
<b>THEA 3410</b>	<b>Dance for Theatre: Tap</b>	<b>1</b>	Builds on tap skills learned in the introductory course, emphasizing mastery of single and double tap sounds and ensuring a solid foundation for elementary and intermediate tap steps commonly used in theatre productions. Prerequisite: THEA 2440. (F,Sp)	<b>THEA 4480</b>	<b>Theatre Leadership and Management</b>	<b>3</b>	<b>(dual listing 6480)</b> Explores legal and financial choices, market research and marketing plans, physical plant and season operations, consideration of union and management relationships, and various planning and budget control procedures. For 6480 credit, graduate students must participate in microteaching sessions with additional practicum, writing, or problem solving assignments. (Sp)
<b>THEA 3420</b>	<b>Dance for Theatre: Jazz</b>	<b>1</b>	Builds on jazz skills learned in the introductory course, incorporating contemporary jazz styles, jazz techniques, and routines used in musical theatre repertory. Prerequisite: THEA 2440. (F,Sp)	<b>THEA 4510</b>	<b>Advanced Scene Design</b>	<b>3</b>	<b>(dual listing 6510)</b> Preparation for graduate school or a career in design. Advanced instruction in drafting, rendering, model-making, technical skills, research, design principles, and portfolio development. For 6510 credit, graduate students must participate in microteaching sessions with additional rendering assignments. Prerequisites: THEA 1513 and 3510. (F,Sp)
<b>THEA 3430</b>	<b>Period Dance Styles</b>	<b>3</b>	Dances learned from different periods then "rechoreographed" for stage practice. Prerequisite: THEA 1430. (F,Sp)	<b>THEA 4520</b>	<b>Advanced Costume Design</b>	<b>3</b>	<b>(dual listing 6520)</b> Advanced theory and practice in the design and selection of costumes for nonrealistic, historical, and modern plays. For 6520 credit, graduate students must participate in microteaching sessions with additional research or practicum assignments. Prerequisite: THEA 3520. (F,Sp)
<b>THEA 3440</b>	<b>Dance for Theatre: Ballet</b>	<b>1</b>	Designed for an in-depth experience in ballet, focusing on technique and learning ballet choreography. Builds on ballet skills learned in the introductory course. Prerequisite: THEA 2440. (F,Sp)	<b>THEA 4540</b>	<b>Advanced Lighting Design</b>	<b>3</b>	<b>(dual listing 6540)</b> Advanced training in elements of lighting design. Exploration of advanced techniques used to create and execute a lighting design. For 6540 credit, graduate students must participate in microteaching sessions with additional research or practicum assignments. Prerequisite: THEA 2540. (Sp)
<b>THEA 3450</b>	<b>DHA Dialects</b>	<b>3</b>	Review of International Phonetic Alphabet. Explores range of regional American and British dialects, as well as specific foreign language dialects. Prerequisites: THEA 1113 and 2480. (F,Sp)	<b>THEA 4740</b>	<b>Advanced Performance Practicum I</b>	<b>1-2<sup>®</sup></b>	Advanced performance work in ongoing Theatre Arts Department productions, upon casting by the director. Director will assign credits. (F,Sp)
<b>THEA 3510</b>	<b>Scene Design</b>	<b>3</b>	Preparation for designing sets used in theatre. Development of skills in drafting, rendering, model-making, research, and portfolio development. Prerequisite: THEA 1513. (F,Sp)	<b>THEA 4750</b>	<b>Advanced Production Practicum</b>	<b>1-3<sup>®</sup></b>	Specialized practical experience in theatre production, including opportunities for advanced work in directing, design, scene and costume construction, stage management, props, sound, and lighting, under the supervision of Theatre Arts Department faculty members. (F,Sp,Su)
<b>THEA 3520</b>	<b>Stage Costume Design</b>	<b>3</b>	Theory and practice in design and selection of costumes for nonrealistic, historical, and modern plays. Study of relationship of costume to character and production. Prerequisites: THEA 1513 and 3570; or permission of instructor. (F,Sp)	<b>THEA 4840</b>	<b>Advanced Performance Practicum II</b>	<b>1-2<sup>®</sup></b>	Advanced performance work in ongoing Theatre Arts Department productions, upon casting by the director. Director will assign credits. (F,Sp)
<b>THEA 3570</b>	<b>DHA Historic Clothing</b>	<b>3</b>	Historic survey of development of clothing from ancient Egyptians to the present day. (F,Su)	<b>THEA 4850</b>	<b>Advanced Production Projects</b>	<b>1-3<sup>®</sup></b>	Specialized practical experience for Theatre Arts Department productions. Assignments made in conjunction with the technical director. (F,Sp,Su)
<b>THEA 4030</b>	<b>DHA Storytelling</b>	<b>3</b>	<b>(dual listing 6030)</b> Reviews background and techniques of traditional telling. Explores psychological, educational, therapeutic, historical, and folkloric aspects of storytelling. For 6030 credit, graduate students must participate in microteaching sessions in areas of expertise, with additional storytelling research or service. (F,Sp,Su) <sup>DE</sup>				

# Course Descriptions

<p><b>THEA 5240 DHA/CI Contemporary Theatre</b> 3<sup>®</sup> (dual listing 6240) History and theory of a theatre movement since the 1980s, primarily in the English-speaking world, leading to a study of the theatrical world and its practices today. For 6240 credit, graduate students must participate in microteaching sessions with additional reading or writing assignments. Prerequisite: THEA 3230. (F,Sp)</p> <p><b>THEA 5250 Playwriting Company Workshop</b> 3<sup>®</sup> Advanced study in playwriting. Course culminates in the performance of original works. Enrollment is contingent on permission of instructor. Theatre Arts majors and students who have completed THEA/ENGL 4250 will have priority. (F)</p> <p><b>THEA 5270 DHA Performance Theory and Criticism</b> 3<sup>®</sup> (dual listing 6270) Topics in dramatic theory, including traditional Aristotelian analysis, comedy, tragedy, and modern and postmodern performance theories. For 6270 credit, graduate students must participate in microteaching sessions with additional research or writing assignments. (Sp)</p> <p><b>THEA 5290 Special Topics in Theatre</b> 3<sup>®</sup> (dual listing 6290) <b>History and Literature</b> Specialized topics in theatre history, performance, and dramatic literature. Sample topics include Classical Theatre of Greece and Rome, Golden Age Spanish Theatre, Elizabethan Theatre, Musical Theatre, Asian Theatre, and others. For 6290 credit, graduate students must participate in microteaching sessions with additional research or writing assignments. Prerequisite: THEA 3230. (F,Sp)</p> <p><b>THEA 5310 Theatre Mentorship and Service</b> 1-3<sup>®</sup> Clinical mentorship of teaching skills, including observation, instruction, and evaluation in specific areas of expertise. Projects may include developing and using drama and theatre practices for service in classroom or community settings. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p><b>THEA 5340 Theatre Production Methods for Educators</b> 3 Specialized practical instruction in technical methods and theatre production for education majors. Required for students in the Theatre Education Emphasis. Prerequisite: THEA 1513. (Sp)</p> <p><b>THEA 5360 Drama in the Secondary Education</b> 3 (dual listing 6360) <b>Classroom: Grades 7-12</b> Practical teaching strategies, tools, and performance and production techniques for meeting core curriculum requirements in the secondary education classroom. Prerequisite: Sophomore-level or higher. (Sp)</p> <p><b>THEA 5370 Methods in Teaching Theatre and Speech</b> 3 Development of materials and strategies for teaching secondary school speech and theatre, and managing secondary theatre drama programs. Prerequisite: Admission to Secondary Teacher Education Program (STEP). (F)</p> <p><b>THEA 5390 Student Teaching Seminar</b> 2 Focuses on problems arising during student teaching. Includes plans, procedures, adaptive classroom strategies, and evaluation. Graded Pass/Fail only. (F,Sp)</p> <p><b>THEA 5400 Advanced Acting: Period Styles I</b> 3<sup>®</sup> Acting techniques covering a variety of historical and physical styles, including a rotation of Greek, Restoration, and Turn of the Twentieth Century. Prerequisites: THEA 1033; and THEA 2420 or 2490. (F,Sp)</p> <p><b>THEA 5410 Advanced Directing</b> 3 (dual listing 6410) Provides instruction and practice in advanced techniques of script analysis, research outside the discipline, review of literature, awareness of thinking styles and values, and preparation for studio directing assignments. Prerequisites: THEA 2410 and permission of instructor. (F,Sp)</p> <p><b>THEA 5420 Advanced Acting: Period Styles II</b> 3<sup>®</sup> Acting techniques covering a variety of historical and physical styles, based upon production needs of current season. Prerequisites: THEA 1033; and THEA 2420 or 2490. (F,Sp)</p>	<p><b>THEA 5430 Advanced Acting: Acting for the Camera</b> 3 Acting for the camera. Prerequisite: THEA 1033. (F,Sp)</p> <p><b>THEA 5440 Advanced Acting: Musical Theatre Auditions</b> 3 Introduction to techniques of musical theatre auditions. Prerequisites: THEA 1033; and THEA 2420 or 2490. (F,Sp)</p> <p><b>THEA 5470 Advanced Acting: Modern Methods</b> 3 Twentieth Century acting techniques, methodologies, and theories. Prerequisites: THEA 1033; and THEA 2420 or 2490. (F,Sp)</p> <p><b>THEA 5510 Computer-Aided Design for Theatre</b> 3 Computer-aided design applications for theatre. Drafting and rendering on computer for set, light, and costume design. Prerequisites: THEA 2540, 3510, 3520. (F)</p> <p><b>THEA 5590 Design Studies for Theatre</b> 2<sup>®</sup> (dual listing 6590) Actualization of a design from conception through completion with faculty supervision. Creation of all drafting, renderings, and/or models for portfolio development. (F,Sp)</p> <p><b>THEA 5740 Repertory Theatre Performance</b> 2-8<sup>®</sup> (dual listing 6740) Rehearsal, crew, and staff assignments. Performance of four plays in repertory. Company members selected through audition, based on ability and commitment to theatre. For 6740 credit, graduate students fulfill mentoring assignments and/or additional assignments in community service. Enrollment limited and by permission of Theatre Arts Department staff. (Su)</p> <p><b>THEA 5750 Repertory Theatre Production</b> 2-8<sup>®</sup> (dual listing 6750) Rehearsal, crew, and staff assignments. Performance of four plays in repertory. For 6750 credit, graduate students work with undergraduate students in mentoring situations. (Su)</p> <p><b>THEA 5900 Special Projects I</b> 1-4<sup>®</sup> Directed individual research studies or creative projects in theatre. (F,Sp,Su)</p> <p><b>THEA 5910 Senior Project</b> 2 Culminating project and/or recital in student's specified program. (F,Sp)</p> <p><b>THEA 5920 Special Projects II</b> 1-4<sup>®</sup> Directed individual research, advanced design, or creative projects in theatre. (F,Sp,Su)</p> <p><b>THEA 5930 Special Projects III</b> 1-4<sup>®</sup> Directed individual advanced design or creative projects in theatre. (F,Sp,Su)</p> <p><b>THEA 5950 Rendering and Painting for the Theatre</b> 3 Hands-on experience for theatrical technicians and designers using a variety of drawing techniques commonly used in theatrical design. Primary method of instruction is demonstration and experience through lab work. (F,Sp)</p> <p><b>THEA 6010 Introduction to Graduate Study in Theatre</b> 3 Bibliography, research methods, and writing. (F)</p> <p><b>THEA 6030 Storytelling</b> 3 (dual listing 4030) Reviews background and techniques of traditional telling. Explores psychological, educational, therapeutic, historical, and folkloric aspects of storytelling. For 6030 credit, graduate students must participate in microteaching sessions in areas of expertise, with additional storytelling research or service. (F,Sp,Su)<sup>DE</sup></p> <p><b>THEA 6180 Theatre Production Portfolio</b> 3 Prepares graduate students for the workplace using portfolio presentation techniques, job applications, resumes, interview techniques, and the creation of a design portfolio. (Sp)</p>
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# Course Descriptions

