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UtahState **UNIVERSITY**

2006-2007

General Catalog

University Advising and Transfer Services
Taggart Student Center 304
Utah State University
0114 Old Main Hill
Logan UT 84322-0114

Telephone (435) 797-3373 or 1-800-606-4878
Facsimile (435) 797-8067
Web Home Page <http://www.usu.edu>

President's Message

Welcome to Utah State University!

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.

Stan L. Albrecht
President of Utah State University

Statement on Institutional Integrity

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.

UTAH STATE UNIVERSITY BULLETIN USPS 6542-6000

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Mission and Role Statement

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 43 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 state 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 which is responsible for implementing the assigned roles, including the appointment of personnel and the enactment of rules and governing regulations.

Utah State University is one of two Tier One institutions in the state, the other being the University of Utah. Both universities are categorized as public research universities.

USU is governed by the State Board of Regents and accredited by Northwest Association of Schools and Colleges, National Council for Accreditation of Teacher Education, 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 a Carnegie Foundation “Doctoral/Research University-Extensive” institution. Credit earned at USU is fully transferable to other universities and colleges in the United States of America.

University Mission Statement

The mission of Utah State University is to be one of the nation’s premier student-centered land-grant and space-grant universities by fostering the principle that academics come first; by cultivating diversity of thought and culture; and by serving the public through learning, discovery, and engagement.

University Role Statement

Utah State University fulfills a unique role in the Utah System of Higher Education as the state’s land-grant and space-grant university. The land-grant designation makes Utah State responsible for statewide programs in agriculture, business, education, engineering, natural resources, sciences, family life, 4-H youth, and the traditional core of liberal learning: humanities, arts, and social sciences. The University gives particular emphasis to programs involving the interaction of land, people, and the environment.

Utah State University is also a “Doctoral/Research University-Extensive” institution, as designated by the Carnegie Corporation, meaning that, in selected areas historically associated with its designation as a land-grant and space-grant university, it provides doctoral and master’s level education and supports and expects of its faculty significant research efforts. The University offers a broad array of doctoral and master’s level degrees in areas appropriate to its mission. Hands-on learning is also a hallmark of its undergraduate programs.

As a space-grant institution, Utah State University plays a preeminent role in the development of the sciences and engineering associated with research and teaching about outer space. This includes the mission of the Space Dynamics Laboratory and its related components on the Innovation Campus.

Utah State develops knowledge as part of its discovery mission, as reflected in research generated by the Utah Agricultural Experiment Station and the Utah Water Research Laboratory, and disseminates this knowledge through technical assistance provided by Cooperative Extension in each of the state’s 29 counties. The land-grant mission also means that Utah State delivers degrees through Continuing Education programs, whether through on-site or technologically delivered, time-enhanced methods throughout the state.

Taken together, these designations as a land-grant and space-grant university also mean that Utah State University has a leading role in economic development of the state and the region. These goals are realized through the effective transfer of research from the laboratory to commercial enterprises. To that end, Utah State University has an aggressive position in the identification of intellectual property, the commercialization of new technologies, and the development of research programs that will be of benefit to the state. USU also brings government, business, and education together on its Innovation Campus with the goal of stimulating economic development.

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.

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Using This Catalog

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 13 weeks and includes one four-week early session, followed by a workshop session, and one eight-week session, which will contain two four-week sessions.

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. For more specific information, refer to the current *Schedule of Classes*. To obtain credit, a student must be properly registered and pay fees for the course. For further information, see *Number of Credits Awarded for Courses* on page 38.

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)

“H” following regular course designation indicates Honors Program courses.

Courses offered through Continuing Education Time Enhanced Learning are designated by a © following the number of credits.

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 101) and *Course-Level Numbering and Acceptability* (page 102).

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 University Schedule of Classes published prior to the beginning of each semester. All catalog listings are subject to change. The schedule will also update policies and practices of the University as changes occur. Catalog updates will also appear in the *Online General Catalog*.

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.

Using This Catalog

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).

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, check the *Schedule of Classes* or consult the department offering the course.

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
ART	Art
ARTH	Art History
AS	Aerospace Studies
ASTE	Agricultural Systems Technology and Education
AV	Aviation Technology
AWER	Aquatic, Watershed, and Earth Resources (changing to WATS, effective Spring 2007)
BA	Business Administration
BIE	Biological and Irrigation Engineering
BIOL	Biology
BIS	Business Information Systems
BMET	Biometeorology
BUS	Business, College of
CEE	Civil and Environmental Engineering
CHEM	Chemistry and Biochemistry
CHIN	Chinese
CLAS	Classics
COMD	Communicative Disorders and Deaf Education
CS	Computer Science
DE	Dance Education
ECE	Electrical and Computer Engineering
ECON	Economics
EDUC	Education and Human Services, 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
FREN	French
FRWS	Forest, Range, and Wildlife Sciences (changing to WILD, effective Spring 2007)
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

ITAL	Italian
ITDS	Interdisciplinary Studies
JAPN	Japanese
JCOM	Journalism and Communication
KOR	Korean
LAEP	Landscape Architecture and Environmental Planning
LANG	Languages (General)
LAS	Liberal Arts
LATN	Latin
LATS	Latin American Studies
LING	Linguistics
MAE	Mechanical and Aerospace Engineering
MATH	Mathematics
MHR	Management and Human Resources
MS	Military Science
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
PSB	Plants, Soils, and Biometeorology
PSY	Psychology
PUBH	Public Health
REH	Rehabilitation Counseling
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
THEA	Theatre Arts
USU	University Studies
WGS	Women and Gender Studies

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**

Other Policies

Catalog Information

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.

Course descriptions in this catalog are an overview and generally reflect what will be taught, but students should not rely on them as a guarantee of what they will be taught during a given semester.

This catalog is also available on the Web, and can be accessed from the University Advising and Transfer Services Home Page: <http://www.usu.edu/ats>. Changes in catalog information will be entered on the Web.

To obtain a printed copy of this catalog, phone Express-a book at one of the following numbers: (800) 662-3950, (435) 797-3950, or FAX (435) 797-3793.

Materials for Persons with Disabilities

This catalog is available in large print, disk, audio, and braille format upon request to the Disability Resource Center, University Inn 101, (435) 797-2444 or (800) 259-2966 Voice or (435) 797-0740 TTY. Further information about the services offered by the Disability Resource Center can be found at: <http://www.usu.edu/drc>

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/riskmgmt/>

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, gender, 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. USU also has a policy prohibiting sexual harassment of students, faculty, and staff. Equal opportunity applies to all aspects of employment: recruitment, hiring, promotion, training, benefits, and salary. Equal educational opportunities include admission, access to course offerings, financial assistance, housing, and extracurricular activities.

Privacy Rights

In compliance with the Family Educational Rights and Privacy Act of 1974, Utah State University has developed policy guidelines which (1) provide that eligible students will have access to inspect and review their educational records, and (2) protect the rights of a student to privacy by limiting access to the educational record without express written consent. **Note:** There are restricted situations in this act where access to an educational record **does not** require the express written consent of the student. For further information, see the *Privacy Rights* section on page 38.

University Smoking Policy

Utah State University conforms to the provisions of the 1992 Utah House Bill No. 197—Clean Air in Government Buildings, Utah Code Section 76-10-106. The provisions of this bill include the following: (a) A person may not smoke in a building, or portion of a building, that is owned, leased, or occupied by the state or any state agency; (b) Designated smoking areas in buildings are prohibited under this subsection; and (c) This subsection takes precedence over any conflicting provision of this section.

It is the responsibility of all University staff and students to adhere to this policy and to appropriately inform campus visitors of its provisions. Deans, department heads, and other supervisory personnel are responsible for the enforcement of the policy.

Credits

General Catalog Editor: *Sheri E. Peterson*, Publications Editor, University Advising and Transfer Services

Cover Design: *Jed Grant*, Admissions Office

General Catalog Coordinating Committee:

John D. Mortensen, Director, University Advising and Transfer Services
Joyce A. Kinkead, Vice Provost for Undergraduate Studies and Research, Provost's Office
Steven V. Beck, Assistant Dean, School of Graduate Studies
Jimmy Moore, Director, Admissions Office
Noah Riley, ASUSU Student Body President

Administration

Utah State Board of Regents

Terms expire in the years listed.

Nolan E. Karras (Chair)	Roy	2007
Jed H. Pitcher (Vice Chair)	Bountiful	2009
Jerry C. Atkin	St. George	2011
Daryl C. Barrett	Salt Lake City	2007
Bonnie Jean Beesley	Salt Lake City	2009
Janet A. Cannon	Salt Lake City	no set term
Rosanita Cespedes	Salt Lake City	2011
Katharine B. Garff	Bountiful	2009
David J. Grant	Cedar City	2007
Greg W. Haws	Hooper	no set term
Meghan Holbrook	Salt Lake City	2009
James S. Jardine	Salt Lake City	2011
Michael R. Jensen	Price	2011
David J. Jordan	Salt Lake City	2009
Gaby Kingery	Sandy	2006
Josh Reid	Salt Lake City	2011
Sara V. Sinclair	Logan	2007
Marlon O. Snow	Orem	2007

Richard E. Kendell, Commissioner
of Higher Education Salt Lake City

USU Board of Trustees

Richard L. Shipley (Chair)	Farmington	2007
Douglas D. Anderson (Vice Chair)	Salt Lake City	2009
David P. Cook	Randolph, New Jersey	2007
Robert L. Foley	Vernal	2009
Douglas S. Foxley	Salt Lake City	2009
Lynnette T. Hansen	North Logan	2009
R. Brent Nyman	North Logan	2007
Noah Riley	Logan	2007
Kellie Schultz Wood	Salt Lake City	2007
Lee H. Burke (secretary)	Logan	no set term

University Administrative Officers

President Stan L. Albrecht
Chief of Staff Sydney M. Peterson

Provost Raymond T. Coward
Vice Provost for Undergraduate Studies
and Research Joyce A. Kinkead
Vice Provost for International Affairs Steven H. Hanks
Vice Provost for Libraries and Instructional Support
and Director of Libraries Linda L. Wolcott
Vice Provost for Academic and Faculty Services ... Gary S. Straquadine
Vice Provost for Continuing and Distance Education To be appointed
Vice Provost for Graduate Studies To be appointed
Assistant Provost Stacie Gomm
Co-directors, Affirmative Action/Equal
Opportunity Office BrandE Faupell, David L. Ottley

Assistant to the President for Government Relations Lee H. Burke

University Counsel Craig J. Simper
Assistant Attorney General Robert D. Barclay

Vice President for Business and Finance W. Glenn Ford
Associate Vice President Gary A. Chambers
Associate Vice President for Facilities Darrell E. Hart
Associate Vice President for
Finance/Controller Clinton G. Moffitt

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

Vice President for Research Brent C. Miller
Associate Vice President Ann E. Aust
Associate Vice President H. Paul Rasmussen
Associate Vice President Joyce A. Kinkead

Vice President for Student Services To be appointed
Associate Vice President Gary A. Chambers

Vice President for University Advancement M. Scott Mietchen
Associate Vice President David Driggs

Vice President for Extension and Agriculture Noelle E. Cockett
Associate Vice President and Associate Dean
of Continuing Education Weldon S. Sleight
Associate Vice President and Associate
Director for Cooperative Extension Charles W. Gay

Executive Director of Public Relations
and Marketing John W. DeVilbiss

Director of Athletics Randall W. Spetman

Deans of Academic Units

Agriculture

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

Business

Dean To be appointed
Senior Associate Dean Clifford R. Skousen
Associate Dean, Graduate Studies Glenn M. McEvoy
Associate Dean, Business Relations Ross E. Robson

Continuing Education

Dean To be appointed
Associate Dean Weldon S. Sleight
Assistant Dean, Credit Programs Ronda R. Menlove
Assistant Dean, Recruitment and
Conference Services Daniel G. Peterson

Education and Human Services

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

Engineering

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

Administration

Graduate Studies

Interim Dean Laurens H. Smith, Jr.
 Interim Associate Dean Shelley L. Knudsen Lindauer
 Assistant Dean Steven V. Beck

Humanities, Arts, and Social Sciences

Dean Gary Kiger
 Associate Dean R. Edward Glatfelter
 Associate Dean Christine Hult

Natural Resources

Dean Nat B. Frazer
 Director of Undergraduate Education Mark W. Brunson
 Director of Graduate Education Todd A. Crowl

Science

Dean Donald W. Fiesinger
 Associate Dean Richard J. Mueller
 Associate Dean Lisa M. Berreau

Heads of Academic Departments and Programs

Accountancy, School of Richard L. Jenson
 Aerospace Studies Maj. Michael A. Swift
 Agricultural Systems Technology and Education Bruce E. Miller
 Animal, Dairy and Veterinary Sciences Mark C. Healey
 Art John Neely
 Biological and Irrigation Engineering Ronald C. Sims
 Biology Jon Y. Takemoto
 Business Administration Alan A. Stephens
 Business Information Systems Karen A. Forcht
 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 Christopher Fawson
 Electrical and Computer Engineering Tamal Bose
 Elementary Education Bernard L. Hayes
 Engineering and Technology Education Kurt Becker
 English Jeffrey Smitten
 Environment and Society Terry L. Sharik
 Family, Consumer, and Human Development Thomas R. Lee
 Geology John W. Shervais
 Health, Physical Education and Recreation Craig W. Kelsey
 History Norman L. Jones
 Honors Program Christie L. Fox
 Instructional Technology Byron R. Burnham
 Intensive English Language Institute Glenda R. Cole
 Interior Design Program Tom C. Peterson
 Journalism and Communication Michael S. Sweeney
 Landscape Architecture and
 Environmental Planning Elizabeth A. Brabec
 Languages, Philosophy, and
 Speech Communication To be appointed
 Management and Human Resources Gaylen N. Chandler
 Mathematics and Statistics Russell C. Thompson
 Mechanical and Aerospace Engineering Byard D. Wood
 Military Science Lt. Col. S. Rand Curtis
 Music Bruce M. Saperston
 Nutrition and Food Sciences Charles E. Carpenter
 Nursing Program (with Weber State University) Jonny Kelly
 Physics Jan J. Sojka

Plants, Soils, and Biometeorology Larry A. Rupp
 Political Science Roberta Q. Herzberg
 Psychology David M. Stein
 Secondary Education Gary L. Carlston
 Sociology, Social Work and Anthropology Richard S. Krannich
 Special Education and Rehabilitation Benjamin Lignugaris/Kraft
 Theatre Arts Colin B. Johnson
 Watershed Sciences Chris Luecke
 Wildland Resources Johan du Toit

Enrollment Management Units

Admissions Jimmy Moore
 Advising and Transfer Services, University John D. Mortensen
 Financial Aid Judy LeCheminant
 International Students and Scholars Jeannie V. Pacheco
 Registrar's Office Glenn Davis
 Retention Melissa M. Kincart

Student Services Units

Academic Resource Center Noelle A. Call
 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. Hardman
 Housing and Dining Services Steven C. Jensen
 Multicultural Student Services Moises Diaz
 Statesman (student newspaper) Jay C. Wamsley
 Student Health and Wellness Center James W. Davis
 Student Involvement and Leadership Center Tiffany M. Evans
 Student Support Services Nazih T. Al-Rashid
 Testing Services (Career Services) Eric W. Jensen
 Women's Center/Reentry Student Center Janet L. Osborne

Other Areas of Service

Alumni Relations To be appointed
 Banner Project Rory J. Weaver
 Bookstore David V. Hansen
 Budget Office Whitney J. Pugh
 Cashiers Office (Registrar's Office) William E. Jensen
 Classroom and Multimedia Services Jonathan B. Kadis
 Controllers Office Clinton G. Moffitt
 Help Desk Stephen Funk
 Human Resources Terry L. Hodges
 Innovation Campus Teresa W. McKnight
 Licensing and Network Training Michelle M. Smith
 Network and Computing Services Kim A. Marshall
 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 Michael D. Pavich
 Student Computer Labs Gary D. Egbert
 Study Abroad Program Kay W. Forsyth
 Telecommunications and Telephone Services Scott N. Bradley
 Ticket Office Jeffrey D. Crosbie
 University Inn Leila M. Neilson
 University Media Production D. Shane Thomas
 University Press and Scholarly Publications Michael Spooner
 Writing Center Charlene A. Hirschi

2006-2007 Calendar

Summer Session 2006

May 15-June 9.....Early Session—4 weeks
May 29.....Holiday (Memorial Day)
June 12-August 4.....8-week Session
June 12-July 7.....First 4-week Session
July 4.....Holiday (Independence Day)
July 10-August 4.....Second 4-week Session
July 24.....Holiday (Pioneer Day)
August 4.....Test Day

Fall Semester 2006

August 28.....Classes Begin
September 4.....Holiday (Labor Day)
October 20.....Fall Break
November 22-24.....Holiday (Thanksgiving)
December 4-8.....No-test Days
December 8.....Last Day of Classes
December 11-15.....Final Examinations
December 16.....Graduation

Spring Semester 2007

January 8.....Classes Begin
January 15.....Holiday (Martin Luther King, Jr. Day)
February 19.....Holiday (Presidents' Day)
March 12-16.....Spring Break
April 23-27.....No-test Days
April 27.....Last Day of Classes
April 30, May 1-4.....Final Examinations
May 4-5.....Graduation

Note: See semester *Schedule of Classes* for registration and fee payment deadlines.

Degrees Offered at Utah State University

College of Agriculture

Agricultural Systems Technology and Education

Agricultural Education—BS
Agricultural Machinery Technology—One-year Certificate, AAS
Agricultural Systems Technology—BS, MS
Family and Consumer Sciences Education—BS

Animal, Dairy and Veterinary Sciences

Animal Science—BS, MS, PhD
Bioveterinary Science—BS, MS, PhD
Dairy Herdsman (Vocational Tech)—One-year Certificate
Dairy Science—BS, MS

Economics

Agribusiness—BS
Agricultural Economics—BS
Applied Economics—MS
Economics—BS, BA, MS, MA, PhD
International Agribusiness—BA

Nutrition and Food Sciences

Dietetics Administration—MDA
Food Microbiology and Safety—MFMS
Nutrition and Food Sciences—BS, MS, PhD

Plants, Soils, and Biometeorology

Biometeorology—MS, PhD
Crop Science—BS, BA
Ecology—MS, PhD
Environmental Soil/Water Science—BS, BA
Horticulture—BS, BA
Horticulture, Professional Studies in—MPSH
Ornamental Horticulture—One-year Certificate, AAS
Plant Science—MS, PhD
Soil Science—MS, PhD

Interdepartmental Program

Toxicology—MS, PhD

College of Business

Accountancy, School of

Accounting—BS, BA, MAcc

Business Administration

Business Administration—BS, BA
Finance—BS, BA
Marketing—BS, BA
Operations Management—BS, BA

Business Information Systems

Business Information Systems—BS, BA, MS
Business Information Technology and Education—BS, BA
Education—EdD*, PhD*

Economics

Applied Economics—MS
Economics—BS, BA, MS, MA, PhD

Management and Human Resources

Entrepreneurship—BS, BA
Human Resource Management—BS, BA
Human Resources—MS

College of Business Programs

Business—BS, BA (Dual major and 2nd BS only)
Master of Business Administration—MBA

College of Education and Human Services

Communicative Disorders and Deaf Education

Audiology, Doctorate of—AuD
Communicative Disorders and Deaf Education—BS, BA, MS, MA, MEd, EdS
Composite Deaf Education/Early Childhood Education—BS, BA
Composite Deaf Education/Elementary Education—BS, BA

Elementary Education

Composite Early Childhood Education/Deaf Education—BS, BA
Composite Early Childhood Education/Elementary Education—BS, BA
Composite Early Childhood Education/Special Education—BS, BA
Composite Elementary Education/Deaf Education—BS, BA
Composite Elementary Education/Early Childhood Education—BS, BA
Composite Elementary Education/Special Education—BS, BA
Early Childhood Education—BS, BA
Elementary Education—BS, BA, MS, MA, MEd
Education—EdD*, PhD*

Family, Consumer, and Human Development

Early Childhood Education—BS, BA
Family and Consumer Sciences—BS, BA
Family and Human Development—MS, MFHD
Family, Consumer, and Human Development—BS, BA
Family Life—PhD

Health, Physical Education and Recreation

Health Education Specialist—BS
Health, Physical Education and Recreation—MS, MEd
Parks and Recreation—BS
Physical Education—BS

Instructional Technology

Instructional Technology—MEd, MS, EdS, PhD

Psychology

Psychology—BS, BA, MS, PhD

Secondary Education

Composite Teaching—Social Studies—BS, BA
Education—EdD*, PhD*
Secondary Education—2nd BS, 2nd BA, MS, MA, MEd

Special Education and Rehabilitation

Composite Special Education/Early Childhood Education—BS, BA
Composite Special Education/Elementary Education—BS, BA
Disability Disciplines—PhD
Education—EdD*
Rehabilitation Counseling—MRC
Special Education—BS, BA, MS, MEd, EdS

Degrees Offered at Utah State University

Interdepartmental Doctorate in Education

Education—EdD, PhD

College of Engineering

Biological and Irrigation Engineering

Biological Engineering—BS, MS, PhD
Irrigation Engineering—MS, PhD

Civil and Environmental Engineering

Civil and Environmental Engineering—CE, MS, ME, PhD
Civil Engineering—BS
Environmental Engineering—BS

Electrical and Computer Engineering

Computer Engineering—BS
Electrical Engineering—BS, MS, ME, PhD

Engineering and Technology Education

Aviation Technology—Maintenance Management—BS
Aviation Technology—Professional Pilot—BS
Engineering and Technology Education—BS, MS

Mechanical and Aerospace Engineering

Aerospace Engineering—BS
Mechanical Engineering—BS, MS, ME, PhD

College of Humanities, Arts, and Social Sciences

Art

Art—BA, BS, BFA, MA, MFA

English

American Studies—BS, BA, MS, MA
English—BS, BA, MS, MA
Theory and Practice of Professional Communication—PhD

History

History—BS, BA, MS, MA
Social Sciences—MSS*

Journalism and Communication

Communication—MS, MA
Journalism—BS, BA

Landscape Architecture and Environmental Planning

Bioregional Planning—MS
Landscape Architecture—BLA, MLA

Languages, Philosophy, and Speech Communication

French—BA
German—BA
Philosophy—BA, BS
Spanish—BA
Speech—BA, BS
Second Language Teaching—MSLT

Music

Music—BM
Music Therapy—BS

Political Science

International Relations—Certificate
International Studies—BA
Law and Constitutional Studies—BS, BA
Political Science—BS, BA, MS, MA
Social Sciences—MSS*

Sociology, Social Work and Anthropology

Anthropology—BS, BA
Social Sciences—MSS*
Social Work—BS, BA
Sociology—BS, BA, MS, MA, PhD

Theatre Arts

Theatre Arts—BA, BFA, MA, MFA

Interior Design Program

Interior Design—BS, BA

Interdisciplinary HASS Programs

Asian Studies—BA
Liberal Arts—BA
Natural Resources and Environmental Policy—Graduate Certificate
Religious Studies—BS, BA

College of Natural Resources

Environment and Society

Bioregional Planning—MS
Environmental Studies—BS
Geography—BS, BA, MS, MA
Human Dimensions of Ecosystem Science
and Management—MS, PhD
Recreation Resource Management—BS, MS, PhD

Watershed Sciences

Ecology—MS, PhD
Fisheries and Aquatic Sciences—BS
Fisheries Biology—MS, PhD
Watershed and Earth Systems—BS
Watershed Science—MS, PhD

Wildland Resources

Conservation and Restoration Ecology—BS
Ecology—MS, PhD
Forestry—BS, MS, PhD
Rangeland Resources—BS
Range Science—MS, PhD
Wildlife Biology—MS, PhD
Wildlife Science—BS

Interdisciplinary Natural Resources Program

Natural Resources—MNR

Degrees Offered at Utah State University

Interdepartmental Programs

National Environmental Policy Act (NEPA)—Graduate Certificate
Natural Resource and Environmental Policy—Graduate Certificate
Natural Resources and Environmental Education (NREE)
—Graduate Certificate

College of Science

Biology

Biology—BS, BA, MS, PhD
Composite Teaching—Biological Science—BS, BA
Ecology—MS, PhD
Public Health—BS

Chemistry and Biochemistry

Biochemistry—BS, MS, PhD
Chemistry—BS, BA, MS, PhD
Chemistry Teaching—BS
Composite Teaching—Physical Science (Chem)—BS

Computer Science

Computer Science—BS, BA, MS, MCS, PhD

Geology

Composite Teaching—Earth Science—BS, BA
Geology—BS, BA, MS, PhD

Mathematics and Statistics

Composite Mathematics/Statistics—BS
Composite Mathematics-Statistics Education—BS
Industrial Mathematics—MS
Mathematical Sciences—PhD
Mathematics—BS, BA, MS, MMath
Mathematics Education—BS, BA
Statistics—BS, BA, MS

Physics

Composite Teaching—Physical Science (Physics)—BS
Physics—BS, BA, MS, PhD
Physics Teaching—BS

Interdepartmental Program

Toxicology—MS, PhD

Interdisciplinary University Degree

Interdisciplinary Studies—BS, BA

*Department participates in interdepartmental degree program.

Undergraduate Admission

Director, Admissions Office: Jimmy Moore
Location: Student Center 102
Phone: (435) 797-1079, (435) 797-1129, or (800) 488-8108
FAX: (435) 797-3708
E-mail: admit@usu.edu
WWW: <http://www.usu.edu/admissions>

Admission Requirements

The Utah State University admission policy is designed to admit undergraduate students who have the best chance to successfully complete a university program of study.

All freshmen, including transfer students with fewer than 24 semester hours of credit, must submit an official high school transcript and ACT/SAT scores as part of their application for admission.

Application for admission and credentials from schools previously attended should be received by the Admissions Office by April 1 for fall semester admission, by November 1 for spring semester admission, and by April 1 for summer semester admission. These materials should be sent to:

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

A student is admitted to the University on the basis of an application (which includes official transcripts of credit from each school previously attended), a \$40 nonrefundable application fee, and ACT/SAT scores when applicable. A processing fee of \$20 is required of students applying for readmission. Students applying after the deadline will be assessed an additional \$15 late fee. For application and general information, contact the Admissions Office at the address above; or by phone, fax, or e-mail as listed at the top of this page.

Students who have attended home schooling, charter high schools, or performance/outcome-based high schools will need to submit an Application for Admission, the application fee, and ACT/SAT results, and *may* need to have an interview as part of the admissions application process. Those students who have completed the GED must also submit a copy of the GED Certificate.

USU grants admission, without regard to race, color, creed, sex, or national origin, to those students who satisfy the admission requirements.

Students who have been denied admission to the University may initiate an appeal by contacting the Admissions Office.

Freshman Admission

Students attending the University for the first time are admitted on the basis of an index score, which is a reflection of high school grades and ACT or SAT scores. Entering students must have an acceptable index score in order to be admitted. (See Admission Index table on page 17.) **USU regulations regarding the index score are as follows:** Students having an index score of 90 or higher are very likely to be admitted. Students must have an ACT composite score of 19 or higher, regardless of what their overall admission index score is. A cumulative grade point average of 2.5 or higher in high school coursework is also required. In cases where the applicant is younger than 25 years, official ACT/SAT results are also required. Exceptions to the preceding regulations will be made for applicants who have not graduated

from high school, who may substitute results of the GED. Admission decisions are made on an individual basis. **Note:** These requirements are based on the 2006-2007 applicant pool.

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, 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 hours 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 under General Admissions Policies.

Undergraduate Admission

Transfer Student Admission

Applicants with at least 24 semester credits earned at another accredited institution (or at one of USU's continuing education centers) 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 and ACT or SAT results.

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.*

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, (5) miscellaneous sources: internships, nontraditional learning experiences.

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: Faculty Senate, college and departmental curriculum committees.

Utah State University does not accept transfer credit from nonaccredited institutions in those cases where USU lacks an academic unit to evaluate such transfer credits.

Credit Transfer Policy of Utah System

An Associate of Arts or an Associate of Science degree earned at any institution within the Utah System of Higher Education, or at other non-Utah institutions with articulation agreements, will be considered as meeting the General Education requirement of any institution in the system. (At USU, this satisfies the General Education portion of the University Studies requirements, but *not* the Depth Education requirements as shown on pages 52-57.) When the General Education requirements of an institution not offering the Associate of Arts or Associate of Science degree have been met in 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. In the latter case, the Registrar at the sending institution will forward to the receiving institution an up-to-date description of the General Education requirements.

Credit for quarter courses numbered 100 or above, or for semester courses numbered 1000 or above, earned in the Utah System of Higher Education is transferable within the System and will be carried

on the student's transcript by the receiving institution. **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.** 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.

For more transfer student information, including agreements with other states, see pages 67-70 of this catalog.

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 17.

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 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.

Change of Campus Procedures

The following procedures apply to Utah State University Continuing Education (CE) students wishing to enroll at the Logan Main Campus.

Nonmatriculated CE Students Transferring to Main Campus

Students who have *not* been admitted through the USU Main Campus Admissions Office should submit a regular application for admissions to the USU Main Campus Admissions Office by the published application deadlines. Regular admissions standards will apply.

Matriculated "CE Only" Students Relocating to Main Campus

Students who have been admitted to a CE major, but *not* to a Main Campus major, should submit a *Change of Campus Application* to the Logan Main Campus Admissions Office by the published application deadlines. Students must have at least 24 earned post-high school credits and at least a 2.5 cumulative USU GPA. The *Change of Campus Application* is available online at: <http://www.usu.edu/admissions/includes/forms/ChangeofCampusApplication.pdf> or by contacting the Admissions Office at (435) 797-1129.

Matriculated CE Students Relocating to Main Campus

Students who have been admitted to a Main Campus major, but have been attending a CE site, should contact the Logan Main Campus Registration Office (Student Center 246, 1600 Old Main Hill, Logan UT 84332-1600) and request attendance at the Logan Main Campus.

Credit by Special Examination

Matriculated students may challenge a course for credit by taking a special examination available in the University Testing Center. The examination will survey knowledge of course content. University credit is awarded for examinations in courses the student has not already

Undergraduate Admission

taken. Students will be required to pay a fee (standard recording fee and course-specific examination fee). The Testing Center has a listing of available special examinations. Application forms for permission to take special examinations are available in the Testing Center. Language credits by special examination are initiated in the Department of Languages, Philosophy, and Speech Communication.

Students who take a special examination will receive the exam grade posted to their transcript, with a designation that it was earned by special examination. Credits earned through special examination cannot be used toward a graduate degree, nor be used to meet the minimum USU course requirement.

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.

Standardized Examinations

Credits may be acquired through Advanced Placement (AP), College Level Examination Placement (CLEP), the International Baccalaureate Organization (IBO), and the DANTES Subject Standardized Tests (DSST). These credits may be used to fill General Education requirements, and may also be accepted as equivalent to specific courses. AP and CLEP credit combined may fulfill requirements for a maximum of four Breadth areas of General Education. For a list of examinations accepted and scores necessary to receive credit, see pages 62-66.

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 exams listed above may not satisfy.

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

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

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.

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 receive 8 credits for scores of 5, 6, or 7 achieved on the higher-level exams.

Credit achieved through the International Baccalaureate examinations may not be duplicated with AP credit.

For more information about the International Baccalaureate Organization, as well as a list of examinations accepted and scores necessary to receive credit, see pages 64-65.

Credit for Military Service

The University may grant credit to students currently enrolled at the University who have served in the armed forces. Applications for credit are made by submitting the DD214 or DD295 form to the Admissions Office.

Army/ACE Registry Transcript System (AARTS)

Enlisted soldiers who entered active duty on or after October 1, 1981 are eligible for an AARTS transcript. However, the AARTS transcript is *not available* to members of the U.S. Army Reserve, warrant officers, or commissioned officers. Those students who are eligible for an AARTS transcript and who are seeking credit for military service in the **Army** should provide the Admissions Office with an AARTS transcript *instead of* the DD214 or DD295 form. Eligible students may obtain transcript request forms from their Army education center counselors, or they may write directly to: Manager, AARTS Operations Center, 415 McPherson Avenue, Ft. Leavenworth KS 66027-1373. Each request must include the student's name, basic active service date, social security number, and current mailing address.

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.

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 an official transcript. For further information, see pages 99-100.

Undergraduate Admission

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.

Readmission Deadlines

Students who desire to be readmitted following academic action (probation or suspension), must apply by March 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. All other students desiring readmission must apply by April 1 in order to be considered for admission to fall semester, or by November 1 in order to be considered for admission to spring semester.

International Undergraduate Student Admission

For information about admission procedures for international students, see pages 21-22.

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 the 10th calendar day 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 14th calendar day of the semester. Appeals cannot be considered after this deadline.

Regulations concerning residency are as follows:

1. Persons claiming residency on their application for admission, but who are coded nonresident, will be notified in writing of their nonresident status.
2. Utah Residency for Tuition Purposes

A person who has come to Utah and established residency for the purpose of attending an institution of higher education shall, prior to registration as a resident student:

(a) live in Utah while completing a minimum total of 60 semester credits at a regionally accredited institution of higher education in Utah or an equivalent number of applicable contact hours at the Utah College of Applied Technology. Utah semester credits should not be broken by attendance at another school of higher education outside the State of Utah (i.e., students may *not* attend summer classes in their home state). The 60 semester credits are not tied to a period of time.

(b) Individuals who would like to establish residency before beginning school may move to Utah and live and work in Utah for 24 continuous months *prior to beginning school*. Individuals who begin school before they have completed 24 continuous months as a nonstudent will need to complete 60 semester credits, **or**

(c) maintain continuous Utah residency for **three years** while attending school, regardless of the number of credits earned.

In addition, the person must demonstrate by additional objective evidence (e.g., Utah voter registration, Utah's driver's license, Utah vehicle registration, employment in Utah, payment of Utah resident income taxes, and Utah banking connections) the establishment of a domicile in Utah, and that the student does not maintain a residence elsewhere.

3. Aliens who are present in the United States on visitor, student, or other visas which authorize only temporary presence in this country do not have the capacity to intend to reside in Utah for an indefinite period of time and, therefore, must be classified as nonresident.
4. Aliens who have been granted immigrant or permanent resident status in the United States shall be classified for purposes of resident status according to the same criteria as U.S. citizens.
5. American Indians who are enrolled on the tribal rolls of a tribe whose reservation or trust lands lie partly or wholly within Utah or whose border is at any point contiguous with the border of Utah, or any American Indians who are members of a federally recognized or known Utah tribe and who have graduated from a high school in Utah, shall be entitled to resident status.

For further guidelines or exceptions, such as marriage, employment, military, and returning former residents, please contact the Admissions Office, Taggart Student Center 102, (435) 797-8144, or visit: <http://www.usu.edu/admissions/information/residency.cfm>

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 26.

International Student Admission and Programs

Director of the Office of International Students and Scholars:

Jeannie Pacheco

Location: Student Center 313

Phone: (435) 797-1124

FAX: (435) 797-3522

E-mail: iss@cc.usu.edu

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

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, University Advising and Transfer Services, Housing and 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.

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.oiss.usu.edu/>

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.

Readmission

Students who have not been in attendance for a semester or more are required to reapply for admission for the next semester. They must also reapply for the next semester if they have withdrawn from the University or if suspension or graduation occurred at the conclusion of their previous semester. See page 20 for readmission deadlines

International Student Admission and Programs

for students who are subject to academic action (probation or suspension).

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 receive 8 credits for scores of 5, 6, or 7 achieved on the higher-level exams.

Credit achieved through the International Baccalaureate examinations may not be duplicated with Advanced Placement (AP) credit.

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 pages 99-100 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@cc.usu.edu.

Undergraduate Graduation Requirements

For further information, refer to pages 58-61 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 173 computerized, 500 manual (paper/pencil), or 61 iBT (Internet-based test), or a minimum IELTS score of 5.0; and graduate students applying without a minimum TOEFL score of 213 computerized, 550 manual (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@cc.usu.edu.

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@cc.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 page 79 in this catalog.

Financial Aid and Scholarship Information

Director, Financial Aid Office: Judy LeCheminant

Location: Taggart Student Center 106

Phone: (435) 797-0173

FAX: (435) 797-0654

E-mail: finaid@cc.usu.edu

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

Associate Director: Steven J. Sharp

Assistant Director: Sharon B. Robinette

Assistant Director: Todd Milovich

Computer Specialist: Tamara Allen

Business Manager: Karen S. Marshall

Counselor (A-B) (X-Z): Marcy Skinner

Counselor (C-F): Cedra H. Jensen

Counselor (G-J): Jacob R. Brazell

Counselor (K-M): Patti P. Kohler

Counselor (N-SL): Eric Flores

Counselor (SM-W): Amanda Alles

Scholarship Counselor: Taya Flores

Loan and Collection Officer:

Brent D. Sorenson, Student Center 246, (435) 797-1426,

bsorenson@cntr.usu.edu

Application for financial aid begins in January for any awarding anticipated during 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. For 2007 admission, the priority deadline for scholarship application is December 1, 2006.

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 98-99 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.

Other Grants and Special Benefits

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

Federal College Work-Study (FCWS)

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

Low, variable interest loans. Freshmen may apply for up to \$2,625 each regular school year; sophomores may apply for up to \$3,500 a year; juniors, seniors, and second bachelor's degree students may apply for up to \$5,500 a year; and graduates may apply for up to \$8,500 a year. Aggregate borrowing limits are \$23,000 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. Interest accrued prior to the beginning of repayment is paid by the federal government for "subsidized" Federal Stafford Loans. Maximum repayment period is generally 10 years.

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 variable interest loan has an interest rate cap of 10 percent. This loan is available when other awarded federal aid to the student does not fully meet the school's estimated cost of education.

Emergency Loan

An emergency loan for up to \$400 is available for USU students with fees paid for at least 6 credits. Emergency loans are not available for tuition. The duration of emergency loans is ten weeks. A low rate of interest or service charge applies.

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 2006-2007 Academic Year

	Resident	Nonresident
Tuition and Fees	See page 43	See page 43
Room and Board	\$5,560	\$5,560
Books and Supplies	1,040	1,040
Transportation	1,280	1,280
Personal Expenses	1,880	1,880
Totals	\$9,760	\$9,760
	plus	plus
	Resident	Nonres.
	Tuition	Tuition

Financial Aid and Scholarship Information

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
Total	\$5,450

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., $\$5,450 \times 83\% = \$4,523.50$).

Withdrawal on day 20 would allow a 50% refund of tuition and student fees. If the student paid \$1,400, the refund would be \$690 (i.e., \$700 minus the \$10 nonrefundable registration fee). Therefore, after \$690 is applied to the repayment, an additional \$3,842.50 must be repaid (i.e., $\$4,532.50 - \$690 = \$3,842.50$).

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

Note: Loan funds to be repaid will go into repayment according to the terms of the loan. Grant funds to be repaid must be repaid immediately. More details are available from the Financial Aid Office.

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 **either** 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/RAP.html>

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, students must apply by February 1.* For 2007, all scholarships will be awarded on a **first-come, first-served basis**. Therefore, applicants are encouraged to apply early. See pages 24-26 for information about scholarships available to new freshmen. For more information, contact the Admissions Office by phone at 1-800-488-8108 or (435) 797-1129, or by e-mail at: admit@usu.edu.

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, transfer students must apply by April 1 and must have earned a minimum of 24 post high school graded semester credits. See page 26 for information about scholarships available to transfer students.

Freshman Resident Scholarships

The scholarships listed below are based on the 2006-2007 applicant pool and are subject to change without notice. For the latest information on freshman scholarships, visit: <http://www.usu.edu/scholarships>

Presidential Scholarship

Awarded for four years, this scholarship is worth approximately \$13,200. During eight semesters (four years), \$1,650 per semester is awarded toward tuition. To be considered, applicants must have

Financial Aid and Scholarship Information

an admissions index score of 125 or higher, a minimum 3.5 GPA, and a minimum ACT score of 25 or SAT score of 1130. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 15 credits each semester, for a total of 30 credits per year, and achieve a 3.5 GPA at the end of each academic year.

Dean's Scholarship

Awarded for four years, this scholarship is worth approximately \$6,600. During eight semesters (four years), \$825 per semester is awarded toward tuition. To be considered, applicants must have an admissions index score of 120 or higher, a minimum 3.5 GPA, and a minimum ACT score of 25 or SAT score of 1130. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 15 credits each semester, for a total of 30 credits per year, and achieve a 3.5 GPA at the end of each academic year.

Diversity Scholarship

During eight semesters (four years), \$1,650 per semester is awarded toward tuition. To be considered, applicants must have a minimum 3.0 GPA and a minimum ACT score of 20 or SAT score of 940, and must be admissible to USU. This award is based on financial need, first-generation college student status, and geographic location. Students apply by submitting an Application for Admission and Scholarship to USU.

University Ambassador Program Scholarship

During eight semesters (four years), \$1,650 per semester is awarded toward tuition. To be considered, applicants must have a minimum 3.4 GPA and a minimum ACT score of 23 or SAT score of 1090. 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 15 credits each semester, for a total of 30 credits per year. An application for this scholarship can be downloaded from: <http://www.usu.edu/admissions/scholarships/Ambassador-app.pdf>

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/scholar.html>

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.goarmy.com/rotc/scholarships.jsp>.