**THEA 6240 Contemporary Theatre** 3<sup>®</sup>  
**(dual listing 5240)**  
 History and theory of a theatre movement since the 1980s, primarily in the English-speaking world, leading to a study of the theatrical world and its practices today. For 6240 credit, graduate students must participate in microteaching sessions with additional reading or writing assignments. Prerequisite: THEA 3230. (F,Sp)

**THEA 6250 Playwriting** 3  
 Advanced study in playwriting. Course culminates in the performance of original works. Enrollment is contingent on permission of instructor. Theatre Arts majors and students who have completed THEA/ENGL 4250 will have priority. (Sp)

**THEA 6270 Performance Theory and Criticism** 3<sup>®</sup>  
**(dual listing 5270)**  
 Topics in dramatic theory, including traditional Aristotelian analysis, comedy, tragedy, and modern performance theory. Includes preparation for review and adjudication of performance. For 6270 credit, graduate students must participate in microteaching sessions with additional research or writing assignments. (Sp)

**THEA 6290 Special Topics in Theatre** 3<sup>®</sup>  
**(dual listing 5290) History and Literature**  
 Specialized topics in theatre history, performance, and dramatic literature. Sample topics include Classical Theatre of Greece and Rome, Golden Age Spanish Theatre, Elizabethan Theatre, Musical Theatre, Asian Theatre, and others. For 6290 credit, graduate students must participate in microteaching sessions with additional research or writing assignments. Prerequisite: THEA 3230. (F,Sp)

**THEA 6330 Drama and Theatre for Youth: Grades K-6** 3  
**(dual listing 4330)**  
 Practical teaching strategies, tools, and performance techniques for integrating drama and theatre in the classroom and beyond, with special emphasis on language arts curriculum. For graduate credit, students must participate in microteaching sessions with additional research, writing, and/or service assignments. (F,Sp,Su)<sup>DE</sup>

**THEA 6360 Drama in the Secondary Education** 3  
**(dual listing 5360) Classroom: Grades 7-12**  
 Practical teaching strategies, tools, and performance and production techniques for meeting core curriculum requirements in the secondary education classroom. Prerequisite: Sophomore-level or higher. (Sp)

**THEA 6410 Advanced Directing** 3  
**(dual listing 5410)**  
 Provides instruction and practice in advanced techniques of script analysis, research outside the discipline, review of literature, awareness of thinking styles and values, and preparation for studio directing assignments. Prerequisites: THEA 2410 and permission of instructor. (F,Sp)

**THEA 6480 Theatre Leadership and Management** 3  
**(dual listing 4480)**  
 Explores legal and financial choices, market research and marketing plans, physical plant and season operations, consideration of union and management relationships, and various planning and budget control procedures. For 6480 credit, graduate students must participate in microteaching sessions with additional practicum, writing, or problem solving assignments. (Sp)

**THEA 6510 Advanced Scene Design** 3  
**(dual listing 4510)**  
 Preparation for graduate school or a career in design. Advanced instruction in drafting, rendering, model-making, technical skills, research, design principles, and portfolio development. For 6510 credit, graduate students must participate in microteaching sessions with additional rendering assignments. Prerequisites: THEA 1513 and 3510. (F,Sp)

**THEA 6520 Advanced Costume Design** 3  
**(dual listing 4520)**  
 Advanced theory and practice in the design and selection of costumes for nonrealistic, historical, and modern plays. For 6520 credit, graduate students must participate in microteaching sessions with additional research or practicum assignments. Prerequisite: THEA 3520. (F,Sp)

**THEA 6540 Advanced Lighting Design** 3  
**(dual listing 4540)**  
 Advanced training in elements of lighting design. Exploration of advanced techniques used to create and execute a lighting design. For 6540 credit, graduate students must participate in microteaching sessions with additional research or practicum assignments. Prerequisite: THEA 2540. (Sp)

**THEA 6590 Design Studies for Theatre** 2<sup>®</sup>  
**(dual listing 5590)**  
 Actualization of a design from conception through completion with faculty supervision. Creation of all drafting, renderings, and/or models for portfolio development. (F,Sp)

**THEA 6740 Repertory Theatre Performance** 2-8<sup>®</sup>  
**(dual listing 5740)**  
 Rehearsal, crew, and staff assignments. Performance of four plays in repertory. Company members selected through audition, based on ability and commitment to theatre. For 6740 credit, graduate students fulfill mentoring assignments and/or additional assignments in community service. Enrollment limited and by permission of Theatre Arts Department staff. (Su)

**THEA 6750 Repertory Theatre Production** 2-8<sup>®</sup>  
**(dual listing 5750)**  
 Rehearsal, crew, and staff assignments. Performance of four plays in repertory. For 6750 credit, graduate students work with undergraduate students in mentoring situations. (Su)

**THEA 6790 Seminar in Drama** 1-4<sup>®</sup>  
 Flexible service topics course covering a range of topics according to individual student need and/or visiting instructors, independent study, etc. (F,Sp)

**THEA 6800 Graduate Studies in Theatre** 1-6<sup>®</sup>  
 Research and preparation for graduate practicum projects in theatre. (F,Sp)

**THEA 6900 Research Studies** 1-4<sup>®</sup>  
 Directed individual research studies or creative projects in theatre. (F,Sp,Su)

**THEA 6920 Graduate Projects in Theatre** 2-3<sup>®</sup>  
 Studio practicum in support of projects in stage directing, design, and technical practice. (F,Sp)

**THEA 6970 Thesis** 1-4<sup>®</sup>  
 Graded Pass/Fail only. (F,Sp)

**THEA 6990 Continuing Graduate Advisement** 1-2<sup>®</sup>  
 Graded Pass/Fail only. (F,Sp)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## University Studies (USU)

See *General Education Requirements*, pages 67-69

Also see *University Studies Depth Education Requirements*, pages 70-75

**USU 1000 Introduction to Computers and Information Literacy** 1  
 Introduction to basic concepts of computers and information literacy. Preparation for USU Computer and Information Literacy (CIL) test. For students having some familiarity with computers, but needing additional instruction. Graded Pass/Fail only. Taught during the first seven weeks of fall or spring semester. **Note:** USU 1000 *cannot* be counted toward the breadth requirements. (F,Sp)<sup>DE</sup>

**USU 1010 University Connections** 1-3  
 Provides an environment of challenge and support to help new students make a successful transition to USU. Class curriculum and activities provide an environment wherein students become familiar with the broad academic, social, and cultural opportunities offered by USU and the surrounding community. **Note:** USU 1010 *cannot* be counted toward the breadth requirements. (F,Sp)<sup>DE</sup>

# Course Descriptions

**USU 1100 First-Year Seminar 3**  
 Characterized by investigation of a topic that is most likely a research, scholarly, or artistic specialty of the faculty member. Topic presented in pedagogically interesting ways. May include fieldwork or trips to enhance study of the topic.  
**Note:** USU 1100 *cannot* be counted toward the breadth requirements.

**USU 1300 BAI U.S. Institutions 3**  
 Provides basic understanding of the history, principles, form of government, and economic system of the United States. Emphasis on ideas and critical thinking, rather than dates, names, and places. (F,Sp,Su)<sup>DE</sup>

**USU 1320 BHU Civilization: Humanities 3**  
 Provides basic understanding of a broad range of themes, which cut across human history and continue to be important in contemporary society. (F,Sp,Su)<sup>DE</sup>

**USU 1330 BCA Civilization: Creative Arts 3**  
 Students will explore questions such as: What is Art? How is it judged? How does artistic expression vary across cultures? Course will cover several forms of art, and students will attend concerts, visit galleries, and attend theatrical performances. (F,Sp,Su)<sup>DE</sup>

**USU 1340 BSS Social Systems and Issues 3**  
 Examines debates in the social sciences about contexts which shape human experience. Compares experiences between life stages, individuals, groups, societies, and/or historical periods. Contrasts different social science disciplines. (F,Sp,Su)<sup>DE</sup>

**USU 1350 BLS Integrated Life Science 3**  
 Interdisciplinary course focusing on basic concepts of life science. Demonstrates role of modeling, prediction, and observation in the process of scientific discovery, which occurs within an historical and social context. (F,Sp,Su)<sup>DE</sup>

**USU 1360 BPS Integrated Physical Science 3**  
 Interdisciplinary course focusing on basic concepts of physical science, including structure of matter and magnitude and character of the forces of nature. Demonstrates role of modeling, prediction, and observation in the process of scientific discovery, which occurs within an historical and social context.<sup>DE</sup>

**USU 3330 DHA Arts Symposium 1-2<sup>®</sup>**  
 Students attend a number of cultural events offered at USU and in the community, as well as write critiques of the events. Prerequisite: Completion of at least 30 credits. **Note:** USU 3330 may be applied to the depth requirements, but *not* to the breadth requirements. Two credits of USU 3330 are needed to fulfill the DHA requirement.

**USU 4900 Undergraduate Research 1-3**  
 Research experience pursued with a faculty mentor. Prior to registration, student must make arrangements with a faculty mentor within his or her department.  
**Note:** USU 4900 *cannot* be counted toward fulfillment of University Studies requirements.

**USU 6900 Responsible Conduct of Research 1**  
 Provides an underpinning of ethical conduct for students entering into the research enterprise while at USU. Designed for upper-level undergraduates and graduate students, with each weekly session being split between lecture and discussion activities. Subjects covered include those required of all trainees being supported on Public Health Service grants. **Note:** USU 6900 *cannot* be counted toward fulfillment of University Studies requirements.

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

## Watershed Sciences (WATS)

See Department of Watershed Sciences, pages 479-482

**WATS 1020 Watershed Sciences Professional Orientation 1**  
 Introduction and orientation to natural resource/environmental disciplines and related professional careers for Watershed Sciences majors. Discussion of education, curricula, faculty, professional societies, and employment opportunities. Graded Pass/Fail only. (F)<sup>DE</sup>

**WATS 1200 BLS Biodiversity and Sustainability 3**  
 Provides students with an understanding of the biodiversity dilemma and the impact our species is having on natural ecosystems. Today, species extinctions occur at an alarming rate. These losses of biodiversity occur because of changes humans have made to the habitats and biogeochemical cycles of our planet. The last third of the course focuses on ways to mitigate these impacts. (F,Sp)

**WATS 2250 Introductory Internship/Co-op 1-3<sup>®</sup>**  
 Introductory-level educational experience in internship/cooperative education position approved by department. Prerequisite: Permission of department. (F,Sp,Su)

**WATS 2930 Introduction to Geographic Information Sciences 4**  
 Introduces students to background and theory behind global position systems and remote sensing. Through the use and development of maps, students learn to integrate information from different geographic sources. Includes a weekly laboratory section. (F)

**WATS 3000 DSC Oceanography 3**  
 Examines fundamental interrelationships between physical environment of the oceans and the life forms they support. Suitable for nonbiologists. (Sp)

**WATS 3100 DSC/CI Fish Diversity and Conservation 3**  
 Systematics, physiology, ecology, evolution, and conservation of major groups of marine and freshwater fishes. Stresses functional morphology, physiological ecology, and community interactions explaining fish abundance and distribution. Prerequisite: BIOL 1010 or 1610 or 1620. (F)<sup>DE</sup>

**WATS 3110 Fish Diversity Laboratory 1**  
 Focuses on field collection, identification, and habitat relationships of freshwater fishes in North America. Prerequisite: WATS 3100 (may be taken concurrently). (F)

**WATS 3600 Geomorphology 4**  
 Geomorphic processes, origin of landforms and surficial deposits. Emphasizes fluvial and hillslope landscape elements, and surficial geologic mapping. Three one-hour lectures and one three-hour lab per week. Prerequisite: GEO 1010 or 1110 or GEOG 1000. Also taught as GEO 3600. (F)

**WATS 3700 CI Fundamentals of Watershed Science 3**  
 Study of water movement, hillslope processes, and nutrient movement in catchments, and its relevance to the properties, land use, and management of watersheds as natural resource units. (Sp)<sup>DE</sup>

**WATS 3820 DSC/QI Climate Change 3**  
 Emphasizes physical basis of climate (climate dynamics), as well as the mechanisms and processes for its fluctuations on sub-seasonal to interannual time scales (climate variations) and on regional to hemispheric/global time scales. Prerequisite: CLIM 2000 or GEOG 1000. Also taught as CLIM 3820. (Sp)

**WATS 4250 Advanced Internship/Co-op 1-9<sup>®</sup>**  
 Internship/cooperative education work experience; increased complexity to help student gain a more professional level of experience. Prerequisite: Permission of department. (F,Sp,Su)

**WATS 4310 Wetland Ecology and Management 3 (dual listing 6310)**  
 Explores the physical, chemical, and biological structure of wetlands. Focuses on the major types of wetlands found in North America, as well as their ecology and management; U.S. wetland policy and mitigation; and regional, national, and global impacts on restoration of wetlands. (Sp)

**WATS 4490 Small Watershed Hydrology\*\*\* 4 (dual listing 5490)**  
 Detailed exploration of concepts of hydrologic processes in small, wildland watersheds. Concentrates on recent research findings concerning key hydrological processes. Particular attention paid to study of partitioning of water in the hydrologic cycle, sources for runoff generation, snow and snowmelt, and erosion. Features process modeling and parameter estimation techniques as related to wildland systems. Prerequisites: MATH 1210, WATS 3700. (F)