Freshman Nonresident Scholarships

The scholarships listed below are based on the 2006-2007 applicant pool and are subject to change without notice. For the latest information on freshman scholarships, visit: <http://www.usu.edu/scholarships>

Presidential Nonresident Scholarship

Awarded for four years, this scholarship is worth approximately \$20,600. During the first four semesters (two years), \$3,500 per semester is awarded toward the out-of-state portion of tuition. During the remaining four semesters (two years), students receive \$1,650 per semester. Students are encouraged to gain Utah residency during their first two years at USU. To be considered, applicants must have an admissions index score of at least 124, a minimum 3.5 GPA, and a minimum ACT score of 25 or SAT score of 1130. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 15 credits each semester, for a total of 30 credits per year, and achieve a 3.5 GPA at the end of each academic year.

Dean's Nonresident Scholarship

Awarded for two years, this scholarship is worth approximately \$7,000. During two years, \$1,750 per semester is awarded toward the out-of-state portion of tuition. To be considered, applicants must have an admissions index score of at least 117, a minimum 3.5 GPA, and a minimum ACT score of 25 or SAT score of 1130. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 15 credits each semester, for a total of 30 credits per year, and achieve a 3.5 GPA at the end of each academic year.

Diversity Scholarship

Awarded for four years, this scholarship is worth approximately \$20,600. During the first four semesters (two years), \$3,500 per semester is awarded toward the out-of-state portion of tuition. During the remaining four semesters (two years), students receive \$1,650 per semester. Students are encouraged to gain Utah residency during their first two years at USU. To be considered, applicants must have a minimum 3.0 GPA and a minimum ACT score of 19 or SAT score of 810, and must be admissible to USU. This award is based on financial need, first-generation college student status, and geographic location. Students apply by submitting an Application for Admission and Scholarship to USU.

ISU/USU Scholarship

This award is worth approximately \$14,000. During four semesters (two years), \$3,500 per semester is awarded toward the out-of-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 117. This award applies *only* to undergraduate coursework. To remain eligible for this scholarship, a student must enroll for and complete at least 15 credits each semester, for a total of 30 credits per year, and achieve a 3.5 GPA at the end of each academic year.

100-Mile Radius Scholarship

This award is worth approximately \$7,000. During four semesters (two years), \$1,750 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 Program Scholarship

During the first four semesters (two years), \$3,500 per semester is awarded toward the out-of-state portion of tuition. During the remaining four semesters (two years), students receive \$1,650 per semester. To be considered, applicants must have a minimum 3.4 GPA and a minimum ACT score of 23 or SAT score of 1090. 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

Financial Aid and Scholarship Information

student must enroll for and complete at least 15 credits each semester, for a total of 30 credits per year. An application for this scholarship can be downloaded from: <http://www.usu.edu/admissions/scholarships/Ambassador-app.pdf>

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) 797-1129 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 is worth approximately \$6,600. During four semesters (two years), \$1,650 per semester is awarded toward tuition. To be considered, applicants must have completed a minimum of 24 graded, transferable credits with a minimum 3.75 cumulative GPA.

Transfer Dean's Scholarship

Awarded for two years, this scholarship is worth approximately \$3,300. During four semesters (two years), \$825 per semester is awarded toward tuition. To be considered, applicants must have completed a minimum of 24 graded, transferable credits with a minimum 3.50 cumulative GPA.

Diversity Scholarship

This award is worth approximately \$6,600. During four semesters (two years), \$1,650 per semester is awarded toward tuition. To be considered, applicants must have completed a minimum of 24 graded, transferable credits with a minimum 2.75 cumulative GPA. This award is based on financial need, first-generation college student status, and geographic location. Students apply by submitting an Application for Admission and Scholarship to USU.

Transfer Ambassador Program Scholarship

During four semesters (two years), \$1,650 per semester is awarded toward tuition. 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 Nonresident Scholarships

Presidential Nonresident

Transfer Scholarship

This award is worth approximately \$14,000. During four semesters (two years), \$3,500 per semester is awarded toward the out-of-state portion of tuition. To be considered, applicants must have completed a minimum of 24 graded, transferable credits with a minimum 3.75 cumulative GPA.

Dean's Nonresident Transfer Scholarship

This award is worth approximately \$7,000. During four semesters (two years), \$1,750 per semester is awarded toward the out-of-state portion of tuition. To be considered, applicants must have completed a minimum of 24 graded, transferable credits with a minimum 3.5 cumulative GPA.

ISU/USU Scholarship

This award is worth approximately \$14,000. During four semesters (two years), \$3,500 per semester is awarded toward the out-of-state portion of tuition. To be considered, an applicant must be a resident of Idaho, and must have a minimum of 24 graded, transferable credits with a minimum 3.5 cumulative GPA.

100-Mile Radius Scholarship

This award is worth approximately \$7,000. During four semesters (two years), \$1,750 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 a minimum of 24 graded, transferable credits with a minimum 3.0 cumulative GPA.

Diversity Scholarship

This award is worth approximately \$14,000. During four semesters (two years), \$3,500 per semester is awarded toward the out-of-state portion of tuition. To be considered, applicants must have completed a minimum of 24 graded, transferable credits with a minimum 2.75 cumulative GPA. This award is based on financial need, first-generation college student status, and geographic location. Students apply by submitting an Application for Admission and Scholarship to USU.

Transfer Ambassador Program Scholarship

During four semesters (two years), \$3,500 per semester is awarded toward the out-of-state portion of tuition. 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 in left column of this page.

Financial Aid and Scholarship Information

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 applicants 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 on the classes needed to complete these requirements at Utah State University, contact:

Deborah Reece
Academic Advisor
University Advising and Transfer Services
Taggart Student Center, Room 304
0114 Old Main Hill
Logan UT 84322-0114
Phone: (435) 797-3373
FAX: (435) 797-8067
E-mail: deborah.reece@usu.edu

For an application, contact:

New Century Scholarship Administrator
State Board of Regents
60 South 400 West
Salt Lake City UT 84101-1284
Phone: (801) 321-7121
FAX: (801) 321-7199
WWW: <http://www.utahsbr.edu>

Centennial Scholarship

The Centennial Scholarship is a full- or partial-tuition scholarship that can be used at any postsecondary institution in Utah that is accredited by the Northwest Association of Schools and Colleges. To be eligible

for the scholarship, students must enroll in an eligible postsecondary institution within one year of graduation.

Amount Awarded

1. The student who graduates at the end of the eleventh grade year shall receive a full Centennial Scholarship.
2. The student who graduates at the end of the first quarter of the twelfth grade year shall receive 75 percent of the Centennial Scholarship.
3. The student who graduates at the end of the second quarter of the twelfth grade year shall receive 50 percent of the Centennial Scholarship.
4. The student who graduates at the end of the third quarter of the twelfth grade year shall receive 25 percent of the Centennial Scholarship.
5. The student who graduates at the end of the first trimester of the twelfth grade year shall receive 67 percent of the Centennial Scholarship.
6. The student who graduates at the end of the second trimester of the twelfth grade year shall receive 33 percent of the Centennial Scholarship.

Procedures for Using the Centennial Scholarship Certificate

1. Upon graduation, the student obtains a Centennial Scholarship for Early Graduation certificate from his or her high school counselor.
2. The high school principal verifies that the student is an early graduate and signs the certificate. The original certificate is kept by the student. Additional copies are for school and district records.
3. The student enrolls full-time in an approved post-secondary educational institution and presents the certificate to the registrar.
4. The postsecondary educational institution verifies the student's enrollment. The registrar completes, signs, and seals the certificate. The registrar sends the original completed certificate to the Utah State Office of Education (USOE), noting the cost of tuition.
5. USOE receives the completed certificate. It is verified for completion and duplication. USOE approves the certificate for funding and issues a warrant request to Utah State Finance for scholarship funds. A check is sent directly to the postsecondary institution for the student. Checks are sent to institutions within four to six weeks.

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 Scholars are eligible to compete for Research Fellowships.

Financial Aid and Scholarship Information

Continuing USU Student Scholarships

College Scholarships

Each college has its own scholarship application, which is available at the dean's office and must be returned there by the given deadline. For most colleges, 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 college. Students should check with their college 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/ats/generalcatalog/scholarships/>

New Student Orientation and Academic Advising

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. SOAR also gives students a chance to make new friends.

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>

New Transfer Students

New transfer students are required to contact their academic advisor before registering for classes. 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.

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 on the University Advising and Transfer Services (UATS) website at:
<http://www.usu.edu/ats/majorsheets/>

The College or Division Academic Service Centers provide students with information and advisement concerning academic requirements, policies, procedures, programs, and services of that college or division. A listing of Academic Service Centers is provided below:

University Advising and Transfer Services

Student Center 304, (435) 797-3373

College Academic Service Centers

College of Agriculture

Agricultural Science 218, (435) 797-2383

College of Business

Business 309, (435) 797-2272

College of Education and Human Services

Education 101, (435) 797-1443

College of Engineering

Engineering 310, (435) 797-2705

College of Humanities, Arts, and Social Sciences

Student Center 302, (435) 797-3883

College of Natural Resources

Natural Resources 120, (435) 797-2448

College of Science

Eccles Science Learning Center 245, (435) 797-2478

An *Advisor List by Major* is available on the web at:

<http://www.usu.edu/ats/advisorlist>.

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.

Glossary of University Terms

“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/registrar/access/index.cfm>

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 40 for more information.

Academic Probation

The status assigned to a sophomore, junior, or senior with a cumulative GPA of less than 2.0. See page 40 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 41.

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 pages 40-41.

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 five categories of academic standing: good standing, academic warning, academic probation, academic suspension, and academic dismissal. See page 40 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 page 40 for more information.

Academic Warning

The status assigned to a freshman student with a cumulative GPA of less than 2.0. See page 40 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.

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 62 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.

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.

Articulation Agreements

Documents that formally acknowledge how credits or associate degrees from other institutions equate to USU courses and requirements.

Attempted Hours (AHRs)

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

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 page 58 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/registrar/access/index.cfm>

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.

Glossary of University Terms

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: Agriculture; Business; Education and Human Services; Engineering; Humanities, Arts, and Social Sciences; Natural Resources; and 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 63 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 Registrar's Office.

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.

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 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 *Schedule of Classes*.

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.

Curriculum Advising and Program Planning (CAPP)

This sub-system of the Access (Banner) System, which is used to generate unofficial degree evaluations, includes rules and requirements for degrees offered by Utah State University. CAPP uses these rules and requirements, along with the student's academic history, to perform an unofficial degree evaluation. In the initial implementation, some majors and/or minors may not be coded and ready for use.

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 64.

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.

Glossary of University Terms

Deferred Admission

When a student is accepted for a specific term, but chooses to defer his or her admission until a future term.

Degree Evaluation

A summary of academic progress showing courses completed and courses needed. USU students can obtain an **unofficial** degree evaluation through the Access (Banner) System. Curriculum Advising and Program Planning (CAPP) is the Banner sub-system that generates the 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.

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.

Drop/Add

The process used if students need to change a schedule for which they have already registered.

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 *F* 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.

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.

Extension Programs

Outreach programs for students who do not attend traditional daytime classes on the main campus. Extension programs include Independent Study and Time Enhanced Learning, as well as courses offered at remote locations.

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.

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.

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.

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 49-51.

General Studies Program

The administrative-academic unit maintained at USU for the enrollment of students who do not meet the admissions requirements of the seven academic colleges. 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. For more information, contact University Advising and Transfer Services, Student Center 304, (435) 797-3373.

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.

Graduation Guarantee Program

A program designed to assist students in completing their degrees in the most efficient and cost-effective manner.

Grant

Student financial aid based on need. Grants do not have to be repaid.

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.

Glossary of University Terms

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.

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.

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 Continuing Education Time Enhanced Learning, usually by online correspondence and/or CD.

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. These students complete a contract that is signed by both the advisor at their current institution and a USU advisor. 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.

Internship

An opportunity for students to combine a career-related work experience with academic coursework.

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

A \$5 transaction fee for each course added will be assessed all undergraduate students beginning the 6th day of classes, and will be assessed all graduate students beginning the 16th day of classes. This fee does *not* apply to courses taught at Continuing Education centers.

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 59.

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 37.

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.

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.

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 page 39 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.

PIN Number

A personal identification number that is used as a password. At USU, a student's initial PIN Number is his or her birthdate (MMDDYY). To maintain security, students are encouraged to change their PIN Number.

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.

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.

Glossary of University Terms

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.

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.

Professional Ranks

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

Provisional Admission

Offers students not qualifying for admission into one of the academic colleges or the Undeclared Program a chance to prove themselves academically. Students who are admitted provisionally must sign an institutional agreement with University Advising and Transfer Services to indicate that they are fully aware of the provisions associated with their admission.

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 page 37.

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.

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.

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.

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

The publication which includes course offerings for a specific term and year.

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.

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.

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.

Summa Cum Laude

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

Glossary of University Terms

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.

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. At USU, an official transcript may be obtained from the Registrar's Office, and an unofficial transcript can be viewed from the Access (Banner) System.

Transfer Credit

Credit which was earned at another college or university, and which is accepted by USU.

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.

Tuition

The amount charged per semester credit hour for instruction at a college or university.

Tuition Installment Plan (TIP)

The Tuition Installment Plan (TIP) allows students to defer a portion of their tuition until later in the semester. To apply for the TIP, print the application found at:

<http://www.usu.edu/registrar/cashier/index.cfm>, and complete the information as directed on the form. For details about participation in the TIP, see page 43.

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 43), the surcharge may be waived.

Tutor

An individual who provides private instruction or coaching.

Undeclared Major

The category for exploratory students who have not yet decided upon a major program.

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.

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 49-57.

Upper-Division Courses

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

Webmail

USU's e-mail system that can be accessed through the Worldwide Web.

Common USU Acronyms

AHRS	Attempted Hours
AP	Advanced Placement (examinations offered at high school level)
ARC	Academic Resource Center
ASUSU	Associated Students of Utah State University
ATS	Advising and Transfer Services, University
BAI	Breadth American Institutions
BCA	Breadth Creative Arts
BHU	Breadth Humanities
BLS	Breadth Life Sciences
BPS	Breadth Physical Sciences
BSS	Breadth Social Sciences
CI	Communications Intensive
CIL	Computer and Information Literacy
CL	Communications Literacy
CLEP	College-Level Examination Program (examinations in college-level subject matter)
DHA	Depth Humanities and Creative Arts
DRC	Disability Resource Center
DSC	Depth Life and Physical Sciences
DSS	Depth Social Sciences
EHR	Earned Hours
GPAHRS	Hours Used to Calculate GPA
HASS	College of Humanites, Arts, and Social Sciences
HPER	Health, Physical Education and Recreation
QI	Quantitative Intensive
QL	Quantitative Literacy
QPTS	Quality Points
SI	Supplemental Instruction
SOAR	Student Orientation, Advising, and Registration
STAB	Student Activities Board
TSC	Taggart Student Center

Registration

Office of the Registrar: Student Center 246
Phone: (435) 797-1098
FAX: (435) 797-1110

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 page 37). Students are responsible for dropping courses for which they do not wish to receive a grade. Detailed registration instructions are printed in the University *Schedule of Classes*, which is published each semester.

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.

Registration Procedures

The University *Schedule of Classes* lists each semester's course offerings, dates, times, places, and procedures for registration and fee payment. It may be purchased at the University Bookstore or accessed at: <http://www.usu.edu/registrar/catalogpdf>

Late Registration

A \$5 transaction fee for each course added will be assessed all undergraduate students beginning the 6th day of classes, and will be assessed all graduate students beginning the 16th day of classes. This fee does *not* apply to courses taught at Continuing Education centers.

Assignment of Advisor

When undergraduate students have been admitted to the University and have indicated their proposed field of study, they are assigned an advisor according to their major. Students are initially assigned to the default advisor or advising office for their individual major. In some cases, the default advisor is a temporary advisor who may assign students to a permanent advisor after their initial meetings with each student. In some colleges, students may be assigned to one advisor until they complete their lower-division coursework, and then be assigned to another advisor when they begin working on their upper-division coursework. Advising systems vary from college to college within the University. Students may access a listing of advisors by major by going to: <http://www.usu.edu/ats/advisorlist>

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 15 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.

Credit Limit

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

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 permits Utah residents 62 years of age or older to audit regular university classes offered during the day or offered through the Extension Class Division. 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 is charged for House Bill 60 registration.

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 page 39 for more information.)

Adding Courses

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). Classes may be added through the first 20 percent of the class meetings. (Check the *Semester at a Glance* in the current *Schedule of Classes* for the exact date.) Following the add deadline, the Office of the Registrar must also approve any add request. All requests for audit registration must be approved by the instructor and must be submitted to the Office of the Registrar, Student Center 246.

Dropping Courses

Students who do not attend a class during the first week of the term or by the second class meeting, whichever comes first, may be dropped from the course by the instructor. (*This does not remove responsibility from the student to drop courses which he or she does not plan to attend.*)

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. A student may not drop a course after 75 percent of the class is completed. (Check the *Semester at a Glance* in the current *Schedule of Classes* for exact dates.)

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 from the University.

Leave of Absence

Students who wish to discontinue their studies for one or more semesters (other than summer semester) must file a *Leave of Absence* form with *either* the Financial Aid Office (SC 106) if the student has aid, a scholarship, or a tuition waiver, *or* with the Registrar's Office (SC 246) for all other students. 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. The standard leave period is one year. Allowances will be made for military activation, church or humanitarian service, and for those having extenuating circumstances.

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 Registrar's Office 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.

Complete Withdrawal from the University

Complete withdrawal is initiated at the Financial Aid Office (SC 106) for those having financial aid, at the Veterans Services Office (SC 246) for those receiving veterans benefits, at the International Students and Scholars Office (SC 313) for all international students, or at the Registrar's Office (SC 246) for all other students. 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.

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.

Proof of Identification

In order to receive University services, photo identification must be presented. 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, Student Center 212.

Change of Address

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 (SC 246) or by using the Access (Banner) System on the Web:

<http://www.usu.edu/registrar/access/index.cfm>

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. Whether or not the student's registration will be "purged" depends upon the balance owed, as well as the student's class standing. Class fees, as well as other fees (such as parking fines and fees for overdue library books), are included in the balance owed.

The registration purge is governed by the following policies:

1. The purge will occur one week prior to the day classes begin. Any student owing a balance of \$50 or greater will have his or her registration purged. Balance will be defined as any amount owed, minus any financial aid authorized, paid, or memoed. Students approved for participation in the Tuition Installment Plan (TIP) (see page 43) will not have their registration purged, provided they have paid the amount currently due under the TIP (unless other fees are owed totaling \$50 or more).
2. After the third week, a hold will be placed on the account of any student who owes more than \$50, preventing the student from registering for classes or receiving transcripts until he or she pays the balance owed, including preregistration for the next semester.

Prior to the purge, students owing \$50 or more will be sent e-mails, including an electronic bill. 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 William E. Jensen, Associate Registrar, (435) 797-1076, bill.jensen@usu.edu. Students desiring more information about the registration purge should contact the Help Desk at (435) 797-1098.

Records

Office of the Registrar: Student Center 246
Phone: (435) 797-1116
FAX: (435) 797-1110

The custodian of educational records at Utah State University is the Office of the Registrar.

Student Classification

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

Number of 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 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.

Privacy Rights

The Family Educational Rights and Privacy Act, a federal law commonly referred to as *FERPA* or the *Buckley Amendment*, (1) provides that students will have access to inspect and review their educational records upon written request with identity verification and (2) protects the rights of a student to privacy by limiting access to the educational record without express written consent.

Definitions

A **student** is defined as any individual who is attending or has attended Utah State University. (Note: Certain rights are extended to the parent(s) of a dependent student, where dependency is defined by Section 152 of the Internal Revenue Code of 1954.) An **educational record** is any record (1) directly related to a student, and (2) maintained by Utah State University or by an agent of the University.

Notices

With respect to a student's educational records, FERPA affords a student the right: (1) to inspect and review the student's educational records; (2) to request the amendment of the student's educational records to ensure that they are not inaccurate, misleading, or

otherwise in violation of the student's privacy or other rights; (3) to consent to disclosures of personally identifiable information contained in the student's educational records, except to the extent that FERPA authorizes disclosure without consent; (4) to file with the U.S. Department of Education a complaint concerning alleged failures by Utah State University to comply with the requirements of FERPA, if a complaint cannot be resolved within the University; and (5) to obtain a copy of the *Student Records Policy and Procedures for Utah State University*.

Categories of Records

There are two categories of educational records under FERPA. **Directory information** (or releasable information) is general information that may be released to anyone without the consent of the student, unless the student indicates otherwise. **Personally identifiable information** (or nonreleaseable information) includes all information not defined as directory information and may not generally be released without consent of the student.