# Course Descriptions

<p><b>WATS 4500</b>                      <b>Limnology: Ecology of Inland Waters</b>                      <b>3</b> (dual listing 6500) Ecosystem analysis of physical, chemical, and biological interactions in lakes and streams. Application of these concepts for managing aquatic system. Graduate students write an additional research paper and present a lecture. Prerequisite: CHEM 1210. (Sp)<sup>DE</sup></p>	<p><b>WATS 5170</b>                      <b>Fluvial Geomorphology Lab</b>                      <b>2</b> (dual listing 6170) Field analysis focuses on physical processes in streams which control their shape, plan form, slope, bed material, and distribution of channel bars. Application of geomorphology to aquatic ecology and environmental restoration. Also taught as GEO 5170/6170. (F)</p>
<p><b>WATS 4510</b>                      <b>Aquatic Ecology Practicum</b>                      <b>3</b> Integration of limnological theory and methods of conducting field and laboratory analyses of physical, chemical, and biological parameters. Students will design and conduct their own research project within the framework of a general water quality or fishery issue addressed by the class. Development of analytical, statistical, and writing skills. Field trips required. Prerequisites: WATS 4500; STAT 3000 (may be taken concurrently). (F)</p>	<p><b>WATS 5200</b>                      <b>Fish Habitat Relationships in Managed Forests</b>                      <b>3</b> Examines biological and social factors influencing aquatic ecosystems and fish habitats within the context of forest management. Analyzes ecological relationships of fish habitats within forest ecosystem, and how these are influenced by forest management practices. Provides examples of forest habitat issues in major regions of North America, illustrating that both biological and social factors must be considered in developing management strategies and programs. (F)</p>
<p><b>WATS 4530</b>                      <b>Water Quality and Pollution</b>                      <b>3</b> (dual listing 6530) Reviews biological and social problems caused by point and nonpoint source water pollution; toxicology; abiotic and biotic water quality parameters; and use criteria of the Clean Water Act. Graduate-level class will require additional readings of the peer-reviewed literature and an additional class meeting to have in-depth discussions of those readings. Each graduate student will be responsible for making a presentation at the beginning of class, and leading the discussion. (Sp)</p>	<p><b>WATS 5250</b>                      <b>Remote Sensing of Land Surfaces</b>                      <b>4</b> (dual listing 6250) Basic principles of radiation and remote sensing. Techniques for ground-based measurements of reflected and emitted radiation, as well as ancillary data collection to support airborne and satellite remote sensing studies in agriculture, geography, and hydrology. Prerequisites: MATH 1100 or 1210; and PHYS 2110 or 2210. Also taught as BIE 5250/6250 and CLIM 5250/6250. (Sp)</p>
<p><b>WATS 4650</b>                      <b>Principles in Fishery Management</b>                      <b>3</b> (dual listing 6650) Emphasizes management of fish populations within context of community and ecosystem dynamics. Stresses use of simulation models to assess effects of growth, recruitment, and mortality on age-structured populations. (Sp)<sup>DE</sup></p>	<p><b>WATS 5330</b>                      <b>Large River Management</b>                      <b>3</b> (dual listing 6330) Focuses on constituencies participating in modern management of large river basins, including water developers, irrigators, municipalities, power consumers, recreationists, environmentalists, and scientists. Primary examples drawn from Colorado, Columbia, Rio Grande, and Missouri river basins. (Sp)</p>
<p><b>WATS 4750</b>                      <b>Fundamentals of Remote Sensing Science</b>                      <b>3</b> (dual listing 6740) Develops the scientific principles behind remote sensing. Examines the basic physics of electromagnetic radiation and the interactions of radiation with the surface and the atmosphere. Prerequisites: MATH 1060, 1210; PHYS 2210. (F)</p>	<p><b>WATS 5490</b>                      <b>Small Watershed Hydrology***</b>                      <b>4</b> (dual listing 4490) Detailed exploration of concepts of hydrologic processes in small, wildland watersheds. Concentrates on recent research findings concerning examining key hydrological processes. Particular attention paid to study of partitioning of water in the hydrologic cycle, sources for runoff generation, snow and snowmelt, and erosion. Features process modeling and parameter estimation techniques as related to wildland systems. Additional oral and written assignments required for graduate students. Prerequisites: MATH 1210, WATS 3700. (F)</p>
<p><b>WATS 4930</b>                      <b>Geographic Information Systems</b>                      <b>4</b> (dual listing 6920) Examines structure and operation of Geographic Information Systems (GIS). Explores design, theory, and implementation of GIS software, digitizing, fundamentals of vector and raster GIS processing, georeferencing, map accuracy, and site location. To receive graduate-level credit, students must complete a more rigorous final project directed toward their thesis or dissertation. To qualify for enrollment in WATS 4930, students must have achieved a class rank of junior or senior, or must receive permission from the instructor. (F)<sup>DE</sup></p>	<p><b>WATS 5550</b>                      <b>Freshwater Invertebrates</b>                      <b>3</b> Ecology, collection, and systematics of freshwater aquatic invertebrates. Focuses on insects, but also covers crustaceans, molluscs, and annelids. Several weekend field trips and a collection are required. Prerequisite: One year of general biology or zoology, or permission of instructor. Also taught as BIOL 5550. (Sp)</p>
<p><b>WATS 4950</b>                      <b>Special Topics</b>                      <b>1-3<sup>®</sup></b> Individual study and research upon selected watershed sciences problems. (F,Sp,Su)</p>	<p><b>WATS 5600</b>                      <b>Surface Hydrologic Field Methods</b>                      <b>3</b> (dual listing 6600) Hydrologic concepts and terminology taught through collection, analysis, and interpretation of hydrologic data. Emphasizes principles and practice of several hydrologic measurements and water sampling in natural and manmade environments. Prerequisite: SOIL 3000 or instructor's permission. Also taught as SOIL 5600/6600. Not currently being taught. Contact department for further information.</p>
<p><b>WATS 4960</b>                      <b>Directed Readings</b>                      <b>1-3<sup>®</sup></b> Provides one-on-one interaction between student and instructor. Prerequisite: Permission of department. (F,Sp,Su)</p>	<p><b>WATS 5640</b>                      <b>Riparian Ecology and Management</b>                      <b>3</b> (dual listing 7640) Explores structure and function of riparian ecosystems and management options for maintaining sustainable ecological function. Prerequisites: NR/BIOL 2220, WATS 3700. (Sp)</p>
<p><b>WATS 4970</b>                      <b>Undergraduate Research</b>                      <b>1-3<sup>®</sup></b> Individual or team research. Prerequisite: Permission of department. (F,Sp,Su)</p>	<p><b>WATS 5660</b>                      <b>Watershed and Stream Restoration</b>                      <b>2</b> Overview of the current theory and practice of watersheds and streams. Emphasizes field visits with restoration projects and specialists. Prerequisites: WATS/WILD 5490/4490, WATS/GEO 5150, WILD 5610 (or equivalent). Currently taught through Regional Campuses and Distance Education as a summer short course. (Su)</p>
<p><b>WATS 4980</b>                      <b>Watershed Sciences Departmental Seminar</b>                      <b>1<sup>®</sup></b> (dual listing 6800 and 7800) Exposes students to new developments in research and management in the fields of watershed sciences. Features participation by students, faculty, and guest lecturers. Graduate students should register for only one semester each year, but attend all year. Undergraduate students are only required to register once. Graduate students will participate in an additional reading and discussion group for the seminars. Graded Pass/Fail only. (F,Sp)</p>	<p><b>WATS 5670</b>                      <b>Watersheds and Stream Restoration Practicum</b>                      <b>2</b> Capstone experience. Development of a restoration plan for a site, involving site planning and design. Currently taught through Regional Campuses and Distance Education as a summer short course. (Su)</p>
<p><b>WATS 5150</b>                      <b>Fluvial Geomorphology</b>                      <b>3</b> (dual listing 6150) Focuses on physical processes in streams that control their shape, plan form, slope, bed material, and distribution of channel bars. Emphasizes field analysis of these topics, and application of geomorphology to aquatic ecology and environmental restoration. Also taught as GEO 5150/6150. (F)</p>	

# Course Descriptions

<b>WATS 5680</b> <b>(dual listing 6680)</b>	<b>Paleoclimatology*</b>	<b>3</b>	<b>WATS 6310</b> <b>(dual listing 4310)</b>	<b>Wetland Ecology and Management</b>	<b>3</b>
Covers climate through the past four billion years of geologic time. Explores driving forces behind climate changes. Examines data and methods used in paleoclimate research. Includes discussion of literature and stresses local paleoclimate records. Three lectures per week, along with field trips. Prerequisite: GEO/WATS 3600 or permission of instructor. Also taught as GEO 5680/6680 and CLIM 5680/6680. (Sp)			Explores the physical, chemical, and biological structure of wetlands. Focuses on the major types of wetlands found in North America, as well as their ecology and management; U.S. wetland policy and mitigation; and regional, national, and global impacts on restoration of wetlands. (Sp)		
<b>WATS 5760</b> <b>(dual listing 6760)</b>	<b>Remote Sensing: Modeling and Analysis</b>	<b>3</b>	<b>WATS 6330</b> <b>(dual listing 5330)</b>	<b>Large River Management</b>	<b>3</b>
Advanced techniques in the analysis of the earth's surface using remotely-sensed imagery and data in a digital format. Projects employ and/or develop research models. (Sp)			Focuses on the scientific basis of river management and the constituencies participating in modern management of large rivers, including water developers, irrigators, municipalities, power consumers, recreationists, environmentalists, and scientists. Primary examples drawn from Colorado, Columbia, Rio Grande, and Missouri river basins. (Sp)		
<b>WATS 5930</b> <b>(dual listing 6930)</b>	<b>Geographic Information Analysis</b>	<b>3</b>	<b>WATS 6500</b> <b>(dual listing 4500)</b>	<b>Limnology: Ecology of Inland Waters</b>	<b>3</b>
Techniques of geographic information systems, data structures, data input and output, and data manipulation and analysis. Prerequisites: STAT 2000 or higher; WATS 4930 or ENVS 3500, or instructor's permission. (Sp) <sup>DE</sup>			Ecosystem analysis of physical, chemical, and biological interactions in lakes and streams. Application of these concepts for managing aquatic system. Graduate students write an additional research paper and present a lecture. Prerequisite: CHEM 1210. (Sp) <sup>DE</sup>		
<b>WATS 6120</b> <b>(dual listing 7120)</b>	<b>Aquatic Production Biology**</b>	<b>2</b>	<b>WATS 6520</b>	<b>Applied Hydraulics**</b>	<b>3</b>
Review of current literature on bacterial, algal, invertebrate, and fish production in lakes, rivers, and the sea. Particular emphasis is placed on whole-ecosystem productivity studies. (Sp)			Basic fluid mechanics applied to wildland watershed systems and directed at nonengineering students. Explores nature of fluid state, fluid motion, and steady uniform and varied flow in open channels, under both subcritical and supercritical conditions. Surveys concepts of boundary layers, turbulence, convection, dispersal, and wave formation in unsteady flows. Emphasizes problem formulation and solving. Prerequisites: WATS 5490/4490; MATH 2280 (recommended). Also taught as CEE 6520. (Sp)		
<b>WATS 6150</b> <b>(dual listing 5150)</b>	<b>Fluvial Geomorphology</b>	<b>3</b>	<b>WATS 6530</b> <b>(dual listing 4530)</b>	<b>Water Quality and Pollution</b>	<b>3</b>
Focuses on physical processes in streams that control their shape, plan form, slope, bed material, and distribution of channel bars. Emphasizes field analysis of these topics, and application of geomorphology to aquatic ecology and environmental restoration. Also taught as GEO 6150/5150. (F)			Reviews biological and social problems caused by point and nonpoint source water pollution; toxicology; abiotic and biotic water quality parameters; and use criteria of the Clean Water Act. Graduate-level class will require additional readings of the peer-reviewed literature and an additional class meeting to have in-depth discussions of those readings. Each graduate student will be responsible for making a presentation at the beginning of class, and leading the discussion. (Sp)		
<b>WATS 6160</b>	<b>Hillslope and Landscape Geomorphology**</b>	<b>3</b>	<b>WATS 6550</b>	<b>Assessment of Abundance and Related Parameters for Biological Populations</b>	<b>3</b>
Includes basics of hillslope weathering, transport, and hydrologic processes. Surveys classic and recent literature on hillslope-scale and landscape-scale geomorphic research. Three lectures and several Saturday field trips. Prerequisite: GEO/WATS 3600. Also taught as GEO 6160. (Sp)			Students learn to estimate population abundance and associated error bounds using mark-recapture, area-swept, declining catch, line-transect, and other techniques. Emphasizes sampling design considerations to match objectives of an assessment to appropriate/feasible level of accuracy and precision. (Sp)		
<b>WATS 6170</b> <b>(dual listing 5170)</b>	<b>Fluvial Geomorphology Lab</b>	<b>2</b>	<b>WATS 6600</b> <b>(dual listing 5600)</b>	<b>Surface Hydrologic Field Methods</b>	<b>3</b>
Field analysis focuses on physical processes in streams which control their shape, plan form, slope, bed material, and distribution of channel bars. Application of geomorphology to aquatic ecology and environmental restoration. Also taught as GEO 6170/5170. (F)			Hydrologic concepts and terminology taught through collection, analysis, and interpretation of hydrologic data. Emphasizes principles and practice of several hydrologic measurements and water sampling in natural and manmade environments. Prerequisite: SOIL 3000 or instructor's permission. Also taught as SOIL 6600/5600. Not currently being taught. Contact department for further information.		
<b>WATS 6200</b>	<b>Watershed Analysis**</b>	<b>2</b>	<b>WATS 6650</b> <b>(dual listing 4650)</b>	<b>Principles in Fishery Management</b>	<b>3</b>
Explores watershed analysis, which is a procedure used to characterize the human, aquatic, riparian, and upland features, conditions, processes, and interactions within a watershed. Watershed analysis includes ecosystem analysis at the watershed level, providing a systematic way to understand and organize system information for the purpose of understanding the consequences of management actions prior to implementation. (Sp)			Emphasizes management of fish populations within context of community and ecosystem dynamics. Stresses use of simulation models to assess effects of growth, recruitment, and mortality on age-structured populations. (Sp) <sup>DE</sup>		
<b>WATS 6230</b> <b>(dual listing 7230)</b>	<b>Fish Ecology**</b>	<b>2</b>	<b>WATS 6680</b> <b>(dual listing 5680)</b>	<b>Paleoclimatology*</b>	<b>3</b>
Reviews current literature on physiological, behavioral, population, and the community ecology of fishes. Particular emphasis placed on current literature relevant to management of sport and endangered freshwater species. (Sp)			Covers climate through the past four billion years of geologic time. Explores driving forces behind climate changes. Examines data and methods used in paleoclimate research. Includes discussion of literature and stresses local paleoclimate records. Three lectures per week, along with field trips. Prerequisite: GEO/WATS 3600 or permission of instructor. Also taught as GEO 6680/5680 and CLIM 6680/5680. (Sp)		
<b>WATS 6240</b>	<b>Graduate Internship/Co-op</b>	<b>1-9<sup>®</sup></b>			
Graduate-level educational experience in internship/cooperative education position approved by department. (F,Sp,Su)					
<b>WATS 6250</b> <b>(dual listing 5250)</b>	<b>Remote Sensing of Land Surfaces</b>	<b>4</b>			
Basic principles of radiation and remote sensing. Techniques for ground-based measurements of reflected and emitted radiation, as well as ancillary data collection to support airborne and satellite remote sensing studies in agriculture, geography, and hydrology. Prerequisites: MATH 1100 or 1210; and PHYS 2110 or 2210. Also taught as BIE 6250/5250 and CLIM 6250/5250. (Sp)					

# Course Descriptions

**WATS 6700 Restoration Ecology 3**

Provides an understanding of ecological restoration, how to determine restoration goals, how to establish targets, and how to determine what are good measures of success. Teaches restoration implementation, best practices for restoration monitoring, and how to develop and sustain community support for restoration. (Sp)

**WATS 6740 Fundamentals of Remote Sensing Science 3 (dual listing 4750)**

Develops the scientific principles behind remote sensing. Examines the basic physics of electromagnetic radiation and the interactions of radiation with the surface and the atmosphere. Prerequisites: MATH 1060, 1210; PHYS 2210. (F)

**WATS 6760 Remote Sensing: Modeling and Analysis 3 (dual listing 5760)**

Advanced techniques in the analysis of the earth's surface using remotely-sensed imagery and data in a digital format. Projects employ and/or develop research models. (Sp)

**WATS 6800 Watershed Sciences 1<sup>®</sup> (dual listing 4980 and 7800) Departmental Seminar**

Exposes students to new developments in research and management in the fields of watershed sciences. Features participation by students, faculty, and guest lecturers. Graduate students should register for only one semester each year, but attend all year. Undergraduate students are only required to register once. Graduate students will participate in an additional reading and discussion group for the seminars. Graded Pass/Fail only. (F,Sp)

**WATS 6820 Stream Ecology 3 (dual listing 7820)**

Explores structure, function, and dynamics of flowing water ecosystems. (F)

**WATS 6870 Ecology Seminar 1<sup>®</sup>**

The Ecology Center schedules regular seminars throughout the school year with ecological scientists from other institutions participating. Ecology majors are required to attend a minimum of 10 such lectures. Graded Pass/Fail only. Students should register for fall semester, but attend through spring semester. Also taught as BIOL 6870, ENVS 6870, PSC 6870, and WILD 6870. (F,Sp)

**WATS 6900 Graduate Special Topics 1-6<sup>®</sup>**

Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)<sup>DE</sup>

**WATS 6910 Directed Study 1-6<sup>®</sup>**

Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)

**WATS 6920 Geographic Information Systems 4 (dual listing 4930)**

Examines structure and operation of Geographic Information Systems (GIS). Explores design, theory, and implementation of GIS software, digitizing, fundamentals of vector and raster GIS processing, georeferencing, map accuracy, and site location. To receive graduate-level credit, students must complete a more rigorous final project directed toward their thesis or dissertation. To qualify for enrollment in WATS 4930, students must have achieved a class rank of junior or senior, or must receive permission from the instructor. (F)<sup>DE</sup>

**WATS 6930 Geographic Information Analysis 3 (dual listing 5930)**

Techniques of geographic information systems, data structures, data input and output, and data manipulation and analysis. Prerequisites: STAT 2000 or higher; WATS 4930 or ENVS 3500, or instructor's permission. (Sp)<sup>DE</sup>

**WATS 6940 Snow Hydrology 3**

Focuses on snow science, including atmospheric formation, precipitation, distribution on the landscape, metamorphosis prior to melt, and snow pack melt dynamics. Also covers related issues, such as snow melt modeling, remote sensing, water supply, and biogeochemical cycling. Prerequisites: WATS 3700 or 4600 or SOIL 4600 or CEE 3430, or permission of instructor. Also taught as CEE 6940. (Sp)

**WATS 6960 Graduate General Ecology 4**

General concepts, history, and issues in all major areas of the science of ecology including: environmental biophysics; and physiological, behavioral, evolutionary, community, ecosystem, and applied ecology in both terrestrial and aquatic environments. Also taught as BIOL 6960, ENVS 6960, PSC 6960, and WILD 6960. (F)

**WATS 6970 Thesis Research 1-12<sup>®</sup>**

Offers credit for field or laboratory research at master's level. Graded Pass/Fail only. (F,Sp,Su)

**WATS 6990 Continuing Graduate Advisement 1-9<sup>®</sup>**

Offers credit for students currently enrolled in a master's program, who are not currently taking classes. Students may be conducting research or waiting for final approval from School of Graduate Studies. Graded Pass/Fail only. (F,Sp,Su)

**WATS 7120 Aquatic Production Biology\* 2 (dual listing 6120)**

Review of current literature on bacterial, algal, invertebrate, and fish production in lakes, rivers, and the sea. Particular emphasis is placed on whole-ecosystem productivity studies. (Sp)

**WATS 7230 Fish Ecology\* 2 (dual listing 6230)**

Reviews current literature on physiological, behavioral, population, and the community ecology of fishes. Particular emphasis placed on current literature relevant to management of sport and endangered freshwater species. (Sp)

**WATS 7640 Riparian Ecology and Management 3 (dual listing 5640)**

Explores structure and function of riparian ecosystems and management options for maintaining sustainable ecological function. Prerequisites: NR/BIOL 2220, WATS 3700. (Sp)

**WATS 7800 Watershed Sciences 1<sup>®</sup> (dual listing 4980 and 6800) Departmental Seminar**

Exposes students to new developments in research and management in the fields of watershed sciences. Features participation by students, faculty, and guest lecturers. Graduate students should register for only one semester each year, but attend all year. Undergraduate students are only required to register once. Graduate students will participate in an additional reading and discussion group for the seminars. Graded Pass/Fail only. (F,Sp)

**WATS 7820 Stream Ecology 3 (dual listing 6820)**

Explores structure, function, and dynamics of flowing water ecosystems. (F)

**WATS 7900 Graduate Special Topics 1-6<sup>®</sup>**

Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)

**WATS 7910 Directed Study 1-6<sup>®</sup>**

Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)

**WATS 7970 Dissertation Research 1-12<sup>®</sup>**

Offers credit for field or laboratory research at doctoral level. Graded Pass/Fail only. (F,Sp,Su)

**WATS 7990 Continuing Graduate Advisement 1-9<sup>®</sup>**

Offers credit for students currently enrolled in a doctoral program, who are not currently taking classes. Students may be conducting research or waiting for final approval from School of Graduate Studies. Graded Pass/Fail only. (F,Sp,Su)

<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>DE</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu/>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

\*\*\*This course is taught alternating years. Check with department for information about when course will be taught.