Utah State University has designated the following as **directory information** for a student:

Releasable Information/Directory Information

Name
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
Participation in officially recognized activities/sports
Dates of attendance and graduation
Weight/height of members of athletic teams
Current semester schedule of classes
Photographs

Nonreleaseable Information

All Other Information

Release of Information

A Release of Information form is available online at:

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

This form may be completed by students wishing to grant access to their educational record to a third party (e.g., parents or spouse). Students accessing educational records must provide identification. It is important to note that, for educational purposes, University officials have access to all student records.

Grading

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-*).

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.

Grading Options

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.

Pass/D+, D, F Option

A student desiring a *Pass*, instead of a regular grade in a course, must request a pass/fail form from the Registrar's Office, 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 the *Semester at a Glance* in the current *Schedule of Classes* for the exact date.)

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.

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.

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, but **not** due to poor performance or to retain financial aid. 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 Registrar's Office.

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 department office and copied to the Registrar's 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. Research and thesis courses taken for graduate work are exempted from this policy.

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.

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

Records

is not available, the department head has authority to change the grade. 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.)

Final Grade Report

Final grades are available on Access at:

<http://www.usu.edu/registrar/access/index.cfm>. Official transcripts may be obtained by submitting a signed request to the Registrar's Office, *in person* at SC 246; *by mail* to Utah State University, 1600 Old Main Hill, Logan UT 84322-1600; or via the Internet at: <http://www.usu.edu/registrar/access/index.cfm>

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."

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.

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.

Academic 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 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**, or **senior** with a USU cumulative GPA of *less than* 2.0 is placed on *academic probation*.

Academic Warning

A freshman student placed on academic warning shall be notified in writing of that action by the dean of his or her college. The notation *placed on 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 the dean of his or her college. The notation *placed on 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 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.

Academic Suspension

An undergraduate student placed on academic suspension shall be notified in writing of that action by the Registrar. 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.

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.

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.

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 103).

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. 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 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.

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*.

Records

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. 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 for two consecutive semesters in residence. **Note:** Courses for which a P (Pass) grade is received *do not* qualify for graded credits.

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 at:
<http://www.usu.edu/registrar/tuition>

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 **\$5 per course added** (assessed beginning the 6th day of classes for undergraduates, and beginning the 16th day of classes for graduates, see page 36)

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 \$15

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/Surcharge.pdf>

Tuition Refund Policy

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.

Example:	Tuition and Fees
Registered for 10 credits	\$ 1,513.48
Dropping all credits at 90%	
Charged for 1 credit.....	456.39
Total Refund	\$ 1,057.09

Example:	Tuition and Fees
Registered for 16 credits	\$ 1,836.01
Dropping 10 credits at 50%	
Charged for 11 credits	1,620.99
{6 credits still registered for + 5 credits (50%) from dropped credits}	
Total Refund	\$ 215.02

For exact dollar amounts, refer to Tuition and Fee Tables at:
<http://www.usu.edu/registrar/catalogpdf/index.cfm>

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 or by University Advising and Transfer Services.

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.

ID Cards

An ID card will be prepared for new freshmen and transfer students upon proof of fee payment. However, electronic validation is required *each semester* before the ID card will be acceptable for admission to student activity attractions. Upon full payment of tuition and fees, students will automatically have their cards validated. A student who holds a validated card may purchase an additional validated card for his or her spouse for \$36.50. Lost ID cards may be replaced for \$10.00.

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, is due on the 30th day of the semester; and the remaining 25 percent 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 found at:
<http://www.usu.edu/registrar/cashier/index.cfm>, 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, 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.

Tuition, Fees, and Refunds

Personal Checks

Personal checks returned by the bank for any reason will subject the student to a service charge and, at the discretion of the Controllers Office, 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

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.

Sponsored Payments

Students whose tuition and fees are paid by a sponsor may contact the Cashiers Office (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. For additional information about this exam, see page 49.

Special Fees

Special fees, charged in addition to tuition and registration fees, are assessed on the Registration/Billing Statement. Carefully review the University *Schedule of Classes* to determine which courses require special fees.

Parking Permits

Parking permits are *required* Monday through Friday during the hours posted in each parking area. Although all vehicles parked on campus must display a valid parking permit, parking permits do *not* guarantee a place to park.

Student Permits

Students living off campus who wish to park a vehicle on campus have two permit options:

1. Purchase a Student B permit, which allows parking in the central campus area.
2. Purchase an Economy permit, which allows parking at the Stadium and below Old Main Hill.

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).

Music

Fees are charged for piano practice and private instruction. For information on amounts, contact the Music Department.

Division of General Studies Fee\$45 per semester

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. See University *Schedule of Classes* for premiums.

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 term of graduation. If the application is submitted *during* the term of graduation, the applicant will need to pay a \$50 fee.

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 \$6.50 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.

Tuition, Fees, and Refunds

For a fee of \$5 per location, transcripts may be faxed. (**Note:** Faxed transcripts may be considered *unofficial copies* by some receiving parties.) Send a fax to (435) 797-1110, along with the required information listed above and credit card information (card name, number, and expiration date).

Unofficial transcripts are available on the internet at:
http://www.usu.edu/compserv/stu_rec.html

University Publications

To purchase a Utah State University *General Catalog* or *Semester Schedule of Classes*, phone Express-a-book at one of the following numbers: (800) 662-3950, (435) 797-3950, or FAX (435) 797-3793.

Scholarships, Fellowships, and Assistantships

Information can be found in the *Financial Aid and Scholarship Information* section of this catalog (pages 23-28).

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 2006-2007 Academic Year

	Resident	Nonresident
Tuition and Fees	See page 43	See page 43
Room and Board	\$ 4,760	\$ 4,760
Books and Supplies	1,040	1,040
Personal Expenses	1,880	1,880
Totals	\$ 7,680	\$ 7,680
	plus	plus
	Resident	Nonres.
	Tuition	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.

Housing and Residence Life

Live and Learn

Students living on campus are at the heart of campus life. Each year Utah State data have confirmed that students living in residence halls do better academically, receive higher GPAs, and are able to carry heavier class loads than students living off campus. Research also 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

The underlying principle 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. The following floors are offered in South Campus: American Sign Language, World of Business, The Vector Floor (Engineering), Computer Science, Prehealth Professionals, and The Aldo Leopold Floor (Natural Resources). Academic Lifestyles in Honors is offered in the new Living/Learning Community.

Community Lifestyles

Community Lifestyles include Global Village (located in the Student Living Center) and Leadership House (located in the new Living/Learning Community). Both are sponsored by student clubs and organizations. **Global Village** is open to all students who want to live with international students coming for a semester or year through the study abroad 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, ROTC, 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 intensive 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, Summit 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 the Community Lifestyles program. The fifth floor of Snow Hall is a returning resident floor. Summit Hall, which features private bedrooms, is reserved for upper-division and graduate students.

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. The Returning Resident Community, located in the west wing of Merrill Hall, is designed to meet the needs of nonfreshmen.

Living/Learning Community—New

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. The community includes Leadership House and Honors floors.

Aggie Village

Graduate/Upper Division

Located adjacent to the main campus, Aggie Village is the ideal getaway for those seeking privacy and quiet study time. Aggie Shuttle Buses are regularly scheduled to take students to the main campus in a matter of minutes. 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.

Housing and Residence Life

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. High-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 apartment prices include all utilities, full kitchens, 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.

Dining Services

Utah State University Dining Services is committed to creating an excellent college dining experience for students, staff, faculty, and guests. A wide variety of dining options, ranging from a full-service restaurant to a convenience store, are offered by Dining Services. For more information about dining options, call (435) 797-1701.

Diner's Account

A Diner's Account is the most convenient way to pay for campus food purchases. With a Diner's Account, students save 10 percent on all their purchases at the Hub, the Skyroom Restaurant, and the Quadside Café. The Diner's Account may also be used at the Carousel Square, the Junction, and the Quickstop.

For more information or to add money to an account, visit Taggart Student Center 212 or <http://www.usu.edu/usucard/>

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 Pizza Hut, Café Ibis, Hogi Yogi, and Taco Time, are offered. The Hub also features daily specials and other great promotions.

Marketplace Eatery

Located on the second floor of the Taggart Student Center, Marketplace Eatery is the new residential dining facility. It offers a variety of different menu options, including Mongolian grill, pizza, pasta, salad bar, Mexican, rotisserie chicken, and much more.

The Skyroom

Located on the fourth floor of the Student Center, the Skyroom is USU's only full-service restaurant. It offers a wide variety of entrees prepared daily by professional chefs. Tuesdays feature an "all-you-care-to-eat" lunch buffet. A daily "all-you-care-to-eat" salad and soup bar is considered one of the best in Cache Valley.

The QuickStop

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

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, sandwich bar, and entrees prepared daily by professional chefs. In order to meet individual lifestyles and budgets, the Junction provides several different meal plans.

USU Catering

USU Catering offers an extensive menu and provides food for buffets, served meals, barbeques, receptions, and any other event needing catering. USU Catering is available to create a special menu for any event, whether on or off campus.

General Education Requirements

Vice Provost for Undergraduate Studies and Research:

Joyce Kinkead
Location: Main 142
Phone: (435) 797-1706
FAX: (435) 797-3880
E-mail: joyce.kinkead@usu.edu
WWW: <http://www.usu.edu/universitystudies>

The General Education program, along with study in the major, is designed to assist students in achieving the Citizen Scholar Objectives (see page 52).

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 (27-31 credits)

USU's General Education program consists of two sets of requirements: Competency and Breadth.

Competency Requirements (9-13 credits)

The Citizen Scholar Objectives (see page 52) 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
AP English Literature 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

And

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode..... 3

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:

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

Computer and Information Literacy (CIL) (0-3 credits)

No specific course is required, but 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. Operating 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 the class does not meet the requirement. Only by passing all of the six CIL tests is the CIL requirement met. It is *strongly suggested* that students complete the CIL requirement during their freshman year.

There is a \$30 fee associated with this exam. Once the fee is paid, 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, students must go to the CIL web page, select **Recording on Transcript**, and then complete and submit the form. The CIL information will then be posted to their transcripts.

To learn more about the CIL requirement, visit the following website: <http://cil.usu.edu>

General Education Requirements

Breadth Requirements (18 credits minimum)

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.

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 1300H, 1320H, 1330H, 1340H, 1350H, and 1360H 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 minimum)

One of the following courses:

USU 1300 (BAI) U.S. Institutions	3
ECON 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

Breadth Creative Arts (BCA) (3 credits minimum)

One of the following courses:

USU 1330 (BCA) Civilization: Creative Arts	3
ART 1010 (BCA) Exploring Art	3
(formerly ART 1100 BCA)	
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
(formerly MUSC 1020 BCA)	
THEA 1013 (BCA) Understanding Theatre	3
(formerly THEA 1010 BCA)	
THEA 1023 (BCA) Introduction to Film	3
(formerly THEA 1020 BCA)	

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

Breadth Humanities (BHU) (3 credits minimum)

One of the following courses:

USU 1320 (BHU) Civilization: Humanities	3
ANTH 2210 (BHU) Introduction to Folklore	3
(formerly ANTH 1710 BHU)	
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval	3
(formerly ART 2710 BHU)	
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern	3
(formerly ART 2720 BHU)	
ENGL 2200 (BHU) Understanding Literature	3
(formerly ENGL 1030 BHU)	
ENGL 2210 (BHU) Introduction to Folklore	3
(formerly ENGL 1710 BHU)	
ENGL 2300 (BHU) Introduction to Shakespeare	3
(formerly ENGL 2030 BHU)	
ENGL 2630 (BHU) American Culture and the Environment	3
HIST 1060 (BHU) Introduction to Islamic Civilization	3
HIST 1100 (BHU) Foundations of Western Civilization: Ancient and Medieval	3
(formerly HIST 1040 BHU)	
HIST 1110 (BHU) Foundations of Western Civilization: Modern	3
(formerly HIST 1050 BHU)	
HIST 1500 (BHU) Cultural and Economic Exchange in the Pre-Nineteenth Century World	3
(formerly HIST 1020 BHU)	
HIST 1510 (BHU) The Modern World	3
(formerly HIST 1030 BHU)	
HIST 2210 (BHU) Introduction to Folklore	3
(formerly HIST 1710 BHU)	
HONR 1320H (BHU) Civilization: Humanities	3
PHIL 1000 (BHU) Introduction to Philosophy	3
(formerly PHIL 1010 BHU)	
PHIL 1120 (BHU) Social Ethics	3
(formerly PHIL 2500 BHU)	
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

Breadth Life Sciences (BLS) (3 credits minimum)

One of the following courses:

USU 1350 (BLS) Integrated Life Science	3
ANTH 1020 (BLS) Biological Anthropology	3
AWER 1200 (BLS) Biodiversity: Its Conservation and Future	3

General Education Requirements

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
(formerly BIOL 1210 BLS and BIOL 3300 BLS)	
<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 1620 (BLS) Biology II (prereq.).....	4
(formerly BIOL 1220 BLS)	
FRWS 2200 (BLS) Ecology of Our Changing World.....	3
HONR 1350H (BLS) Integrated Life Science.....	3
NFS 1020 (BLS) Science and Application of Human Nutrition	3
PLSC 2100 (BLS) Introduction to Horticulture	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

**Breadth Physical Sciences (BPS)
 (3 credits minimum)**

One of the following courses:

USU 1360 (BPS) Integrated Physical Science.....	3
BMET 2000 (BPS) The Atmosphere and Weather.....	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
CS 1030 (BPS) Foundations of Computer Science	3
(formerly CS 1010 BPS)	
GEO 1010 (BPS) Geology of National Parks: Introduction to Geology	3
(formerly GEOL 1100 BPS)	
GEO 1060 (BPS) Introduction to Environmental Geoscience.....	3
(formerly GEOL 1200 BPS)	
GEO 1110 (BPS) The Dynamic Earth: Physical Geology.....	4
(formerly GEOL 1150 BPS)	
GEOG 1000 (BPS) Physical Geography.....	3
(formerly GEOG 1130 BPS)	
HONR 1360H (BPS) Integrated Physical Science	3
PHYS 1020 (BPS) Energy	3
(formerly PHYX 1020 BPS)	
PHYS 1040 (BPS) Introductory Astronomy.....	3
(formerly PHYX 1000 BPS)	
PHYS 1080 (BPS) Intelligent Life in the Universe.....	3
(formerly PHYX 1030 BPS)	
PHYS 1100 (BPS) Great Ideas in Physics	3
(formerly PHYX 1100 BPS)	
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration ...	4
(formerly PHYX 1200 BPS)	
PHYS 1800 (BPS) Physics of Technology (prereq.).....	4
(formerly PHYX 1800 BPS)	
PHYS 2120 (BPS) The Physics of Living Systems II (prereq.)	4
(formerly PHYX 2120 BPS)	
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II ...	4
(formerly PHYX 2220 BPS/QI)	
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
 CLEP Chemistry Test: Score of 60 or higher

**Breadth Social Sciences (BSS)
 (3 credits minimum)**

One of the following courses:

USU 1340 (BSS) Social Systems and Issues	3
ANTH 1010 (BSS) Cultural Anthropology	3
ANTH 2010 (BSS) Peoples of the Contemporary World.....	3
(formerly ANTH 2100 BSS)	
ANTH 2030 (BSS/CI) World Archaeology	3
(formerly ANTH 1030 BSS/CI)	
ASTE 2900 (BSS) Humanity in the Food Web.....	3
ECON 1550 (BSS) Introduction to Environmental and Natural Resource Economics.....	3
ECON 2010 (BSS) Introduction to Microeconomics (prereq.).....	3
ENVS 2340 (BSS) Natural Resources and Society	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
(formerly GEOG 1030 BSS)	
GEOG 1400 (BSS) Human Geography	3
(formerly GEOG 2030 BSS)	
HONR 1340H (BSS) Social Systems and Issues	3
JCOM 1500 (BSS) Introduction to Mass Communication	3
(formerly JCOM 1000 BSS)	
JCOM 2010 (BSS) Media Smarts: Making Sense of the Information Age	3
(formerly JCOM 2000 BSS)	
NR 1010 (BSS) Humans and the Changing Global Environment	3
POLS 2200 (BSS) Comparative Politics	3
PSY 1010 (BSS) General Psychology	3
SOC 1010 (BSS) Introductory Sociology	3
SPED 1010 (BSS) Disability in the American Experience.....	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

**Designation of Courses that Satisfy
 General Education Requirements**

All courses approved for the General Education Requirements are clearly designated in this catalog and in the current *Schedule of Classes*. 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 two Depth courses.

Communications Intensive (CI) (2 courses)

For most students, courses taken for the major will meet this requirement.

ACCT 4510 (CI) Auditing Principles and Techniques	3
ADVS 4200 (CI) Physiology of Reproduction and Lactation	4
ADVS 4920 (CI) Undergraduate Seminar	2
ADVS 5700 (CI) General Animal Pathobiology	3
ANTH 2030 (CI/BSS) World Archaeology	3
(formerly ANTH 1030 CI/BSS)	
ANTH 3130 (CI) Peoples of Latin America	3
ANTH 3200 (CI/DSS) Perspectives on Race	3
ANTH 3310 (CI) Introduction to Museum Studies	3
ANTH 4120 (CI/DSS) Ethnography of Childhood	3
ART 3110 (CI/DHA) Ancient Near East	3
ASTE 3050 (CI) Technical and Professional Communication	
Principles in Agriculture	3
ASTE 3240 (CI) Teaching in Laboratory Settings	3
ASTE 4150 (CI) Methods of Teaching Agriculture	3
ASTE 5260 (CI) Environmental Impacts of Agricultural Systems	3
AV 4610 (CI) AeroTechnology Design II	3
AV 4620 (CI) AeroTechnology Design III	3
AV 4660 (CI) Flight Senior Project	3
AWER 3100 (CI/DSC) Fish Diversity and Conservation	3
AWER 3700 (CI) Fundamentals of Watershed Science	3
BA 4070 (CI) Retail Management	3
BIE 4880 (CI) Biological Engineering Design II	3
BIE 4890 (CI) Biological Engineering Design III	3
BIOL 3010 (CI/DSC) Evolution	3
BIOL 3100 (CI) Bioethics	3
BIOL 4060 (CI) Exploring Animal Behavior	3
BIOL 5250 (CI) Evolutionary Biology	3
BIOL 5420 (CI) Forest and Shade Tree Pathology	3
BIS 2200 (CI) Business Communication	3
(formerly BIS 2550 CI)	
BIS 4550 (CI) Principles of International Business Communications	3
BUS 4880 (CI) Business Strategy	3
CEE 4790 (CI) Environmental Engineering Design II	2
CEE 4870 (CI) Civil Engineering Design II	2