## Women and Gender Studies (WGS)

See *Women and Gender Studies*, page 488

<b>WGS 1010</b>	<b>BSS</b>	<b>Introduction to Women and Gender Studies</b>	<b>3</b>
Survey course covering fundamentals of women and gender studies. Explores women's and men's diverse experiences, perspectives, and contributions to society and its institutions. Examines cultural beliefs and stereotypes concerning women's and men's roles in society. Reviews feminist theory, socialization, ideology, and history of women's movement. (Sp)			
<b>WGS 2010</b>		<b>Women and Leadership</b>	<b>3</b>
Engages students in academic and practical experiences that strengthen their sense of self and prepare them to pursue leadership roles. Discussion of research and readings pertinent to the study of women's leadership and activism. Development of and participation in a personal leadership project providing a substantive opportunity to apply information and skills learned through the class. (Sp)			
<b>WGS 4410</b>		<b>Gender and the Mass Media</b>	<b>3</b>
<b>(dual listing 6410)</b> Examines the nature of gender-based images in a variety of mass media, from advertising to magazines, television, and film. Analysis of gender stereotypes and portrayals in news and entertainment media, along with resulting social impacts. Prerequisites: Fulfillment of Communications Literacy CL2 requirement; junior standing or instructor permission. Also taught as JCOM 4410/6410. (F)			
<b>WGS 4550</b>	<b>DHA/CI</b>	<b>Women and Gender in America</b>	<b>3</b>
Writing intensive course drawing on film, primary documents, and readings to trace the history of women, emphasizing race, class, and gender influences of each era. Also taught as HIST 4550. (F)			
<b>WGS 4900</b>		<b>Directed Study: Women and Gender Studies</b>	<b>1-3<sup>®</sup></b>
Directed research, writing, and reading in relation to gender studies. Provides students with an in-depth opportunity to work individually with a faculty member. Contract for work to be completed must be signed by the Women and Gender Studies director, the faculty member, and the student, then filed with the Women and Gender Studies Program. Prerequisite: Permission of program chair. (F,Sp,Su)			
<b>WGS 6410</b>		<b>Gender and the Mass Media</b>	<b>3</b>
<b>(dual listing 4410)</b> Examines the nature of gender-based images in a variety of mass media, from advertising to magazines, television, and film. Analysis of gender stereotypes and portrayals in news and entertainment media, along with resulting social impacts. Enrollment in WGS 6410 limited to graduate students <i>only</i> . Also taught as JCOM 6410/4410. (F)			

<sup>®</sup> Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

## Wildland Resources (WILD)

See *Department of Wildland Resources*, pages 483-487

<b>WILD 2000</b>		<b>Introduction to Forest, Range, and Wildlife Sciences</b>	<b>1</b>
With a combination of field trips, computer lab exercises, and classroom discussions, students gain an overview of forest, range, and wildlife sciences, including a review of career opportunities for students completing a BS degree in forest, range, or wildlife. (F,Sp) <sup>DE</sup>			
<b>WILD 2200</b>	<b>BLS</b>	<b>Ecology of Our Changing World</b>	<b>3</b>
Foundations of ecological and evolutionary relationships of organisms with other organisms and with the physical environment, emphasizing populations, communities, and ecosystems. Integration of basic science with applications of science to understanding human interactions with the environment. (F,Sp) <sup>DE</sup>			

<b>WILD 2250</b>		<b>Introductory Internship/Co-op</b>	<b>1-3<sup>®</sup></b>
Introductory-level educational experience in internship/cooperative education position approved by department. Prerequisite: Departmental signature. (F,Sp,Su) <sup>DE</sup>			
<b>WILD 2300</b>		<b>Mushroom Identification</b>	<b>1</b>
Lecture course covering taxonomy, ecology, and importance of macro and micro fungi. Also taught as BIOL 2300. (F)			
<b>WILD 2310</b>		<b>Mushroom Identification Lab</b>	<b>1-2<sup>®</sup></b>
Lab course acquainting students with basic fungal taxonomic groups. Students collect, preserve, and identify fungi they collect. Edible fungi prepared and eaten. Also taught as BIOL 2310. (F)			
<b>WILD 2500</b>		<b>Computer Applications in Natural Resources</b>	<b>3</b>
Advanced spreadsheet, graphics, aerial photography, and Geographic Information Systems for natural resource management. (F) <sup>DE</sup>			
<b>WILD 3300</b>	<b>CI</b>	<b>Management Aspects of Wildlife Behavior</b>	<b>3</b>
Principles, concepts, and mechanisms of animal behavior, emphasizing behavioral ecology, development, and comparative aspects of special relevance to management of fish and wildlife. Prerequisites: BIOL 1610, 1620, and BIOL/NR 2220. (Sp)			
<b>WILD 3600</b>		<b>Wildland Plant Ecology and Identification</b>	<b>4</b>
Autecology and identification of dominant grass, forb, and woody plants of the Intermountain West. Emphasizes native species; however, introduced or noxious weeds are included. Explores plant structure and function, as related to the environment. Enrollment limited to WILD Department majors. Department authorization required for all nonmajors. (F) <sup>DE</sup>			
<b>WILD 3610</b>		<b>Wildland Animal Ecology and Identification</b>	<b>4</b>
Autecology and identification of important mammals, birds, reptiles, and amphibians of the Intermountain West. Emphasizes native species distribution and habitat requirements in relation to the environment. Prerequisite: NR/BIOL 2220. Enrollment limited to WILD Department majors. Department authorization required for all nonmajors. (F)			
<b>WILD 3800</b>		<b>Wildland Ecosystems</b>	<b>3</b>
Structure, function, and dynamics of terrestrial ecosystems in response to natural and anthropogenic impacts, with emphasis on the vegetation of the Intermountain West and Great Plains. Prerequisites: NR/BIOL 2220; and SOIL 3000 (or concurrent enrollment). (Sp)			
<b>WILD 3810</b>		<b>Plant and Animal Populations</b>	<b>3</b>
Basics of plant and animal population ecology, including population regulation, life histories, single and multi-species interactions, and metapopulations. Case studies will cover topics of both management and conservation concern. Prerequisites: NR/BIOL 2220, MATH 1100 or higher. (Sp)			
<b>WILD 4000</b>		<b>Principles of Rangeland Management</b>	<b>3</b>
Modern principles of rangeland management, including history of the profession, ecology, plant physiology, impacts of grazing on individual plants and plant communities, grazing management, range animal nutrition, rangeland watersheds, and the economics and planning of rangeland practices. Also introduces range-wildlife relations and vegetation manipulation. (Sp)			
<b>WILD 4050</b>		<b>Urban Fish and Wildlife Management</b>	<b>3</b>
Concentrates on: understanding impacts of urbanization on wildlife and habitat; developing basic understanding of wildlife needs; completing urban wildlife habitat inventory; and preparing urban wildlife conservation and management plan. (F,Sp,Su)			
<b>WILD 4250</b>		<b>Advanced Internship/Co-op</b>	<b>1-9<sup>®</sup></b>
Advanced-level educational experience in internship/cooperative education position approved by department. Prerequisite: Departmental signature. (F,Sp,Su) <sup>DE</sup>			
<b>WILD 4500</b>		<b>Principles of Wildlife Management</b>	<b>3</b>
Provides students with a working knowledge of the application of basic concepts in ecology and animal behavior to the management of wildlife resources to achieve diverse objectives of conservation, control, or cropping. Prerequisites: WILD 3610 and 3810. (Sp)			