University Studies Depth Education Requirements

CEE 4880 (CI) Civil Engineering Design III.....	2	GEO 5520 (CI) Techniques of Groundwater Investigations.....	3
CEE 4890 (CI) Environmental Engineering Design III.....	2	(formerly GEOL 5520 CI)	
CHEM 3080 (CI) Physical Chemistry Laboratory I.....	1	GEOG 4200 (CI) Regional Geography.....	3
CHEM 3090 (CI) Physical Chemistry Laboratory II.....	1	GERM 3040 (CI) Advanced German Grammar and Composition.....	3
CHEM 4800 (CI) Research Problems.....	1-3	GERM 3050 (CI) Advanced German Grammar and Composition.....	3
CHEM 4890 (CI) Undergraduate Biochemistry Seminar I.....	1	GERM 3510 (CI) Business German.....	3
CHEM 4891 (CI) Undergraduate Biochemistry Seminar II.....	1	GERM 3540 (CI) Techniques in Translating German Texts.....	3
CHEM 4990 (CI) Undergraduate Seminar.....	2	HEP 3600 (CI) Introduction to Community Health.....	3
COMD 2910 (CI) Sign Language I.....	4	HEP 5000 (CI) Race, Culture, Class, and Gender Issues in Health.....	3
COMD 3650 (CI) Clinical Processes and Behavior.....	2	HEP 5100 (CI) Cultural and Complementary Medicine.....	3
COMD 4100 (CI) Clinical Practicum in Speech-Language Pathology.....	1-2	HIST 3110 (CI/DHA) Ancient Near East.....	3
COMD 4910 (CI) Sign Language III.....	4	HIST 3130 (CI/DHA) Greek History.....	3
CS 2450 (CI) Software Engineering.....	3	HIST 3150 (CI) Roman History.....	3
(formerly CS 2370 CI)		HIST 3220 (CI/DHA) Medieval European Civilization, 500-1500.....	3
CS 3010 (CI/QI/DSC) Information Acquisition, Analysis, and Presentation.....	3	HIST 3250 (CI/DHA) Renaissance Europe 1300 to 1520.....	3
CS 3410 (CI/DSC) Algorithm Development: JAVA/Internet.....	3	HIST 3700 (CI) Regional Folklore.....	3
ECE 3820 (CI) Design I.....	2	HIST 3710 (CI) Folklore Colloquium.....	3
ECE 4840 (CI) Design II.....	3	HIST 3760 (CI/DHA) The United States, 1900-1945.....	3
ECE 4850 (CI) Design III.....	2	HIST 3850 (CI/DHA) History of Utah.....	3
ECON 4030 (CI) Agribusiness Finance.....	3	HIST 3950 (CI/DHA) Environmental History.....	3
ECON 5020 (CI) Economics and Public Policy.....	3	HIST 4230 (CI/DHA) The History of Christianity in the West.....	3
ECON 5350 (CI) Agribusiness, Cooperatives, and Management.....	3	HIST 4550 (CI/DHA) Women and Gender in America.....	3
ECON 5950 (CI) Senior Project.....	3	HIST 4600 (CI/DHA) The History of the American West.....	3
ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II.....	4-6	HIST 4620 (CI) Advanced Seminar in American Studies.....	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3	HIST 4640 (CI) Studies in the American West.....	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III.....	3	HIST 4720 (CI/DHA) The Civil Rights Movement.....	3
ENGL 3080 (CI) Introduction to Technical Communication.....	3	HIST 4730 (CI) History of Black America.....	3
ENGL 3400 (CI) Professional Writing (for English majors <i>only</i>).....	3	HIST 4990 (CI) Special Topics in History.....	3
ENGL 3700 (CI) Regional Folklore.....	3	HIST 5690 (CI) American Studies Capstone Seminar.....	3
ENGL 3710 (CI) Folklore Colloquium.....	3	ID 3750 (CI/DHA) History of Interior Furnishings and Architecture II.....	3
ENGL 4400 (CI) Professional Editing (for English majors <i>only</i>).....	3	ID 4740 (CI) Business and Professional Practices in Interior Design.....	2
ENGL 4500 (CI) Teaching Writing.....	3	JCOM 2160 (CI) Introduction to Online Journalism.....	2
ENGL 4510 (CI) Teaching Literature.....	3	(formerly JCOM 2110 CI)	
ENGL 4620 (CI) Advanced Seminar in American Studies.....	3	JCOM 2170 (CI) Reporting Public Affairs.....	3
ENGL 4640 (CI) Studies in the American West.....	3	(formerly JCOM 2120 CI)	
ENGL 5300 (CI) Literature and Gender.....	3	JCOM 2310 (CI) Writing for Public Relations.....	3
ENGL 5320 (CI) Literature and Cultural Difference.....	3	JCOM 3110 (CI) Beyond the Inverted Pyramid.....	3
ENGL 5340 (CI) Studies in Literary and Cultural Theory.....	3	JCOM 3120 (CI) Copy Editing and Publication Design.....	3
ENGL 5350 (CI) Literary Studies Capstone (for English majors <i>only</i>).....	3	JCOM 4110 (CI) Computer-Assisted Reporting.....	3
ENGL 5430 (CI) Professional Writing Capstone (for English majors <i>only</i>).....	3	JCOM 4120 (CI) Sports Writing.....	3
ENGL 5690 (CI) American Studies Capstone Seminar.....	3	JCOM 4210 (CI) Newscast I.....	4
ENGL 5910 (CI) Senior Honors Thesis.....	1-6	JCOM 4220 (CI) Newscast II.....	4
ENVS 4500 (CI) Wildland Recreation Behavior.....	3	JCOM 5110 (CI) Literary Journalism.....	3
ETE 4710 (CI) Electronics/Computer Design II.....	3	JCOM 5300 (CI) Case Studies in Public Relations.....	3
ETE 5220 (CI) Program and Course Development.....	3	LAEP 2700 (CI) Site Analysis and Design.....	5
FCHD 3210 (CI) Families and Cultural Diversity (for FCHD majors <i>only</i>).....	3	LAEP 4920 (CI) Professional Practice.....	2
FCHD 4900 (CI) Pre-Practicum Skills.....	3	MAE 4400 (CI) Fluids/Thermal Laboratory.....	2
FCSE 3060 (CI/DSS) Human Behavior Related to Dress.....	3	MAE 4800 (CI) Design II.....	3
FREN 3060 (CI) French Conversation.....	3	MATH 4200 (CI) Foundations of Analysis.....	3
FREN 3090 (CI) French Intermediate Written Communication.....	3	MATH 4310 (CI) Introduction to Algebraic Structures.....	3
FREN 3510 (CI) Business French.....	3	MATH 5580 (CI) Actuarial Math II.....	3
FREN 4060 (CI) Advanced French Conversation.....	3	MHR 4880 (CI) Business Strategy in an Entrepreneurial Context.....	3
FREN 4090 (CI) Advanced Written Communication.....	3	MHR 4890 (CI) Business Strategy in a Global Context.....	3
FRWS 3700 (CI) Inventory and Assessment in Natural Resource and Environmental Management.....	3	MUSC 1460 (CI) Organ Literature I.....	3
FRWS 5420 (CI) Forest and Shade Tree Pathology.....	3	MUSC 1470 (CI) Organ Literature II.....	3
GEO 3550 (CI) Sedimentation and Stratigraphy.....	4	MUSC 3130 (CI) Music Theory IV.....	3
(formerly GEOL 3550 CI)		MUSC 3620 (CI) Vocal Repertory II.....	2
GEO 4700 (CI) Geologic Field Methods.....	3	MUSC 4320 (CI) Psychology of Music II.....	2
(formerly GEOL 4700 CI)		MUSC 4730 (CI) Directed Project in Instrumental Pedagogy.....	2
GEO 5440 (CI) Paleogeology.....	2	NFS 4050 (CI) Education and Counseling Methods in Dietetics I.....	2
(formerly GEOL 5440 CI)		NFS 4060 (CI) Education and Counseling Methods in Dietetics II.....	2
		NFS 4560 (CI) Clinical Nutrition II.....	4
		NFS 4660 (CI) Medical Dietetics.....	12
		NFS 4780 (CI) Maternal and Child Nutrition.....	3-4
		NFS 5110 (CI) Food Microbiology.....	4

University Studies Depth Education Requirements

NFS 5920 (CI) Food Product Development	3
OSS 1550 (CI) Business Correspondence.....	3
(formerly BIS 1550 CI)	
PEP 3200 (CI) Motor Learning and Skill Analysis	3
PEP 4900 (CI) Methods of Physical Education	3
PEP 5430 (CI) The History and Philosophy of Physical Education	3
PHIL 3100 (CI) Ancient Philosophy	3
PHIL 3120 (CI) Early Modern Philosophy	3
PHIL 3150 (CI) Kant and His Successors	3
PHIL 3160 (CI) Contemporary Philosophy	3
PHIL 3180 (CI/DHA) Contemporary European Philosophy.....	3
PHIL 3730 (CI) Philosophy of the New Testament	3
PHYS 3870 (CI) Intermediate Laboratory I	2
(formerly PHYX 3870 CI)	
PHYS 3880 (CI) Intermediate Laboratory II	2
(formerly PHYX 3880 CI)	
PHYS 4250 (CI) Cooperative Work Experience	1-6
(formerly PHYX 4250 CI)	
PHYS 4900 (CI) Research in Physics	1-3
(formerly PHYX 4900 CI)	
PHYS 5870 (CI) Advanced Laboratory	3
(formerly PHYX 5870 CI)	
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 3500 (CI) Community Recreation Administration	3
PRP 5000 (CI) Seminar in Recreation.....	3
PSB 4890 (CI) Senior Seminar	1
PSY 4510 (CI) Effective Social Skills Interventions.....	3
PSY 5200 (CI) Introduction to Interviewing and Counseling	3
PSY 5950 (CI) Undergraduate Apprenticeship I.....	3
PSY 5960 (CI) Undergraduate Apprenticeship II.....	3
PUBH 5500 (CI) Public Health Management	2
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
(formerly SPCH 1050 CI)	
SPCH 2110 (CI) Interpersonal Communication.....	3
(formerly SPCH 2600 CI)	
SPCH 3250 (CI) Organizational Communication	3
SPCH 3400 (CI) Persuasion	3
SPCH 4800 (CI) Nonverbal Communication	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 5240 (CI/DHA) Contemporary Theatre	3
WGS 4550 (CI/DHA) Women and Gender in America	3

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 4150 (QI) Problems in Cultural Anthropology.....	3
ANTH 4250 (QI) Problems in Bioarchaeology	3
ASTE 3040 (QI) Fabrication Practices in Agricultural Buildings.....	2
ASTE 3600 (QI) Management of Agricultural Machinery Systems	3
AWER 3820 (QI/DSC) Climate Change	3
BA 3080 (QI) Operations Research	3
BA 3400 (QI) Corporate Finance	3
BIOL 3060 (QI) Principles of Genetics	4
(formerly BIOL 3200 QI)	
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
BMET 3820 (QI/DSC) Climate Change.....	3
BUS 3400 (QI) Finance Fundamentals	3
CHEM 3000 (QI) Quantitative Analysis	3
(formerly CHEM 3600 QI)	
CHEM 3060 (QI) Physical Chemistry	3
CHEM 3070 (QI) Physical Chemistry	3
CS 1410 (QI) Introduction to Computer Science—CS 2	3
(formerly CS 1720 QI)	
CS 2420 (QI) Algorithms and Data Structures—CS 3.....	3
(formerly CS 2200 QI)	
CS 3010 (QI/CI/DSC) Information Acquisition, Analysis,	
and Presentation	3
CS 3420 (QI) Algorithm Development: C# and .NET	3
CS 3500 (QI/DSC) Algorithm Development:	
Visual BASIC/Graphical User	3
CS 3510 (QI/DSC) Algorithm Development: COBOL/Business	3
ECE 3260 (QI/DSC) Science of Sound	3
ECON 4310 (QI) Mathematical Methods for Economics	3
ECON 5310 (QI) Mathematical Methods for Economics	3
ECON 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
FCHD 3350 (QI/DSS) Family Finance	3
GEO 5510 (QI) Groundwater Geology	3
(formerly GEOL 5510 QI)	
GEO 5530 (QI) Petroleum Systems: Principles of Exploration	
and Development	3
(formerly GEOL 5530 QI)	
GEO 5540 (QI) Quantitative Methods in Geology	3
(formerly GEOL 5540 QI)	
GEO 5620 (QI) Global Geophysics	3
(formerly GEOL 5620 QI)	
HEP 4200 (QI) Planning and Evaluation for Health Education.....	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
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 5120 (QI) Biologic Markers of Diet and Disease Risk Lab	2

University Studies Depth Education Requirements

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
(formerly PHYX 2210 QI)	
PHYS 2220 (QI/BPS) General Physics—Science and Engineering II ..	4
(formerly PHYX 2220 QI/BPS)	
PHYS 3010 (QI/DSC) Space Exploration from Earth	
to the Solar System.....	3
(formerly PHYX 3010 QI/DSC)	
PHYS 3030 (QI/DSC) The Universe.....	3
(formerly PHYX 3030 QI/DSC)	
PHYS 3040 (QI) Space Weather—Dangers to the High-Tech World....	3
(formerly PHYX 3040 QI)	
PHYS 4010 (QI/DSC) Chaos Under Control.....	3
(formerly PHYX 4010 QI/DSC)	
PHYS 4020 (QI/DSC) Science, Art, and Music.....	3
(formerly PHYX 4020 QI/DSC)	
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
SOIL 5550 (QI) Soils and Plant Nutrient Bioavailability.....	3
SPED 5010 (QI) Applied Behavioral Analysis 1:	
Principles, Assessment, and Analysis.....	3
STAT 2000 (QI) Statistical Methods.....	3
STAT 3000 (QI) Statistics for Scientists.....	3
STAT 5100 (QI/CI) Linear Regression and Time Series.....	3
STAT 5300 (QI) Statistical Process Control.....	3

Or one of the following exams:

AP Physics C: Electricity and Magnetism: Score of 3 or higher
 AP Physics C: Mechanics: Score of 3 or higher
 AP Statistics: Score of 3 or higher

Depth Course Requirements (2 courses)

Students are required to take 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 one course from each of the two categories which *do not* include his or her major (e.g., Sociology majors would select one 3000-level or above course from the Depth Humanities and Creative Arts and one 3000-level or above course 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)

One course is required for all students whose major is **not** categorized as Humanities (HU) or Creative Arts (CA).

USU 3330 (DHA) Arts Symposium (prereq.).....	1-2
(Two credits of USU 3330 are needed to fulfill DHA requirement.)	
ART 3110 (DHA/CI) Ancient Near East (prereq.).....	3
ARTH 4510 (DHA) Islamic Visual Cultures.....	3
(formerly ART 3720 DHA)	

ARTH 4620 (DHA) Byzantine Art.....	3
(formerly ART 3130 DHA)	
ARTH 4630 (DHA) Medieval Art.....	3
(formerly ART 3140 DHA)	
BUS 4150 (DHA) History of Apparel and Textiles I.....	3
BUS 4160 (DHA) History of Apparel and Textiles II.....	3
CHIN 3100 (DHA) Readings in Contemporary Chinese	
Culture (prereq.).....	3
ENGL 3020 (DHA) Perspectives in Linguistics.....	3
ENGL 3030 (DHA) Perspectives in Literature.....	3
ENGL 3040 (DHA) Perspectives in Writing and Rhetoric.....	3
ENGL 3050 (DHA) Masterpieces of World Literature.....	3
ENGL 3060 (DHA) British and Commonwealth Cultures.....	3
ENGL 3070 (DHA) Perspectives in Folklore.....	3
FREN 3500 (DHA) Topics in French Literature in Translation.....	3
FREN 3550 (DHA) French Civilization.....	3
FREN 4610 (DHA) Period Studies in French Literature (prereq.).....	3
FREN 4620 (DHA) Genre Studies in French Literature (prereq.).....	3
GERM 3000 (DHA) Introduction to German Studies (prereq.).....	3
GERM 3300 (DHA) Contemporary German Speaking	
Cultures (prereq.).....	3
GERM 3550 (DHA) Cultural History of German Speaking	
Peoples (prereq.).....	3
GERM 3600 (DHA) Survey of German Literature I (prereq.).....	3
GERM 3610 (DHA) Survey of German Literature II (prereq.).....	3
GERM 4650 (DHA) Trends in Modern German Literature.....	3
HIST 3070 (DHA) Perspectives in Folklore.....	3
HIST 3110 (DHA/CI) Ancient Near East (prereq.).....	3
HIST 3130 (DHA/CI) Greek History (prereq.).....	3
HIST 3220 (DHA/CI) Medieval European Civilization,	
500-1500 (prereq.).....	3
HIST 3250 (DHA/CI) Renaissance Europe 1300 to 1520.....	3
HIST 3760 (DHA/CI) The United States, 1900-1945 (prereq.).....	3
HIST 3850 (DHA/CI) History of Utah (prereq.).....	3
HIST 3950 (DHA/CI) Environmental History.....	3
HIST 4230 (DHA/CI) The History of Christianity in the West.....	3
HIST 4320 (DHA) History of Scientific Thought.....	3
HIST 4400 (DHA) History of Aeronautics.....	3
HIST 4550 (DHA/CI) Women and Gender in America.....	3
HIST 4600 (DHA/CI) The History of the American West.....	3
HIST 4720 (DHA/CI) The Civil Rights Movement (prereq.).....	3
HIST 4780 (DHA) American Financial History from the	
Nineteenth Century to the Present.....	3
HIST 4830 (DHA) Structure of Engineering Revolutions.....	3
HONR 3020H (DHA) Special Topics: Humanities/Creative Arts.....	3
ID 3740 (DHA) History of Interior Furnishings and Architecture I.....	3
ID 3750 (DHA/CI) History of Interior Furnishings and Architecture II....	3
LANG 3550 (DHA) Culture of East Asia.....	3
MS 4610 (DHA) Military History Seminar.....	1-3
MUSC 3010 (DHA) Masterpieces of Music.....	3
MUSC 3020 (DHA) History of Jazz.....	3
MUSC 3500 (DHA) Symphony Orchestra.....	1
MUSC 3790 (DHA) Symphonic Band.....	1
MUSC 4600 (DHA) University Chorale.....	1
MUSC 4650 (DHA) Chamber Singers.....	1
MUSC 4700 (DHA) Wind Orchestra.....	1
PHIL 3180 (DHA/CI) Contemporary European Philosophy.....	3
PHIL 3510 (DHA) Environmental Ethics.....	3
PHIL 3520 (DHA) Business Ethics.....	3
PHIL 3800 (DHA) Philosophy in Literature.....	3
PHIL 3810 (DHA) Aesthetics.....	3
PHIL 4300 (DHA) Epistemology.....	3
PHIL 4310 (DHA) Philosophy of Science.....	3
PHIL 4320 (DHA) History of Scientific Thought.....	3
PHIL 4410 (DHA) Philosophy of Mind.....	3
PHIL 4540 (DHA) Human Values and Information Technology.....	3

University Studies Depth Education Requirements

PHIL 4610 (DHA) Social and Political Philosophy	3
RUSS 3300 (DHA) Contemporary Russian Language and Culture (prereq.)	3
SPAN 3550 (DHA) Spanish Culture and Civilization (prereq.)	3
SPAN 3570 (DHA) Latin American Culture and Civilization (prereq.)	3
SPAN 3600 (DHA) Survey of Spanish Literature I (prereq.)	3
SPAN 3610 (DHA) Survey of Spanish Literature II (prereq.)	3
SPAN 3620 (DHA) Survey of Latin American Literature I (prereq.)	3
SPAN 3630 (DHA) Survey of Latin American Literature II (prereq.)	3
THEA 3050 (DHA) Period Styles/Historic Interiors	3
THEA 3230 (DHA) Survey of Western Theatre	3
THEA 3570 (DHA) Historic Clothing	3
THEA 4030 (DHA) Storytelling	3
THEA 5240 (DHA/CI) Contemporary Theatre (prereq.)	3
THEA 5270 (DHA) Performance Theory and Criticism	3
WGS 4550 (DHA/CI) Women and Gender in America	3

Depth Life and Physical Sciences (DSC)

One course is required for all students whose major is **not** categorized as Life Sciences (LS) or Physical Sciences (PS).

ADVS 3200 (DSC) Ethical Issues in Genetic Engineering and Biotechnology	3
ASTE 3440 (DSC) Science, Technology, and Modern Society	3
AWER 3000 (DSC) Oceanography	3
AWER 3100 (DSC/CI) Fish Diversity and Conservation (prereq.)	3
AWER 3820 (DSC/QI) Climate Change (prereq.)	3
BIOL 3000 (DSC) Discovering Utah's Biodiversity (prereq.)	3
BIOL 3010 (DSC/CI) Evolution	3
BIOL 3030 (DSC) Genetics and Society (prereq.)	3
BIOL 3040 (DSC) Plants and Civilization (prereq.)	3
BIOL 3500 (DSC) Plagues, Pests, and People (prereq.)	3
BMET 3820 (DSC/QI) Climate Change (prereq.)	3
CHEM 3650 (DSC) Environmental Chemistry (prereq.)	3
CS 3010 (DSC/CI/QI) Information Acquisition, Analysis, and Presentation (prereq.)	3
CS 3410 (DSC/CI) Algorithm Development: JAVA/Internet (prereq.)	3
CS 3500 (DSC/QI) Algorithm Development: Visual BASIC/Graphical User (prereq.)	3
CS 3510 (DSC/QI) Algorithm Development: COBOL/Business (prereq.)	3
ECE 3260 (DSC/QI) Science of Sound	3
ENVS 3600 (DSC) Living with Wildlife	3
ETE 3440 (DSC) Science, Technology, and Modern Society	3
FCSE 3030 (DSC) Textile Science	4
GEO 3100 (DSC) Natural Disasters (prereq.)	3
(formerly GEOL 3100 DSC)	
GEO 3200 (DSC) The Earth Through Time (prereq.)	4
(formerly GEOL 3200 DSC)	
GEO 3300 (DSC) Geology of the World's Oceans (prereq.)	3
(formerly GEOL 3300 DSC)	
HONR 3010H (DSC) Special Topics: Life and Physical Sciences	3
NFS 3110 (DSC) Food, Technology, and Health (prereq.)	3
PHIL 4530 (DSC) Ethics and Biotechnology	3
PHYS 3010 (DSC/QI) Space Exploration from Earth to the Solar System (prereq.)	3
(formerly PHYX 3010 DSC/QI)	
PHYS 3020 (DSC) Great Scientists (prereq.)	3
(formerly PHYX 3020 DSC)	
PHYS 3030 (DSC/QI) The Universe (prereq.)	3
(formerly PHYX 3030 DSC/QI)	
PHYS 4010 (DSC/QI) Chaos Under Control (prereq.)	3
(formerly PHYX 4010 DSC/QI)	
PHYS 4020 (DSC/QI) Science, Art, and Music (prereq.)	3
(formerly PHYX 4020 DSC/QI)	

PLSC 3200 (DSC) Horticultural Science	3
PLSC 4600 (DSC/QI) Cereal Science (prereq.)	3
SOIL 3100 (DSC) Soils and Civilization	3
SOIL 3200 (DSC) Microbes in Environmental Action (prereq.)	3

Depth Social Sciences (DSS)

One course is required for all students whose major is **not** categorized as Social Sciences (SS).