# Course Descriptions

<p><b>WILD 4520 Wildland Fire Behavior</b> 3 Comprehensive examination of fuels, weather, and topography and how they interact to determine wildland fire behavior, including rate of spread, energy release, and intensity. This course is being offered in WebCT format. For information, contact the department. (F,Sp,Su)</p> <p><b>WILD 4540 Forest Harvest and Utilization</b> 2 Elements of timber harvest systems, including policies and practices for minimizing biophysical impacts. Utilization of wood resources. (F)</p> <p><b>WILD 4550 Wildlife Law Enforcement</b> 3 Explores essential topics relating to enforcement of wildlife and other natural resource laws, including applicable state and federal laws, policy formulation, rights of the individual, search and seizure, field forensic procedures, and the judicial process. (F)</p> <p><b>WILD 4600 Conservation Biology*</b> 3 Patterns and processes creating biological diversity. Causes and consequences of diversity losses from genes to ecosystems, including habitat fragmentation and exotic invasion. Conservation laws and organizations. Approaches to conserving diversity loss, including reserve design, corridors, and species reintroductions. Prerequisite: NR/BIOL 2220. (Sp)</p> <p><b>WILD 4700 Ecological Foundations of Restoration</b> 3 Explores meanings of "restoration," use of reference communities, restoration of processes versus structure, species reintroductions, managing natural processes to meet restoration goals, and fundamentals of physiological, population, community, and ecosystem ecology from a restoration perspective. Prerequisites: NR/BIOL 2220, WILD 4850. (Sp)</p> <p><b>WILD 4750 CI Monitoring and Assessment in Natural Resource and Environmental Management</b> 3 Lectures, laboratory exercises, and field-based projects introduce students to the concepts, strategies, and analytical methods of natural resource and environmental monitoring and assessment. Prerequisites: BIOL/NR 2220; MATH 1100 or higher; STAT 2000 or 3000; and passing score on the University Studies Computer and Information Literacy (CIL) exam. (F)</p> <p><b>WILD 4810 Directed Reading in Wildlife Damage Management</b> 2 Focuses on wildlife damage management, especially as it reflects on both positive and negative human-wildlife interactions. For this reading course, students work with instructor to develop appropriate and rigorous reading program. (F,Sp,Su)<sup>DE</sup></p> <p><b>WILD 4850 Vegetation and Habitat Management</b> 3 Applying ecological principles and concepts to manipulate the composition, structure, and productivity of wildland vegetation for a range of objectives, including the creation and maintenance of wildlife habitat, using biological, chemical, and mechanical methods, as well as fire. Prerequisites: SOIL 3000; WILD 3600. (F)</p> <p><b>WILD 4880 Genetics in Conservation and Management</b> 3 Introduces principles of modern genetics, with applications, examples, and assignments related to ecology and management issues. Emphasizes genetic marker systems, gene flow, genetic drift, and adaptation. Prerequisites: CHEM 1110 or 1210; and BIOL 1610. (F)</p> <p><b>WILD 4900 Managing Dynamic Ecological Systems</b> 3 Emphasizes how people from diverse natural resource disciplines benefit from integrating Eastern and Western philosophical and cultural beliefs with behavioral principles and processes to manage dynamic systems with due consideration for the ecological, cultural, and economic values of societies. (Sp)</p> <p><b>WILD 4910 Assessment and Synthesis in Natural Resource Science</b> 3 Science-based assessments of natural resources conducted through implementation of analytical methods and synthesis. Case studies used to develop concepts, strategies, and problem-solving skills. Basic GIS and remote sensing skills developed. Prerequisites: WILD 3600, 3610, 3800, 3810, and 4750. (Sp)</p>	<p><b>WILD 4950 Special Topics</b> 1-3<sup>®</sup> Individual study and research upon selected problems. Prerequisite: Departmental permission. (F,Sp,Su)<sup>DE</sup></p> <p><b>WILD 4960 Directed Readings</b> 1-3<sup>®</sup> Individual reading research on forest, range, and wildlife science readings. Prerequisite: Departmental approval. (F,Sp,Su)</p> <p><b>WILD 4970 Undergraduate Research</b> 1-3<sup>®</sup> Individual or team research. Prerequisite: Departmental permission. (F,Sp,Su)<sup>DE</sup></p> <p><b>WILD 4980 Undergraduate Seminar</b> 1<sup>®</sup> Intended to bring upperclassmen up-to-date on topics in forest, range, and wildlife sciences. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>WILD 5000 Predator Ecology and Management*</b> 3 Reviews biology, ecology, theory, management, and policy issues involving large vertebrate predators. Uses case histories to explore predation theory, population ecology, natural history, and management strategies. (Sp)</p> <p><b>WILD 5070 Range Wildlife Relations (dual listing 6070)</b> 3 Explores interactions on rangelands between wild and domestic ungulates, as well as other wildlife forms around the world, but with emphasis on western North America. Prerequisite: WILD 3610 or permission of instructor. (F)</p> <p><b>WILD 5100 Wildlife Management Laboratory</b> 3 Familiarizes students with variety of wildlife management and research techniques and strategies, including techniques to catch, mark, and restrain wild animals; monitoring wildlife populations; measuring physiological parameters; measuring habitat variables; assessing and preventing wildlife damage; and interpreting and analyzing biological data. (F)</p> <p><b>WILD 5220 Community-based Conservation (dual listing 7220) Partnerships**</b> 3 Seeks to infuse ecology with applied conservation and management approaches. Conservation and management of natural resources requires an understanding of ecological relationships and strategies for working with diverse stakeholders. PhD-level students present their research. (Sp)</p> <p><b>WILD 5300 Wildlife Damage Management Principles (dual listing 7300)</b> 3 Explains current legal, ethical, and biological principles for the control and/or management of problem vertebrate species. (Sp)</p> <p><b>WILD 5350 Wildland Soils (dual listing 6350)</b> 3 Application of basic principles of soil science to wildland ecosystems. Effects of disturbance and land use on wildland soil properties. Role of soils in natural resource management. Prerequisites: CHEM 1110; SOIL 3000, and one additional upper-division Soils course, or permission of instructor. Also taught as SOIL 5350/6350. (Sp)</p> <p><b>WILD 5420 CI Forest and Shade Tree Pathology</b> 3 Nature, cause, and management of forest diseases. Also taught as BIOL 5420 and PLSC 5420. (Sp)</p> <p><b>WILD 5430 Advanced Forest Pathology</b> 2 In-depth exploration of forest pathology issues, focusing on ecosystem-level processes. (Sp)</p> <p><b>WILD 5460 Avalanche and Snow Dynamics</b> 2 Fundamentals of snow and avalanche dynamics. Avalanche safety, forecasting, hazard evaluation, and control. (Sp—first half)</p> <p><b>WILD 5510 Forest Entomology</b> 2 Basic insect taxonomy, life histories, structure, and function. Ecological relationships, recognition, and management of insects of economic importance to forestry. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>WILD 5650 Urban/Community Forestry</b> 3 Social, biological, and administrative aspects of managing urban/community forests, including field and classroom exercises and a management planning project. Also taught as PLSC 5650. (Sp)<sup>DE</sup></p>
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# Course Descriptions

<p><b>WILD 5700 Forest Assessment and Management</b> 3 Detailed analysis of forest stand structure and growth. Development of silvicultural prescriptions to meet specific objectives. Analysis of costs and benefits of alternative forest management strategies. Emphasizes forest management to achieve a broad range of objectives. (Sp)</p> <p><b>WILD 5710 Wildland Disturbance: Ecology and Management</b> 3 Examines causes, effects, and management options for selected biotic and abiotic agents of disturbance in wildland ecosystems. (F)</p> <p><b>WILD 5750 Applied Remote Sensing</b> 3 <b>(dual listing 6750)</b> Covers the application of remote sensing to landcover mapping and resource monitoring at a quantitative level. Students instructed on the effects of atmosphere and surface interaction on the reflectance collected by electro-optical sensors, as well as on the proper use and interpretation of various calibration and classification algorithms. (F)</p> <p><b>WILD 5860 Poisonous Range Plants Affecting Livestock**</b> 3 Poisonous plants of rangelands and their effects on grazing animals, especially livestock. Management practices to reduce or prevent poisoning. Also taught as ADVS 5860. (Sp)</p> <p><b>WILD 6000 Grazing Systems**</b> 2 Overview and analysis of various strategies for managing grazing on rangelands. Special attention given to ecological mechanisms by which a particular grazing system may benefit livestock production or the sustainability of rangeland resources. (Sp)</p> <p><b>WILD 6050 Rangeland Fire Ecology and Fire Prescription Development</b> 3 Provides understanding of the role prescribed and natural fires have in western U.S. rangeland plant communities, and when fire can be used to achieve a specific plant community. Students learn basics of fire behavior and ignition techniques, and how to write prescribed fire use plans. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>WILD 6070 Range Wildlife Relations</b> 3 <b>(dual listing 5070)</b> Explores interactions on rangelands between wild and domestic ungulates, as well as other wildlife forms around the world, but with emphasis on western North America. Prerequisite: WILD 3610 or permission of instructor. (F)</p> <p><b>WILD 6200 Biogeochemistry of Terrestrial Ecosystems**</b> 3 Inputs, outputs, and cycling patterns of major nutrients. Emphasis on mechanisms for transformations, factors influencing process rates, and the impacts of management and global change on nutrient cycles and air and water quality. Prerequisites: BIOL 1620, SOIL 3000, CHEM 2300 or 2310, or permission of instructor. Also taught as BIOL 6200 and SOIL 6200. (F)</p> <p><b>WILD 6240 Graduate Internship/Co-op</b> 1-9® Graduate-level educational experience in internship/cooperative education position approved by department. (F,Sp,Su)</p> <p><b>WILD 6270 Advanced Silviculture</b> 3 In forestry, there is a trend toward more complex silviculture to implement increasingly complex stand-level objectives. This course covers important techniques used in the development and implementation of silvicultural prescriptions for this sort of stand management. Prerequisite: Permission of instructor. (Sp)</p> <p><b>WILD 6350 Wildland Soils</b> 3 <b>(dual listing 5350)</b> Application of basic principles of soil science to wildland ecosystems. Effects of disturbance and land use on wildland soil properties. Role of soils in natural resource management. Prerequisites: CHEM 1110; SOIL 3000, and one additional upper-division Soils course, or permission of instructor. Also taught as SOIL 6350/5350. (Sp)</p>	<p><b>WILD 6400 Ecology of Animal Populations*</b> 4 Growth, fluctuation, balance, and control of animal populations. Prerequisite: NR/BIOL 2220 or equivalent. (F)</p> <p><b>WILD 6420 Vegetation Sampling Design</b> 4 Advanced intrastand vegetation sampling design and elementary (nonmultivariate) between stand comparisons, primarily for research purposes. Prerequisites: STAT 5200; WILD 6770. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>WILD 6500 Biometry: Design and Analysis of Ecology Research</b> 4 Examines research design from statistical perspective, showing how data analysis is largely determined by research design and its implementation. Reviews statistical tools for analysis of ecological data in the context of design. Prerequisite: Graduate standing. (F)</p> <p><b>WILD 6510 Topics in Spatial Ecology**</b> 1-3® Seminars on analysis and interpretation of spatially explicit ecological data. Topics vary yearly, and range from spatial statistics to assessing uncertainty in environmental information systems to spatial analyses of plant and animal populations. Prerequisites: Graduate-level course in statistics and permission of instructor. (Sp)</p> <p><b>WILD 6610 Regional Terrestrial Ecosystems</b> 4 Synthesis of structural, functional, and regulatory processes and their interactions with humans in terrestrial ecosystems found in the Intermountain West and Great Plains. Prerequisites: NR/BIOL 2220, SOIL 3000; or equivalent courses. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>WILD 6710 Landscape Ecology</b> 3 <b>(dual listing 7710)</b> Focuses on landscape-scale patterns and processes, and ways of understanding ecological complexity. Explores conceptual underpinnings of larger-scale ecology. Emphasizes understanding of current peer-reviewed literature. (Sp)</p> <p><b>WILD 6720 Advanced Conservation Biology*</b> 3 <b>(dual listing 7720)</b> Examines cases and consequences of population and species declines, including activities such as habitat fragmentation and introduction of exotic species, as well as natural causes due to genetics and demography. (Sp)</p> <p><b>WILD 6740 Physical Processes in Remote Sensing</b> 3 Assures that students are well-versed in the science and technology of remote sensing. Covers various algorithms and their ability to extract biophysical information from remotely sensed images. Helps students gain firm knowledge of the capabilities and limitations of these algorithms and their use in understanding landscape level biophysical interactions. (Sp)</p> <p><b>WILD 6750 Applied Remote Sensing</b> 3 <b>(dual listing 5750)</b> Covers the application of remote sensing to landcover mapping and resource monitoring at a quantitative level. Students instructed on the effects of atmosphere and surface interaction on the reflectance collected by electro-optical sensors, as well as on the proper use and interpretation of various calibration and classification algorithms. (F)</p> <p><b>WILD 6770 Plant Community Ecology*</b> 3 Theory and concepts of plant community ecology. Plant community composition, distribution in space, and dynamics in time. Species environmental response models, competition theory, statistical predictive models, and concepts of multivariate analysis in plant ecology. (Sp)</p> <p><b>WILD 6800 Forest, Range, and Wildlife Sciences Departmental Seminar</b> 1® <b>(dual listing 7800)</b> Review of current research by graduate students and faculty. Exposes students to new developments in research and management in the fields of wildland resources. Features participation by students, faculty, and guest lecturers. Graduate students should register for only one semester each year, but should attend all year. Graded Pass/Fail <i>only</i>. (F,Sp)</p>
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# Course Descriptions