ANTH 3160 (DSS) Anthropology of Religion	3
ANTH 3200 (DSS/CI) Perspectives on Race	3
ANTH 3300 (DSS) Archaeology in North America	3
ANTH 3320 (DSS) Ancient Humans and the Environment	3
ANTH 3350 (DSS) Archaeology of Ancient Civilizations	3
ANTH 4110 (DSS) Southwest Indian Cultures, Past and Present	3
ANTH 4120 (DSS/CI) Ethnography of Childhood	3
ANTH 4130 (DSS) Medical Anthropology: Matter, Culture, Spirit, and Health	3
ANTH 4360 (DSS) Ancient Desert West (prereq.)	3-4
ANTH 5100 (DSS) Anthropology of Sex and Gender	3
ANTH 5160 (DSS) Cities and Development	3
ANTH 5650 (DSS) Developing Societies	3
BIS 5700 (DSS) Internet Management and Electronic Commerce (prereq.)	3
BUS 3100 (DSS) Survey of Management Information Systems	3
BUS 3110 (DSS) Management Fundamentals (prereq.)	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing (prereq.)	3
ECON 3050 (DSS) Introduction to Agribusiness Management (prereq.)	3
ECON 3400 (DSS) International Economics for Business (prereq.)	3
ECON 4010 (DSS) Managerial Economics	3
ECON 5110 (DSS) Economic History of the United States (prereq.)	3
ECON 5150 (DSS) Comparative Economic Systems (prereq.)	3
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management	3
FCHE 3350 (DSS/QI) Family Finance (prereq.)	3
FCSE 3060 (DSS/CI) Human Behavior Related to Dress (prereq.)	3
GEOG 5650 (DSS) Developing Societies	3
HONR 3030H (DSS) Special Topics: Social Sciences	3
JCOM 3140 (DSS) Opinion Writing	3
JCOM 3300 (DSS) Strategic Research Methods in Public Relations (prereq.)	3
JCOM 3400 (DSS) Gender and Communication	3
JCOM 3410 (DSS) Film as Cultural Communication	3
JCOM 4010 (DSS) Mass Communication Ethics	3
JCOM 4020 (DSS) Mass Media and Society	3
JCOM 4030 (DSS) Mass Media Law	3
MHR 3110 (DSS) Managing Organizations and People	3
MHR 3720 (DSS) Leading Organization Change (prereq.)	3
MHR 3810 (DSS) Employment Law and Policy Development (prereq.)	3
MHR 3820 (DSS) International Management	3
POLS 3110 (DSS) Parties and Elections	3
POLS 3120 (DSS) Law and Politics	3
POLS 3130 (DSS) United States Legislative Politics	3
POLS 3140 (DSS) The Presidency	3
POLS 3190 (DSS) Gender, Power, and Politics	3
POLS 3210 (DSS) Western European Government and Politics	3
POLS 3220 (DSS) Russian and East European Government and Politics	3
POLS 3250 (DSS) Chinese Government and Politics	3
POLS 3270 (DSS) Latin American Government and Politics	3
POLS 3310 (DSS) American Political Thought	3
POLS 3400 (DSS) United States Foreign Policy	3
POLS 3810 (DSS) Introduction to Public Policy	3

University Studies Depth Education Requirements

POLS 4320 (DSS) History of Political Thought II	3
POLS 4820 (DSS) Natural Resources and Environmental Policy	3
POLS 5350 (DSS) Evolution, Conflict, and Cooperation	3
POLS 5440 (DSS) Gender and World Politics	3
PSY 3120 (DSS) Abuse, Neglect, and the Psychological Dimensions of Intimate Violence (prereq.)	3
PSY 3210 (DSS) Abnormal Psychology (prereq.)	3
PSY 3400 (DSS) Analysis of Behavior: Advanced (prereq.)	4
PSY 3500 (DSS) Scientific Thinking and Methods in Psychology (prereq.)	3
PSY 3510 (DSS) Social Psychology (prereq.)	3
PSY 4210 (DSS) Personality Theory (prereq.)	3
PSY 4230 (DSS) Psychology of Gender	3
PSY 4240 (DSS) Multicultural Psychology (prereq.)	3
PSY 4420 (DSS) Cognitive Psychology (prereq.)	3
SCED 3210 (DSS/CI) Educational and Multicultural Foundations	3
SOC 3200 (DSS) Population and Society	3
SOC 3610 (DSS) Rural Sociology	3
SOC 4620 (DSS) Sociology of the Environment and Natural Resources	3
SOC 5650 (DSS) Developing Societies	3
SPCH 3050 (DSS) Technical and Professional Communication	3
SPCH 3330 (DSS) Intercultural Communication	3

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**

College of Business

All majors, **SS**

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, (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

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**
 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 and in the current *Schedule of Classes*. 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), page 726.

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 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 page 97 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 Continuing 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 Continuing 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 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 Continuing Education.)

Associate of Science Degree

The Associate of Science (AS) degree in general studies is offered through Continuing Education. A minimum of 60 credits is required for an AS degree. This degree is available at Continuing 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 Colleges of Agriculture, Business, Education and Human Services, and 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 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 *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
3. 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.

Undergraduate Graduation Requirements

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 1300H; ECON 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 49-57.)

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/ats/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 General Studies 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 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 distance education through USU.

Credit by Examination

Some noncollegiate experiences may permit credit through challenge and foreign language examinations. For further information, see pages 18-19.

Remedial Courses

Remedial courses (numbered below 1000), cannot be used to satisfy baccalaureate requirements. These credits do not count toward GPA or Earned Hours.

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.

Undergraduate Graduation Requirements

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 338.

General Information

Extension and Independent Study

Applicants for degrees who have taken courses for credit through extension classwork or 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 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 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, Student Center 246. The application deadline is October 15 for spring semester graduates and February 15 for summer or fall semester graduates. Students who complete the application process *prior* to the term of graduation will be assessed a \$10 application fee. However, a \$50 fee will be required for students who complete the process *during* the term of graduation.

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 (Student Center 246) and pay the application fee of \$10. *Approximately six weeks is needed to complete the application process.*

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 an official document (i.e., driver license, marriage certificate, etc.) with the new name on it.

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. Attendance at commencement is expected of all candidates. All students must *either* submit notification of intent to participate *or* be officially excused through the Registrar's Office. This should be done via e-mail to:

registrar@cc.usu.edu. Also, students who do *not* attend Commencement 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.

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. 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 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 an accredited college or university.

Undergraduate Graduation Requirements

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 (CL), 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.html> 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 Lillian Tripp in the Registrar's Office. Lillian Tripp will then generate an official letter on letterhead from the Registrar's Office, 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 University Advising and Transfer Services (UATS), 0114 Old Main Hill, Logan UT 84322-0114. UATS will then post and evaluate the credit. If all requirements have been satisfied, UATS will complete the Letter of Completion Form and submit it to the Registrar's Office for processing.

Credit by Examination

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 4 or 8 credits for a composite score of 3, 4, or 5 on any Advanced Placement examination. Earned credit may be applied toward the University Studies requirements. This information is summarized below.

AP Score	USU Credits Granted
0, 1, or 2	0
3, 4, or 5	4 or 8

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, Student Center 102. Efficient posting of AP credits helps advisors counsel students about requirements.

For further information regarding credits granted for AP examinations, contact University Advising and Transfer Services, Student Center 304, (435) 797-3373.

Advanced Placement (AP) Credit Allocation

AP Test	Score	Credits	USU Credit Awarded
Art History	3-5	8	ARTH 2710 (BHU) (3) + ARTH 2720 (BHU) (3) + 2 elective credits
Biology	3-5	8	BIOL 1010 (BLS) (3) + 5 elective credits
Calculus AB	3 4-5	8 8	3 (QL) credits + 5 elective credits MATH 1210 (QL) (4) + 4 elective credits
Calculus BC	3-4 5	8 8	MATH 1210 (QL) (4) + 4 elective credits MATH 1210 (QL) (4) + MATH 1220 (QL) (4)
Chemistry	3-4 3-4 5	8 8 8	CHEM 1210 (4) + 4 (BPS) credits* CHEM 1010 (BPS) (3) + CHEM 1110 (BPS) (4) + 1 elective credit or Placement* CHEM 1210 (4) + CHEM 1220 (BPS) (4)
Chinese Language & Culture	3-5	10	CHIN 1010 (5) + CHIN 1020 (5)
Computer Science A	3-5	4	4 elective credits
Computer Science AB	3-5	8	8 elective credits
English Language	3-5	8	ENGL 1010 (CL1) (3) + 5 elective credits

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

*The student/advisor may choose the CHEM 1010 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

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.

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 University Advising and Transfer Services at (435) 797-9303.

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	60	3	CHEM 1010 (BPS) (3)

College Algebra	50	3	3 (QL) credits
College Algebra—Trigonometry	–	–	no credit awarded
College Mathematics	–	–	no credit awarded
English Composition	50	3	ENGL 1010 (CL1) (3)
English Literature	50	3	ENGL 2140 (3)
French Language	–	–	no credit awarded
Freshman College Composition	53	3	ENGL 1010 (CL1) (3)
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	MHR 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
Principles of Accounting	–	–	no credit awarded
Principles of Macroeconomics	53	3	ECON 1500 (BAI) (3)
Principles of Management	–	–	no credit awarded
Principles of Marketing	55*	3	BA 3500 (3)
Principles of Microeconomics	54	3	ECON 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)

*The minimum score requirement for this exam is subject to change.

**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

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. 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	–	To be determined
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	–	To be determined

General Anthropology	47	–	To be determined
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	BA 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/QI) (3)
Physical Geology	–	–	To be determined
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

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.

Credit by Examination

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 present an International Baccalaureate diploma will be awarded a maximum of 30 credits. These credits will waive the Breadth requirements, but students will still be required to complete the Communications Literacy, Quantitative Literacy, and Computer and Information Literacy requirements.

Students who have not completed the International Baccalaureate diploma may receive up to 8 credits for scores of 5, 6, or 7 achieved on higher-level exams, up to a maximum of 30 credits. No credits are awarded for subsidiary-level exams.

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 number of 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	Min. Score	Credits	USU Credit Awarded
Applied Chemistry	5	8	3 (BPS) credits + 5 elective credits
Art/Design	5	8	8 elective credits
Art History	5	8	8 elective credits
Biology	5	8	3 (BLS) credits + 5 elective credits
Economics	5	8	3 (BSS) credits + 5 elective credits
English A1	5	8	ENGL 1010 (CL1) (3) + ENGL 2010 (CL2) (3) + 2 elective credits
General Chemistry	5	8	3 (BPS) credits + 5 elective credits
Geography	5	8	GEOG 1000 (BPS) (3) + GEOG 1400 (BSS) (3) + 2 elective credits

History—European	5	8	3 (BHU) credits + 5 elective credits
History—United States	5	8	3 (BAI) credits + 5 elective credits
History of the Americas	5	8	3 (BHU) credits + 5 elective credits
History of the Islamic World	5	8	3 (BHU) credits + 5 elective credits
Mathematics	5	8	3 (QL) credits + 5 elective credits
Philosophy	5	8	3 (BHU) credits + 5 elective credits
Physics	5	8	PHYS 2110 (4) + PHYS 2120 (BPS) (4)
Psychology	5	8	3 (BSS) credits + 5 elective credits
Social Anthropology	5	8	ANTH 1010 (BSS) (3) + 5 elective credits
Theatre Arts	5	9	THEA 1013 (BCA) (3) + THEA 1033 (3) + THEA 1713 (3)

Credit will *only* be awarded for higher-level exams.

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

The results of the ACT or SAT mathematics section, along with other pertinent information (high school coursework, etc.), are used as a basis for placing incoming freshman students in the proper mathematics or statistics course as follows:

Placement in Mathematics and Statistics Courses

Course	Math ACT Score	Math SAT Score
MATH 1010	18 or higher	440 or higher
STAT 1040	19 or higher	460 or higher
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

Credit by Examination

Regardless of previous record, a student may take any of the mathematics and statistics placement tests up to twice per semester. Students should schedule an appointment in advance at the Testing Center, located in University Inn 115. A \$5 fee will be required for each test, and results will be known within a few minutes. There are three different tests for placement into the following:

1. MATH 1010
2. MATH 1030, 1050, 1060, or STAT 1040
3. MATH 1100, 1210, 2020, or STAT 2300

Generally, students who receive an ACT score of 17 or lower are advised to take the MATH 1010 Placement Test to determine which entry-level course is needed. Based on the results of the test, MATH 1010 or 0900 will be recommended. MATH 0900 is a refresher course and has an additional fee. In addition, MATH 0900 does not count for college credit.

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 course unless they receive a score of at least 500 (paper/pencil), at least 173 (computerized), or at least 61 (iBT) on the TOEFL examination, a Michigan score of 80 or higher, or a 5.0 or higher on the IELTS examination. (**Note:** iBT is the Internet-based TOEFL.)

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, 797-1209.

Credit by Special Examination

Matriculated students may challenge a course for credit by taking a special examination available in the University Testing Center. For more information about receiving credit by special examination, see pages 18-19.

Credit by Departmental Examination

Matriculated students may challenge a course for credit by taking a departmental examination. For a detailed explanation of how to challenge a course for credit, see page 19.

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. Instructions about how to apply for this credit can be found on page 19.

Transfer Credit Guidelines

Utah State University awards transfer credit for academic work *completed* at other academic institutions. Transfer and articulation is not based solely on the accreditation status of the transfer institution. **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.

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.

Guidelines for Transferable Credit

Courses taken at institutions that are accredited by one of the six regional accrediting associations will be accepted as transfer credit by 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).

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, Student Center 313, (435) 797-1124.

Credit may be granted to students currently enrolled at USU who have served in the armed forces. Applications for credit must be made through the Admissions Office.

Credit may be earned by taking general examinations or select subject examinations through the College Level Examination Program (CLEP). CLEP examinations taken at another institution are subject to reevaluation prior to awarding credit at USU. For further information about taking CLEP examinations, contact Testing Services, University Inn 115, (435) 797-1004. Questions about CLEP credit acceptance should be directed to University Advising and Transfer Services, Student Center 304, (435) 797-3373.

Students may earn credit by taking Advanced Placement (AP) Examinations while they are in high school. Prior to the awarding of credit, AP examination scores are subject to evaluation by Utah State University, to ensure credit is granted in accordance with USU policies.

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

Transfer Articulation Agreements

Students who transfer to Utah State University from one of the institutions listed below will have their coursework evaluated as follows:

1. Students who transfer to USU and have an Associate of Arts or an Associate of Science degree (or have completed the General Education requirements of one of the institutions listed below) will be deemed as having satisfied certain requirements, depending on their initial enrollment date at USU. Those who began attending USU prior to Fall 2000 are deemed as having satisfied all University Studies requirements. Those who began attending USU Fall 2000 and later will be deemed as having satisfied the General Education portion of the University Studies requirements, and will be required to complete the Depth Education requirements at USU.

A student who transfers without an Associate of Arts or Associate of Science degree will need a registrar's certification stating that he or she has completed the General Education requirements at the sending institution.

2. 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.

3. Coursework taken to fulfill requirements other than General Education will be reviewed by the appropriate department within Utah State University. Coursework acceptability will be determined by the student's major department at Utah State University.
4. Utah State University will require students to satisfy the Breadth American Institutions requirement, if an equivalent course has not been completed. While the University generally accepts completed associate degrees as fulfillment of the General Education portion of the University Studies Requirements at USU, advisors are required to review the associate degree for certain general education categories, such as life sciences, physical sciences, etc. If the transcript from the transfer school does not have the required areas covered to meet USU standards, students will be asked to take a class at USU to complete these areas.

Approved Institutions

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 State College
Weber State University
Westminster College

Arizona

Arizona State University
Arizona Western College
Central Arizona College
Cochise College
Coconino Community College
Dine College
Eastern Arizona College
Maricopa Community College District
Chandler-Gilbert Community College
Estrella Mountain Community College
Gateway Community College
Glendale Community College
Mesa Community College
Paradise Valley Community College
Phoenix College
Rio Salado College
Scottsdale Community College
South Mountain Community College
Mohave Community College
Northern Arizona University
Northland Pioneer College
Pima Community College
University of Arizona
Yavapai College

California

Allan Hancock College
American River College
Antelope Valley College
Bakersfield College
Barstow College
Butte College
Cabrillo College
California Maritime Academy
Canada College
Cerritos College
Cerro Coso Community College
Chabot College
Chaffey College
Citrus College
City College of San Francisco
Coastline Community College
College of Alameda
College of Marin
College of San Mateo
College of the Canyons
College of the Desert
College of the Redwoods
College of the Sequoias
College of the Siskiyous
Columbia College
Compton College
Contra Costa College
Copper Mountain College
Cosumnes River College
Crafton Hills College
Cuesta College
Cuyamaca College

Transfer Articulation Agreements

Cypress College
D-Q University
De Anza College
Diablo Valley College
East Los Angeles College
El Camino College
Evergreen Valley College
Feather River College
Folsom Lake College
Foothill College
Fresno City College
Fullerton College
Gavilan College
Glendale Community College
Golden West College
Grossmont College
Hartnell College
Imperial Valley College
Irvine Valley College
Kings River College
Lake Tahoe Community College
Laney College
Las Positas Community College
Lassen Community College
Long Beach City College
Los Angeles City College
Los Angeles Harbor College
Los Angeles Mission College
Los Angeles Pierce College
Los Angeles Southwest College
Los Angeles Trade Technical College
Los Angeles Valley College
Los Medanos College
Marymount College
Mendocino College
Merced College
Merritt College
MiraCosta College
Mission College
Modesto Junior College
Monterey Peninsula College
Moorpark College
Mount San Antonio College
Mount San Jacinto College
Napa Valley College
Ohlone College
Orange Coast College
Oxnard College
Palo Verde College
Palomar College
Pasadena City College
Porterville College
Rancho Santiago College
Reedley College
Rio Hondo College
Riverside Community College
Sacramento City College
Saddleback College
San Bernadino Valley College
San Diego City College
San Diego Mesa College
San Diego Miramar College
San Joaquin Delta College
San Jose City College
Santa Ana College
Santa Barbara City College

Santa Monica College
Santa Rosa Junior College
Santiago Canyon College
Shasta College
Sierra College
Skyline College
Solano Community College
Southwestern College
Taft College
Ventura College
Victor Valley College
Vista Community College
West Hills College
West Los Angeles College
West Valley College
Yuba College

Hawaii

Brigham Young University (Hawaii)*

Idaho

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

Wyoming

Western Wyoming Community College*

Students who transfer from an institution that is not listed above will have their General Education coursework evaluated by the student's major 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. Institution representatives should submit their requests, along with a copy of their institution's catalog, to: John Mortensen, Director, University Advising and Transfer Services, Utah State University, 0114 Old Main Hill, Logan UT 84322-0114.

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
Salt Lake Community College
Snow College
Southern Utah University
University of Utah
Utah Valley State College
Weber State University
Western Wyoming Community College
Westminster College

Transfer Articulation Agreements

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 Student Services website: <http://www.usu.edu/ats/transfer/>

*While the University generally accepts completed associate degrees as fulfillment of the General Education portion of the University Studies Requirements at USU, advisors are required to review the associate degree for certain general education categories, such as life sciences, physical sciences, etc. If the transcript from the transfer school does not have the required areas covered to meet USU standards, students will be asked to take a class at USU to complete these areas.

Student Resources

Academic Resource Center

Student Center 305, (435) 797-1128
<http://www.usu.edu/arc>

The Academic Resource Center (ARC) provides services and programs that enhance students' learning skills, strategies, and attitudes. Classes such as USU 1010, PSY 1730, PSY 1750, and SPED 0100 actively orient students to campus and involve them in gaining college-level academic skills. "Drop-in" math 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. The National Student Exchange promotes studying for one or two semesters at other U.S. colleges for cultural and academic diversity.

Admissions

Student Center 102, (435) 797-1129, or (800) 488-8108
<http://www.usu.edu/admissions>

The Admissions Office acts as a liaison between the University and high schools and community colleges. It functions as the first point of contact between the University and the public schools and is involved in personal visits to schools and institutions. Personnel in this office are glad to answer questions about the University, conduct tours, assist with arrangements, and help students make application for scholarships and admissions.

Advising and Transfer Services, University

Student Center 304, (435) 797-3373
<http://www.usu.edu/ats>

University Advising and Transfer Services (UATS) provides advising referrals and information regarding University requirements, academic policies and procedures, academic program planning, University Studies requirements, transfer articulation agreements, services, and resources of the University. UATS also facilitates the new Student Orientation, Advising, and Registration (SOAR) program; the Peer Advising program; Graduation Guarantee program; Intent to Transfer program; and transfer articulation agreements. Students who are designated as Undeclared, Undeclared Business, Undeclared Science, or General Studies are advised by UATS advisors.

Bookstore

Student Center 123, (435) 797-1666
<http://www.bookstore.usu.edu>

The USU Bookstore's primary objective is to support students. The Bookstore's focus centers on providing students with easy and timely access to textbooks, reference books, trade books, and other educational materials. In addition, there is a Gifts and Clothing Department which carries Aggie-related items, and a Supplies and Electronics Department.

Special services include: Express-A-Book (mail order), custom publishing (copyright clearance and production of course readers), accounts for scholarship and rehabilitation students, special orders on merchandise, textbook buyback, and scholarships.

Textbooks and merchandise can also be purchased at the Bookstore's secure website.

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.

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
Student Center 212, (435) 797-3852
<http://www.usu.edu/usucard>

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 can be used for debit and dining accounts.

Student Resources

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 all 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 professionals 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. 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.

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 advisor one-on-one to discuss resume/cover letter preparation, networking contacts (both employer and alumni), and personal career search strategies.

Testing

Undergraduates and graduates may want to take advantage of tests, such as the American College Test (ACT), the College Level Examination Program (CLEP) tests, the Test of English as a Foreign Language (TOEFL), the Graduate Record Examination (GRE), the Law School Admission Test (LSAT), the Medical College Admission Test (MCAT), and the Graduate Management Admission Test (GMAT). Test times can be scheduled directly by calling (435) 797-1004.

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. Once the fee is paid, 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, students must go to the CIL web page, select **Recording on Transcript**, and then complete and submit the form. The CIL information will then be posted to their transcripts.

Counseling Center

Student Center 306, (435) 797-1012
<http://www.usu.edu/counsel>

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 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>

The Disability Resource Center offers support, facilities, and services needed to ensure that students with disabilities can obtain an education at the University. A student needing an interpreter, reader, note-taker, or other services should contact this office. Assistance is also provided in counseling, registering, equipment acquisition, assistive technology lab, and referral information.

Financial Aid

Student Center 106, (435) 797-0173
<http://www.usu.edu/finaid>

The Financial Aid Office provides direction and counseling in the areas of scholarships, grants, loans (emergency and long-term), federal work aid (work-study), and general on-campus and off-campus temporary employment assistance. Help is available in preparing and submitting applications and supporting materials, and counseling students about

Student Resources

school financing and available aid, budgeting, deadlines, and loan indebtedness.

Graduate Studies, School of

Main 164, (435) 797-1189
<http://www.usu.edu/gradsch>

This office handles admission to all USU graduate programs and monitors all graduate students at USU, including final degree approval.

Graduation Office (Undergraduate)

(Office of the Registrar)
Student Center 246
<http://www.usu.edu/registrar/graduation>

This office provides and processes applications for graduation, publishes graduation lists, and creates diplomas.

Students should contact the Graduation Office at the e-mail address listed below for the college in which they plan to graduate.

College of Agriculture, grad.ag@usu.edu
College of Business, grad.bu@usu.edu
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
Continuing Education, grad.ce@usu.edu

Honors Program

Main 15, (435) 797-2715
<http://www.usu.edu/honors>

The Honors Program provides motivated undergraduates with the opportunity to pursue enhanced coursework in their University Studies requirements, as well as in their area of major research. Participants may earn their bachelor's degrees with Honors in an academic major. A limited number of entering freshmen are invited to join the Honors Program each year, and continuing students are invited to join if they have maintained a minimum 3.5 GPA. Transfer students and those who have completed their University Studies requirements enter the Honors Program through acceptance into a major and will pursue Departmental Honors. Students in the program must maintain a minimum 3.30 GPA. A higher GPA is required for some majors.

Housing and Residence Life

1295 East 1000 North, (435) 797-3113 or (800) 863-1085
<http://www.housing.usu.edu>

Utah State University Housing's commitment is to provide students with high-quality facilities, reasonable prices, excellent customer service, and the ultimate in campus convenience. A well-trained staff in each residential area provides numerous opportunities for social interactions and community building within the halls and apartments. The staff also offers educational workshops which supplement formal classroom experiences and learning. Residence Life staff members serve as knowledgeable advisors, resources, and mediators.

Living on campus gives students the opportunity to make the most of their collegiate experience. Studies show that those students who live on campus perform better academically, stay in school longer, and are more satisfied with their overall college experience. A well-rounded living/learning environment can have a significant influence on student education, and Utah State University Housing and Residence Life wants to help students succeed. Students may choose from traditional-style, apartment-style, and family-style living accommodations.

Independent and Distance Education

Eccles Conference Center 102, (435) 797-2137
<http://extension.usu.edu/continuinged>

Independent and Distance Education offers University and Independent Study credits that are transferrable to many other institutions and are accepted in degree programs at Utah State University and throughout the world.

International Students and Scholars

Student Center 313, (435) 797-1124
<http://www.oiss.usu.edu/>

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.

Multicultural Student Services

Student Center 309, (435) 797-1733
<http://multiculture.usu.edu>

Multicultural Student Services contributes to the mission of the University and Student Services by advancing and encouraging the intellectual, personal, cultural, and professional development of Native-American, African-American, Asian-American, Oceanic, and Latino student populations. Student development is promoted by integrating experiences into the student's total learning environment in the classroom and community that foster, in each individual, respect and responsibility for self and other members of the world around them.

Multicultural Student Services provides direction and leadership for Utah State University's commitment to cultural diversity. This mission is carried out through programs of instruction, advisement, community service-learning, outreach, experiential education, cultural events, administration, and student support services.

Student Resources

Network and Computing Services

Science Engineering Research 301, (435) 797-2391
<http://www.usu.edu/compserv>

Network and Computing Services (NCS) provides computing and networking facilities and services for instructional, research, and administrative functions. A current description of these facilities and the access procedures for students and staff may be found on the NCS website.

The Help Desk is managed by NCS. This service is available from 7 a.m. to 8 p.m. by phone at (435) 797-4358 or by e-mail at helpdesk@cc.usu.edu, and from 8 a.m. to 5 p.m. for walk-in at Science Engineering Research 108 by students and staff. Online services and FAQs may be found on the web at: <http://helpdesk.usu.edu>

NCS coordinates Student Open Access labs and manages six of them. More than 800 computers are available for use by USU students upon presentation of their USU ID card. Lab locations, hours of operation, and lists of software and equipment available at each lab are described on the web at: <http://www.sls.usu.edu>

Parking and Transportation Services

840 East 1250 North, (435) 797-3414
<http://www.usu.edu/parking>

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.

Records Office

(Office of the Registrar)
Student Center 246
<http://www.usu.edu/registrar/records>

This office processes and maintains student academic records. Students needing transcripts of academic records or needing to make changes to academic records should contact this office at: registrar@cc.usu.edu

Reentry Student Center

Student Center 315, (435) 797-1728
<http://www.usu.edu/stuserv/womencen>

The Reentry Student Center provides information, assistance, and referral concerning the resources available on campus and in the community to women and men who are returning to school after a gap in their education. 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.

Registration Office

Student Center 246, (435) 797-1094
<http://www.usu.edu/registrar/registration>

This office prepares all registration materials and conducts registration.

Residency Office

(Admissions Office)
Student Center 102, (435) 797-8144
<http://www.usu.edu/admissions/information/residency.cfm>

Nonresident students who feel they have met the requirements for in-state 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.

Sexual Assault and Anti-Violence Information (SAAVI)

Student Health and Wellness Center 119
(435) 797-1510 (General Information)
(435) 797-RAPE (7273) (Crisis Hotline)
<http://studentlife.tsc.usu.edu/saavi/>

The 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. It works to accomplish this task through an environment of education, as well as sensitive, competent response to those who have experienced violence.

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 Week, Domestic Violence Awareness Month/Clothesline, Sexual Assault Awareness Month, 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)
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

Student Resources

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/shshome>

The Student Health and Wellness Center provides students and their families with care for illness and minor injuries, as well as health and wellness information for a variety of concerns. 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 on the staff.

The services of physicians, nurses, and pharmacists, as well as laboratory, physical therapy, psychology, radiology, prevention, and dietitian services, are available on-site. General medical care and specialty care in sports medicine, emergencies, dermatology, gynecology, and psychiatry are provided through the center. Special services include physical exams for pilots, teachers, or missionaries, and x-ray and laboratory services are available. 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 the student registers), or by a spouse/family member fee (paid during the first visit), but some procedures and 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

Student Center 326, (435) 797-2912
<http://a-station.usu.edu>

The Student Involvement and Leadership Center strives to provide opportunities for students to receive life, leadership, and interpersonal skills by sponsoring events and activities that complement the academic curriculum and enhance the overall educational experience through the development of a wide range of programs, services, leadership development opportunities, and activities. These events strive to promote diversity, cultural appreciation, social interaction, community service, a sense of community, and effective student government representation.

The Student Involvement and Leadership Center includes the following: student government (ASUSU), fraternities and sororities,

Leadership House, Fall Leadership, Mortar Board, Spirit Squad, and the Val R. Christensen Service Center.

Students who are interested in getting involved should visit the A-Station or go to Student Center 326.

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.

This office seeks to prepare and support students for the challenges of higher education by offering assistance in academic advising and guidance, tutoring on an individual basis, course selection, faculty/peer mentoring, reading and study skills enrichment, math instruction, financial aid planning, and early registration.

For more information, contact the Student Support Services Office.

Testing Services

(Career Services)
University Inn 115, ground level, (435) 797-1004
<http://www.usu.edu/career/testing.html>

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 GMAT for business school, the LSAT for law school, the MCAT for medical school, and the TOEFL (Test of English as a Foreign Language, for international students entering at both graduate and undergraduate levels). Math placement tests are available for immediate placement into math classes. 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.

Undeclared Program

(University Advising and Transfer Services)
Student Center 304, (435) 797-3373
<http://www.usu.edu/ats/>

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 in the Office of University Advising and Transfer Services (UATS) 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 UATS.

Student Resources

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.

The Utah Statesman

Student Center 105, (435) 797-6397
<http://www.utahstatesman.com>

The *Utah Statesman*, USU's student newspaper, is published three times each week. A large number of students are involved in producing this award-winning publication, which began publication more than a century ago.

Val R. Christensen Service Center

Student Center 332B, (435) 797-SERV (7378)
<http://servicecenter.usu.edu/>
valservice@cc.usu.edu

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)
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 Center for Lifelong Learning

Student Center 315, (435) 797-1728
<http://www.usu.edu/stuserv/womencen>

The Women's Center provides information, assistance, and referral concerning resources available on campus and in the community for personal, educational, and professional development of students (especially women and returning students), faculty, and staff. Programs and activities support greater understanding of gender-based issues, encourage an inclusive and equitable environment, and promote women's leadership experiences.

Writing Center

Ray B. West 104, (435) 797-2712
<http://writingcenter.usu.edu>

The Writing Center provides help at any stage of the writing process and is open to all students. English course fees fund the Writing Center, so students in other disciplines are required to pay a small users fee before making an appointment. Please visit or call the Writing Center for more information on user fees. All appointments must be made online by going to the website listed above. Consultants are available for one-on-one counseling in the center or for online sessions. The Writing Center opens the second week of each semester and closes the last day of classes. Hours are from 9:30 a.m. to 3:30 p.m. Monday through Friday, and from 7:00 to 9:00 p.m. Monday through Thursday.

Academic Support Programs and Services

Academic Resource Center

The Academic Resource Center (ARC) provides services and programs that enhance students' learning skills, strategies, and attitudes. Classes such as USU 1010, PSY 1730, PSY 1750, and SPED 0100 actively orient students to campus and involve them in gaining college-level academic skills. "Drop-in" math and statistics tutoring, as well as Supplemental Instruction (SI) program, provide additional academic support. Individual consultations assist students with gaining course-specific learning strategies. The National Student Exchange promotes studying for one or two semesters at other U.S. colleges for cultural and academic diversity.

Courses

USU 1010, University Connections (1-3 credits), introduces students to the expectations and challenges of university life, as well as to the academic, geographic, social/communal, and procedural maps of the University. Connections also focuses on some of the learning strategies students will need to successfully achieve their goals at the University. The course explores issues which students commonly encounter during their transition from high school to university life, in an atmosphere encouraging the development of enduring connections with University faculty, staff, and students. The curriculum requires students to participate in a common literature experience. Before the semester begins, students receive information about the literature experience.

PSY 1730, Strategies for Academic Success (1-3 credits), involves application of important learning strategies. Topics include test preparation, note-taking, textbook reading, test-taking, etc.

PSY 1750, Comprehension Strategies for College Reading (1 credit), is designed for students who want to improve their college reading skills in the areas of comprehension, vocabulary, and retention of information. Students practice the reading strategies using textbooks from their other classes.

MHR 2160, Student Applied Leadership Training (1-3 credits), is designed to develop the skills of students working as tutors. This class meets the standards of the National Tutoring Certification Program.

SPED 0100, Strategies for Reading (1-3 credits), is a practical course with an emphasis on improvement of reading, writing, and comprehension skills that are essential for academic success. This is a remedial class not carrying USU or transfer credit.

Individual Assistance

Staff members provide individual consultation for students needing help with specific learning needs in one or more of their courses.

Workshops

Workshops are offered on a variety of learning topics for student groups and classes. To arrange for a workshop, call (435) 797-1128.

Supplemental Instruction

A program of Supplemental Instruction (SI) for General Education courses is sponsored by the center. A student who has successfully completed a General Education course is hired by the center to attend all class sessions and conduct review sessions. This student models effective study strategies for academic achievement in that class. SI classes and schedules are published each semester on the web: <http://www.usu.edu/arc>

Tutoring Programs

Drop-In Math and Statistics Tutoring

Free tutoring is provided by trained tutors at the center and other campus sites. Schedules can be picked up in Student Center 305 each semester or can be found on the Web-based Tutor Directory.

Tutor Advertiser

Students can hire a qualified tutor through the web-based *Tutor Advertiser*. These tutors are screened by the center and 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 in Student Center 305 and through the center's web page: <http://www.usu.edu/arc>

Idea Sheets

Free Idea Sheets on a variety of learning strategies are available in the center and through the center's web page: <http://www.usu.edu/arc>

National Student Exchange

National Student Exchange (NSE), a group of more than 180 colleges and universities in the United States, is designed to: (1) provide students with options for educational travel and study at minimal increased cost, (2) provide educational opportunities in academic studies not available at USU, and (3) create an awareness of and appreciation for diverse ideas and value systems.

Students normally participate in NSE during their sophomore or junior year. For further information, contact the Academic Resource Center, Student Center 305, (435) 797-1132.

Video Viewing Library

The center has a collection of videos, which students may view in the center, relating to effective learning strategies.

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, Student Center 305, (435) 797-1128.

Academic Support Programs and Services

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/coopinfo.html>

Cultural Exchange Program

More than 1,100 students and scholars from 83 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).

General Studies Program

General Studies is the administrative-academic unit maintained at USU for the enrollment of students who do not meet the admissions requirements of the seven academic colleges. By state policy, admission of students to this category is limited. Students enrolled in the General Studies Program are assessed a fee of \$45 per semester.

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 in General Studies 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.

The Low Scholarship and Probation Policies of the University apply to students enrolled in General Studies. When a student has satisfied remedial course requirements and has demonstrated ability to maintain a 2.0 GPA, that student may apply for admission to an academic college and department or to the Undeclared Program. Regular college admissions evaluations procedures will then be followed, and if there are no admissions restrictions, the student will be enrolled in the department of his or her choice.

Academic Support Programs and Services

For more information, contact University Advising and Transfer Services, Student Center 304, (435) 797-3373.

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 ITESM University in Mexico. Regular semester coursework is also offered in Spanish at the University of Costa Rica. Another Spanish study opportunity is located at the University de la Rioja, in beautiful Logroño in northern Spain, and the newest opportunity is at Pontificia Universidad Católica de Valparaíso, in Valparaíso, Chile. 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 College 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; and study in fine arts at Southern Cross University, Australia. 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 Korea, as well as USU's two new prestigious partners, Korea and Sungkyunkwan Universities in Seoul, provide classes taught in English and intensive Korean. Students may study the Thai language, as well as economics, business, and Thai studies courses taught in English, at Thammasat University in Bangkok, Thailand. College of Business students may participate in programs in Australia, Italy, the Netherlands, Sweden, and the United Kingdom. For graduate-level study in economics, exchanges are available in the United Kingdom, Spain, Portugal, Greece, France, or Germany. Students can now study Russian language and culture at St. Petersburg State University and Kazan State University in Russia.

The International Student Exchange Program (ISEP) is one of the most varied study abroad exchange consortium opportunities at USU. Through ISEP, students may study in Africa, Asia, Australia, Canada, Europe, Latin America, or Oceania. ISEP offers traditional European study abroad opportunities at some of the leading institutions in Austria, France, Germany, Hungary, Sweden, Finland, the Netherlands, and the United Kingdom. Other opportunities for study include such countries as Bulgaria, the Czech Republic, Latvia, Fiji, Iceland, Ghana, and South Africa. There are more than 100 universities to choose from in all. At many of these sites, coursework taught in English is available for semester, academic year, and summer placements. 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.

Affiliated Programs

Further expansion of short-term or semester-long study opportunities is possible with the addition of the following affiliated program providers: AustraLearn, Council (CIEE), International Studies Abroad, Denmark's International Studies Program, Middlesex University (England), and Study Abroad Italy.

Summer Programs

Students can participate in summer programs at Cambridge University and University of Northampton in England, and through ISEP in Korea, Thailand, the Netherlands, France, and other countries. These programs vary in length from two to six weeks.

USU Faculty-Led Study Abroad Summer Programs

Faculty at USU take study abroad students to such destinations as Germany for art and drawing, Peru for an anthropology field school, and Switzerland for graphic design. New offerings include business Spanish and practicum in Argentina, business classes in English plus Spanish study in Chile, education in Mexico, and sculpture in Greece.

Summer language faculty-led programs include: a Spanish language and family home-stay program during May through June in Chile and/or Spain, French language and home-stay in Annecy, France, and an intensive German language program at the Goethe Institute in Freiburg, Germany.

For additional information about these and other programs, contact the Study Abroad Office, Student Center 313B, by phone at (435) 797-0601 or (435) 797-1253; or by e-mail at: stdyabrd@hass.usu.edu. Detailed information is available on the following website: <http://www.usu.edu/stdyabrd>

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. math instruction (MATH 0900, 1010, 1050),

Academic Support Programs and Services

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.

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: Isobel Roskelley, Academic Advisor, Business 309, (435) 797-2143.

Golden Key International

Golden Key is an academic honor society which recognizes and encourages scholastic achievement and excellence among all juniors and seniors 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 juniors and seniors at Utah State University.

Chapter Advisor: Amy Brazier, Ray B. West 201B, (435) 797-2734

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: Stephanie Baldwin, Graduate Intern, Student Involvement and Leadership Center, Student Center 326, (435) 797-8222, stephanie.baldwin@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. Pependorf, 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), 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 204, (435) 797-8213, sgordon@cc.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 year,

and the first members were inducted in 1990. Membership is open to no more than 15 percent of the junior and senior student population. 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. Applications are available at the Reentry Student Center.

Chapter Advisor: Janet L. Osborne, director, Women's Center/ Reentry Student Center, Student Center 315, (435) 797-1728.

Tau Sigma

Tau Sigma, founded at Auburn University in 1986, recognizes the academic achievement of students transferring to an institution of higher learning from another academic institution. This society encourages and promotes students' involvement in the institution to which they are transferring. Membership is offered to undergraduate students who transfer to USU with the equivalent of at least one full year of academic credits (24 semester credits) from an institution of higher learning and who have at least a 3.5 cumulative grade point average during their first year at Utah State.

Chapter Advisor: Tracy L. Jones, Program Administrator for Articulation and Transfer Services, University Advising and Transfer Services, Student Center 304, (435) 797-3373, tracy.jones@usu.edu.