<p><b>WILD 6850</b>                    <b>Population Ecology</b>                    <b>3</b>  <b>(dual listing 7850)</b>            Using framework of mathematical modeling, reviews basic ecological processes (e.g., competition, predation, and environmental stresses) that determine numbers of individuals in plant and animal populations. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>WILD 6870</b>                    <b>Ecology Seminar</b>                    <b>1<sup>®</sup></b>            The Ecology Center schedules regular seminars throughout the school year with ecological scientists from other institutions participating. Ecology majors are required to attend a minimum of 10 such lectures. Graded Pass/Fail <i>only</i>. Students should register for fall semester, but attend through spring semester. Also taught as BIOL 6870, ENVS 6870, PSC 6870, and WATS 6870. (F,Sp)</p> <p><b>WILD 6880</b>                    <b>Current Issues in Conservation</b>  <b>(dual listing 7880)</b>                    <b>Genetics and Management*</b>                    <b>2</b>            Reviews variety of topics in fast-moving field of conservation genetics. Explores management applications and implications, with particular emphasis on current primary literature. Recommended prerequisite: Prior course in genetics. (Sp)</p> <p><b>WILD 6900</b>                    <b>Graduate Special Topics</b>                    <b>1-6<sup>®</sup></b>            Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)<sup>®E</sup></p> <p><b>WILD 6910</b>                    <b>Directed Study</b>                    <b>1-6<sup>®</sup></b>            Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)</p> <p><b>WILD 6960</b>                    <b>Graduate General Ecology</b>                    <b>4</b>            General concepts, history, and issues in all major areas of the science of ecology including: environmental biophysics; and physiological, behavioral, evolutionary, community, ecosystem, and applied ecology in both terrestrial and aquatic environments. Also taught as BIOL 6960, ENVS 6960, PSC 6960, and WATS 6960. (F)</p> <p><b>WILD 6970</b>                    <b>Thesis Research</b>                    <b>1-12<sup>®</sup></b>            Original research for MS degree on a topic in rangeland resources. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>WILD 6990</b>                    <b>Continuing Graduate Advisement</b>                    <b>1-9<sup>®</sup></b>            Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>WILD 7000</b>                    <b>Theory and Applications of Rangeland</b>  <b>Ecosystem Management</b>                    <b>3</b>            Application of range management principles, new theory, and public policy to on-the-ground decision-making in public and private lands. Field trips required. (F,Su)</p> <p><b>WILD 7030</b>                    <b>Plant-Herbivore Interactions*</b>                    <b>3</b>            Emphasizes principles of self-organization as applied to plant (tolerance and avoidance of herbivory) and herbivore (food and habitat selection) behavior. Stresses importance of history and ongoing interactions with the environment in understanding the dynamics of plant-herbivore interactions. (Sp)</p> <p><b>WILD 7200</b>                    <b>Plant Physiological Ecology**</b>                    <b>3</b>            Plant response to environmental factors; includes environmental biophysics, physical and physiological factors influencing productivity, water use, resistance to stress, reproduction, establishment of plants, and competition with neighboring plants. (F)</p> <p><b>WILD 7220</b>                    <b>Community-based Conservation</b>  <b>(dual listing 5220)</b>                    <b>Partnerships**</b>                    <b>3</b>            Seeks to infuse ecology with applied conservation and management approaches. Conservation and management of natural resources requires an understanding of ecological relationships and strategies for working with diverse stakeholders. PhD-level students present their research. (Sp)</p>	<p><b>WILD 7300</b>                    <b>Wildlife Damage Management Principles</b>                    <b>3</b>  <b>(dual listing 5300)</b>            Explains current legal, ethical, and biological principles for the control and/or management of problem vertebrate species. (Sp)</p> <p><b>WILD 7400</b>                    <b>Plant Population Ecology*</b>                    <b>3</b>            Dynamics of plant populations as influenced by interactions with their abiotic and, especially, biotic environments. Topics include dormancy and germination strategies, intra- and interspecific competition, facilitation, disturbance, herbivory, pathogenic and mutualistic fungi, pollination, seed dispersal, and vegetative reproduction. (F)</p> <p><b>WILD 7420</b>                    <b>Analysis of Ecological Communities**</b>                    <b>5</b>            Advanced treatment of classification and ordination of ecological communities, emphasizing ecological data structures and methods of common use in ecological research. Prerequisite: STAT 3000 or WILD 6500 or consent of instructor. (Sp)</p> <p><b>WILD 7710</b>                    <b>Landscape Ecology</b>                    <b>3</b>  <b>(dual listing 6710)</b>            Focuses on landscape-scale patterns and processes, and ways of understanding ecological complexity. Explores conceptual underpinnings of larger-scale ecology. Emphasizes understanding of current peer-reviewed literature. (Sp)</p> <p><b>WILD 7720</b>                    <b>Advanced Conservation Biology*</b>                    <b>3</b>  <b>(dual listing 6720)</b>            Examines cases and consequences of population and species declines, including activities such as habitat fragmentation and introduction of exotic species, as well as natural causes due to genetics and demography. (Sp)</p> <p><b>WILD 7800</b>                    <b>Forest, Range, and Wildlife</b>  <b>(dual listing 6800)</b>                    <b>Sciences Departmental Seminar</b>                    <b>1<sup>®</sup></b>            Review of current research by graduate students and faculty. Exposes students to new developments in research and management in the fields of wildland resources. Features participation by students, faculty, and guest lecturers. Graduate students should register for only one semester each year, but should attend all year. Graded Pass/Fail <i>only</i>. (F,Sp)</p> <p><b>WILD 7850</b>                    <b>Population Ecology</b>                    <b>3</b>  <b>(dual listing 6850)</b>            Using framework of mathematical modeling, reviews basic ecological processes (e.g., competition, predation, and environmental stresses) that determine numbers of individuals in plant and animal populations. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p><b>WILD 7880</b>                    <b>Current Issues in Conservation</b>  <b>(dual listing 6880)</b>                    <b>Genetics and Management*</b>                    <b>2</b>            Reviews variety of topics in fast-moving field of conservation genetics. Explores management applications and implications, with particular emphasis on current primary literature. Recommended prerequisite: Prior course in genetics. (Sp)</p> <p><b>WILD 7900</b>                    <b>Graduate Special Topics</b>                    <b>1-6<sup>®</sup></b>            Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)</p> <p><b>WILD 7910</b>                    <b>Directed Study</b>                    <b>1-6<sup>®</sup></b>            Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)</p> <p><b>WILD 7970</b>                    <b>Dissertation Research</b>                    <b>1-12<sup>®</sup></b>            Original research and study for PhD degree. Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p> <p><b>WILD 7990</b>                    <b>Continuing Graduate Advisement</b>                    <b>1-9<sup>®</sup></b>            Graded Pass/Fail <i>only</i>. (F,Sp,Su)</p>
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<sup>®</sup>Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

<sup>®E</sup>This course may be available through Regional Campuses and Distance Education (RCDE), and may be offered through multiple delivery methods. Current RCDE offerings may be viewed at: <http://distance.usu.edu>

\*Taught 2010-2011.

\*\*Taught 2009-2010.

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