Intercollegiate Athletics

Athletics Director: Randall W. Spetman
Location: Dee Glen Smith Spectrum Addition 202
Phone: (435) 797-1850
FAX: (435) 797-2615
E-mail: mike.strauss@usu.edu
WWW: http://utahstateaggies.ocsn.com

Senior Associate Athletics Director for Internal Operations/Senior Women's Administrator: Mary Ellen Cloninger

Senior Associate Athletics Director for Business Affairs: Kenneth A. Peterson

Associate Athletics Director for External Operations: Kevin Dustin

Associate Athletics Director, Head Trainer: Dale Mildenberger

Associate Athletics Director, Academic Services: Brian Evans

Assistant Athletics Director and Ticket Manager: Jeff Crosbie

Director of Media Relations: Mike Strauss

Director of Marketing and Promotions: Jason Herbers

Assistant Athletics Director and Director of Development: To be announced

Strength and Conditioning: Mark Uyeyama

Equipment Supervisor: Mike Bair

Compliance Coordinator: Lucy Stolpe

Faculty Representative: Kenneth L. White

Head Coaches:

Basketball (Men's): Stew Morrill

Basketball (Women's): Raegan Pebley

Football: Brent Guy

Golf: Dean Johansen

Gymnastics: Ray Corn

Soccer: Heather Cairns

Softball: Lonny R. Sargent

Tennis: Chris Wright

Track: Gregg Gensel

Volleyball: Burton L. Fuller

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 Athletics Conference, 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 Western Athletics Conference. With this move into one of the top 10 conferences in the country, Aggie fans are extremely excited about the future. During the past 28 years, Utah State has won 39 Big West Conference championships, including a school record five during the 1997-98 school year. Since 1998, Aggie athletic success has continued with 10 more league titles. The future looks bright in the WAC, as Fall 2005 brought a league championship for the men's cross-country team.

The basketball team has become a fixture in the NCAA Tournament and has won either a Big West Conference regular season title, conference tournament title, or both every year during the 2000s. The Aggies have won at least 20 games during 8 of the last 10 years. The prognosis is for a very strong showing in the Western Athletics Conference.

The football team has finished first or second in league play 12 times during its last 24 years of conference play. Three of the top five home attendance seasons have come in the last five years. With the entrance into the Western Athletic Conference, there are increased opportunities for post-season bowl games and added television exposure.

USU's cross-country and track teams have been among the Big West's best for a number of years, as the cross-country team has won four league titles and finished second seven times during the last 13 years. The track team has claimed seven Big West team championships during the last 11 years. During the inaugural fall season in the Western Athletics Conference, the men's cross-country team won the league championship.

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 24 of the last 27 years and has won four conference championships during the last 13 years.

The Aggie soccer team has made great strides every year since it started the program in 1996 and produced its best season in 2004. The team finished tied for second in the Western Athletics Conference during 2005.

The track teams continue to have success, as the women's cross-country team was the Western Athletics Conference runner-up in 2005, while the track team won seven consecutive league titles beginning in 1993 in the Big West.

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 Western Athletics Conference.

Academically, Utah State is the leader of the Western Athletics Conference. USU's graduation success rate is above those of the other Western Athletics Conference 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.

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.

Three Aggie gymnasts have earned All-American honors and two others have represented their countries in the Olympics and World Championships. Seven different student-athletes have earned All-American honors in volleyball 12 times, and Elaine Roque and Karolyn Kirby have gone on to successful careers on the pro beach volleyball tour.

Intercollegiate Athletics

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, and a new end zone complex is planned to begin with the start of the 2007 football season. The multi-storied complex will include consolidated academic support, a new sports medicine area, new locker rooms, an equipment room, and a strength and conditioning room, as well as team meeting areas and coaches' offices.

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 and 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.

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.

Information Technology

Administration

**Interim Vice President for Information Technology/
Interim Chief Information Officer:** M. Kay Jeppesen
Location: Main 161C
Phone: (435) 797-1134
FAX: (435) 797-2646
E-mail: m.k.jeppesen@usu.edu
WWW: http://www.usu.edu/cio

Business Manager:
Delia L. Weeder, Main 161D, (435) 797-0071, dee.weeder@usu.edu

Administrative Assistant:
Peggy P. Nixon, Main 161A, (435) 797-1134, peggy.nixon@usu.edu

Systems Administrator:
Merry Lu Zeller, Main 161B, (435) 797-7199,
merrylu.zeller@usu.edu

The impact of information technology and "information appliances" yet to come is changing the basic structure and business operations of educational institutions. Major responsibilities of the Office of the Vice President for Information Technology are to anticipate, plan for, and manage new information requirements and applications; develop information systems that support such requirements and applications; acquire and manage existing and new data and information; and provide and maintain a University-wide information network and management system to deliver voice, data, and video services. The responsibility of the Chief Information Officer includes the design, development, implementation, and management of an integrated University-wide information management system, ensuring integration of technology.

Enterprise Resource Planning (ERP) Banner Project

Project Manager:
Rory J. Weaver, Science Engineering Research 310,
(435) 797-1962, rory.weaver@usu.edu

Lead Data Base Administrator:
Duane E. Black, Science Engineering Research 324,
(435) 797-2404, duane.black@usu.edu

Lead Programmer:
Doug Garrett, Science Engineering Research 301, (435) 797-2635,
doug.garrett@usu.edu

Banner is a fully-integrated administrative data management system designed to support USU's mission of delivering a quality educational experience to students. Banner is a relational database system which provides access to University data 24 hours per day, 7 days per week. Banner consists of the following four modules: Banner Finance, Banner Student, Banner Financial Aid, and Banner HR/Payroll. Banner is the official "system of record" for University information.

Classroom and Multimedia Services

Director:
Jonathan B. Kadis, Janet Quinney Lawson 201, (435) 797-3134,
jon.kadis@usu.edu

Office Coordinator:
Dave Clark, Janet Quinney Lawson 102, (435) 797-2655,
dave.clark@usu.edu

Manager/Classrooms and Engineering:
Rick D. Hughes, Quonset Hut 111, (435) 797-2706,
rick.hughes@usu.edu

Manager, Multimedia:
D. Shane Thomas, Janet Quinney Lawson 202, (435) 797-0525,
shane.thomas@usu.edu

Coordinator, Audiovisual:
Tara Gibbons, Janet Quinney Lawson 102, (435) 770-0629,
tara.gibbons@usu.edu

Classroom and Multimedia Services (CMS) is a division of the Office of Information Technology. CMS supports Utah State University through four major functions: Mediated Classroom Services, Audiovisual Services, Multimedia Services, and Engineering/Big Blue Cable TV

Mediated Classroom Services provides leadership and oversight for the design, development, integration, and ongoing maintenance of the University's classrooms.

Audiovisual Services provides portable equipment to faculty and staff for use in classrooms, labs, conference rooms, and various off-campus locations.

Multimedia Services uses technology to support academic and nonacademic productions. It provides post-production capabilities using digital editing, DVD authoring, Podcasting, and video web-streaming capabilities.

Engineering/Big Blue Cable TV gives technical support to Multimedia Services, AV Services, and Classroom Services. It is also responsible for all campus video networks, including those required for distribution of commercial cable television service to academic and administrative venues.

Network and Computing Services

Director:
Kim A. Marshall, Science Engineering Research 301,
(435) 797-2413, kim.marshall@usu.edu

Associate Director:
Robert (Bob) Bayn, Jr., Science Engineering Research 301,
(435) 797-2396, bob.bayn@usu.edu

Associate Director:
Rory J. Weaver, Science Engineering Research 310,
(435) 797-1962, rory.weaver@usu.edu

Administrative Assistant:
Peggy Baugh, Science Engineering Research 301, (435) 797-2402,
peggy.baugh@usu.edu

Information Technology

Operations Supervisor:

Adrian Lundgren, Science Engineering Research 301,
(435) 797-2414, adrian.lundgren@usu.edu

Manager, Student Computer Labs:

Gary D. Egbert, Science Engineering Research 324,
(435) 797-1476, gary.egbert@usu.edu

Manager, Network Services:

Kevin L. Grover, Science Engineering Research 301,
(435) 797-2401, kevin.grover@usu.edu

Manager, Licensing and Network Training:

Michelle M. Smith, Science Engineering Research 326,
(435) 797-7313, michelle.m.smith@usu.edu

Manager, Help Desk:

Stephen Funk, Science Engineering Research 108, (435) 797-8181,
stephen.funk@usu.edu

Network and Computing Services (NCS) manages the central computing facilities and services used by the campus to meet administrative, educational, and research needs, as well as the campus-wide data network that provides access to those services and provides connectivity for distributed services from other departments.

Administrative Data Services (ADS) maintains and customizes the business computing applications of the University, including the student information system (registration and records), the financial aid system (scholarships), the financial records system (accounting), the human resource system (personnel), the card reader system (ID and debit accounts), and the data warehouse (read-only access and reporting).

The Academic User Services (AUS) group provides end-user support for the facilities maintained by NCS. AUS manages six Open Access Computer Labs for all students on campus, as well as walk-up kiosks around campus for e-mail and web access. The Helpdesk provides walk-in, phone, e-mail, and office-call support to students and staff for hardware and software problems, including network connectivity in offices, as well as in on-campus and off-campus housing.

NCS manages the central computing equipment, including an IBM 7040 Series P670 Oracle Server for administrative computing applications; a cluster of five VMS Alphas for e-mail services, web

page hosting, data analysis, and programming; network connections to the Internet and Internet-2; proxy servers; and utility servers for webmail, virus filtering, spam tagging, etc. An intra-campus fiber-optic network connects nearly all desktop computers, servers, printers, and card readers on campus. A modem pool of 276 modems provides dial-in access to the campus backbone and the Internet.

Licensing and Network Training staff provides leadership for the coordination of campus licensing initiatives, including campus-wide licensing purchases.

Telecommunications and Telephone Services

Director:

Scott N. Bradley, Science Engineering Research 101A,
(435) 797-0022, scott.bradley@usu.edu

Associate Director:

Scott D. Wells, Science Engineering Research 102, (435) 797-3336,
scott.wells@usu.edu

Business Manager:

Amy L. Kitchen, Science Engineering Research 101D,
(435) 797-2910, amy.kitchen@usu.edu

USU's Telecommunications and Telephone Services (TTS) is a "cost recovery" organization, tasked with the provision of all telephone and network-related services needed for the University to fulfill its mission. As telecommunication services are required by University entities, this office evaluates, procures, provides, and bills to the end-user organization the suitable technology solutions. Services provided include long-distance calling services, voice mail, teleconferencing, service/price negotiation with providers, accounts payable and receivable, operator services, calling cards, cellular telephone services, pagers, maintenance and support, help desk, training, etc. Individuals who reside on campus in USU Housing receive their telephone service from USU Telecommunications and Telephone Services and may elect to obtain long-distance calling access from this office. These services are provided to Utah State University by 16 staff members and 10 part-time students. University long-distance services are provided through Qwest.

Libraries and Instructional Support

Vice Provost for Libraries and Instructional Support, and Director of Libraries: Linda L. Wolcott

Location: Merrill-Cazier Library 250

Phone: (435) 797-2687

FAX: (435) 797-2880

E-mail: administration@libraries.usu.edu

WWW: <http://library.usu.edu>

Staff Assistants:

Trina Shelton, (435) 797-2631

Becky Olson, (435) 797-2639

The office of the Vice Provost for Libraries and Instructional Support oversees library services to the campus community and supports University faculty in their teaching and research. As a division of the Provost's Office, Libraries and Instructional Support serves the mission of the University by:

1. Developing collections to support campus information needs
2. Assisting faculty and students with research
3. Providing and promoting access to a wide range of resources
4. Assisting faculty in creating instructional materials
5. Providing training in the use and integration of technology for teaching and learning

Merrill-Cazier Library

Associate Director for Public Services:

John Elsweller, (435) 797-2636

Associate Director for Technical Services:

Betty Rozum, (435) 797-2632

Associate Director for Special Collections and Archives:

Bradford R. Cole, (435) 797-8268

Reference Services: Flora G. Shrode, (435) 797-8033

Collection Development: Steven R. Harris, (435) 797-3861

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 Library: Cheryl D. Walters, (435) 797-2623

The new Merrill-Cazier Library opened during the 2005-2006 academic year, bringing all library resources and services under one roof. As a single comprehensive library facility, the Merrill-Cazier Library is the intellectual center of campus. The new Library features an environment rich in resources and technology, with a broad spectrum of study spaces that support the ways library users interact with information and with one another.

The Merrill-Cazier Library maintains an extensive collection of research materials, including more than 1.5 million books and periodicals. As a designated regional depository of federal documents, the Library has one of the outstanding government documents collections in the Intermountain West, including more than 1.2 million federal documents

and 76,600 topographical maps. Among the many strengths in the Library's print collection is a nationally-known collection of Beat Generation literary and artistic works.

In addition to maintaining print materials, the Library is a portal to a vast collection of electronic resources. The Library purchases and provides access to more than 18,000 electronic journals, indexes, and abstracts. These resources are crucial to research and the educational experience, and are available to all University students, faculty, and researchers.

The Library's faculty and staff members are perhaps its greatest resources for students and faculty. With the rapid increase in available information today, it is more important than ever to have experts in the field to help find the best information available. Research specialists are available to assist patrons searching for information. To ensure that the Library's collection excels in areas of the University's specialization, Library faculty members are assigned to each of the academic colleges on campus.

The Library's physical facilities are designed to enhance the experiences of students and faculty alike. The new state-of-the-art facility features plenty of public-access terminals to search the Library's online catalog and access electronic resources, as well as wireless connectivity throughout the building.

The Library's Special Collections and Archives division is a particularly valuable resource for research. The collections contain a significant body of primary source materials, including manuscripts and rare books for area studies and the historical archives of the University. Collections of particular note include one of the nation's most comprehensive groups of Jack London's writing, a photograph collection containing more than one million images featuring the Intermountain West, and the Fife Folklore Archives.

Faculty Assistance Center for Teaching (FACT)

Manager: Kevin L. Reeve

Location: Merrill-Cazier Library 202

Phone: (435) 797-9506 (main office) or (435) 797-0783

FAX: (435) 797-0793

E-mail: kevin.reeve@usu.edu

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

The Faculty Assistance Center for Teaching (FACT) supports the faculty in the development of computer and web-based instructional materials, and in the use of technologies for teaching and learning. FACT maintains a design and development laboratory, where faculty can develop and test instructional support materials. The center also maintains PC and Mac workstations in a networked environment, supporting a broad range of software for authoring, presentation, and graphics. Working hand-in-hand with clients, instructional designers provide consultation and technical assistance in the design and development of online courses and other mediated forms of instructional materials. The center also provides faculty training and development workshops, utilizing state-of-the-art technologies.

Continuing Education

**Associate Vice President and Associate Dean
of Continuing Education:** Weldon S. Sleight

Location: Eccles Conference Center 101B

Phone: (435) 797-2214

FAX: (435) 797-0039

E-mail: weldon.sleight@usu.edu

WWW: <http://extension.usu.edu/continuinged>

During the past two decades, University faculty and administration have strengthened service to residents through development and delivery of Continuing Education academic programs in partnership with University departments. Continuing Education provides opportunities for students to complete degrees and receive training that are time and place bound. This is accomplished through resident campuses around the State of Utah and through Independent and Distance Education (IDE). Continuing 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 that 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 university training, but cannot come to Logan to attend courses on campus. For this group, 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, some 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 a bachelor's degree, as determined by the individual departments and colleges. They also may meet the requirements for a master's 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.

Center for Independent and Distance Learning (CIDL)

Degrees

The Center for Independent and Distance Learning (CIDL) administers the following degrees:

Associate of Science

Associate of Applied Science in Office Support Systems
(see pages xx-xx)

Degree Requirements

Center for Independent and Distance Learning Requirements

All students majoring in CIDL-administered degrees and programs must satisfy the CIDL requirements, provided below. Academic advising regarding these requirements is available in the CIDL Student Services Center, Eccles Conference Center 103, and at local Continuing Education centers.

Admission Requirements

When students apply, they need to indicate which campus they would like to attend. When students indicate they would like to attend a Continuing Education site or center, they will be identified as CIDL applicants and evaluated for admission. Nondegree seeking students and 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 CIDL matriculation will be evaluated using the following criteria:

1. Students who apply directly through a CIDL 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 a CIDL site/center and **do not** meet the University's criteria will be admitted into the CIDL 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 CIDL 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 CIDL 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 CIDL 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 will be processed.

Associate of Science

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.

Continuing Education

Graduation Requirements

1. 60 total credits
2. GPA of 2.0 or higher
3. Completion of 30-33 credits in University Studies courses, including:
 - a. 6 credits of Communications Literacy (CL1) and (CL2)
 - b. 3-4 credits of Quantitative Literacy (QL)
 - c. 0-3 credits of Computer and Information Literacy (CIL)
 - d. 18 credits of Breadth Requirements, including 3 each in Breadth American Institutions (BAI), Breadth Creative Arts (BCA), Breadth Humanities (BHU), Breadth Life Sciences (BSS), Breadth Physical Sciences (BSS), and Breadth Social Sciences (BSS). Students should take at least two approved courses with a USU prefix.
4. 27-30 credits in an area that will lead to junior-level status

Associate of Applied Science (AAS) in Office Systems Support

The AAS degree in Office Systems Support, which is available *only* through the Center for Independent and Distance Learning (CIDL), is offered at the Continuing Education centers located in Logan, Brigham City, Tooele, and the Uintah Basin. For information about admission requirements, degree requirements, and career opportunities, see the *Office Systems Support AAS Degree* section of this catalog on pages xx-xx.

Independent and Distance Education

Assistant Dean for Independent and Distance Education:

Ronda R. Menlove

Location: Eccles Conference Center 102D

Phone: (435) 797-2137 or (800) 233-2137 (toll free)

E-mail: ronda.menlove@usu.edu

WWW: <http://extension.usu.edu/continuinged>

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.

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://extension.usu.edu/continuinged>

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 schedule. Students may register anytime and may take up to one year to complete the courses. To request a catalog and registration forms, call (800) 233-2137.

Concurrent Enrollment

Location: Eccles Conference Center 101

Phone: (435) 797-2134

WWW: <http://logan.usu.edu/htm/concurrent/>

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 Continuing Education.

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 Satellite system, through EDNET, 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.

Kellogg Life Span Learning Complex

The W. K. Kellogg foundation and other private funding sources have made it possible to build two structures, centrally located on the campus, for Continuing Education Programs. The University Inn contains 74 modern hotel rooms for housing those who visit campus for a variety of programs. The Conference Center provides spacious conference meeting rooms for conferences held on the University campus. The facilities feature satellite uplink and downlink capabilities, wireless Internet access in all meeting rooms, and state-of-the-art audiovisual presentation equipment. The conference facilities include 12 meeting rooms ranging from a 400-seat auditorium to small seminar rooms for 10 to 30 people.

Administrative offices and classrooms for Independent and Distance Education are also located in the Conference Center. Individuals and groups of all ages are encouraged to investigate this expanded resource at Utah State University as a means of pursuing their unique educational goals.

Continuing Education

USU Continuing Education Centers

Brigham City

Executive Director: Andrew G. Shinkle
265 West 1100 South
Brigham City UT 84302
Phone: (435) 734-2277
E-mail: enroll@ext.usu.edu

Logan

Executive Director: Vincent J. Lafferty
5055 Old Main Hill
Logan UT 84322-5055
Phone: (435) 797-8223
E-mail: logancontinuingeducation@ext.usu.edu

Southeast Region

Executive Director: Guy W. Denton

Blanding

639 West 100 South 1A
Blanding UT 84511
Phone: (435) 678-2072

Castledale

Phone: (435) 381-2233

Moab

125 W 200 S
Moab UT 84532
Phone: (435) 259-7432

Price

Phone: (435) 613-5610

E-mail: enroll@ext.usu.edu

Southwest Region

Executive Director: Arthur D. Waller

Snow

325 West 100 North
Ephraim UT 84627
Phone: (435) 283-7590

Beaver

Phone: (435) 438-2301

Delta

Phone: (435) 864-5708

Milford

Phone: (435) 387-2751

Nephi

Phone: (435) 623-5119

Piute

Phone: (435) 577-2901

Richfield

Phone: (435) 896-9777

St. George

Phone: (435) 652-7892

Wayne

Phone: (435) 836-2662

E-mail: Dan Adams, dana@ext.usu.edu

Tooele

Executive Director: Kathleen Robinson
1021 West Vine Street
Tooele UT 84074
Phone: (435) 882-6611
E-mail: Joyce G. Allen, joycea@ext.usu.edu

Uintah Basin

Executive Director: Guy W. Denton
987 East Lagoon 124-9
Roosevelt UT 84066
Phone: (435) 722-2294

Heber

Phone: (435) 654-3211

Vernal

Phone: (435) 789-6100

E-mail: enroll@ext.usu.edu

Wasatch Front Region

Executive Director: Arthur D. Waller

Salt Lake City

5250 South Commerce Drive Suite 300
Murray UT 84107
Phone: (801) 269-9422
E-mail: Steven J. Geyer, sgeyer@ext.usu.edu
E-mail: Rachel D. Lewis, rlewis@ext.usu.edu

Ogden

Ogden Center for Graduate Studies

3104 University Circle (Weber State University campus)
Ogden UT 84408-3104
Phone: (801) 626-8141
E-mail: Terry R. Teigeler, terryt@ext.usu.edu
WWW: <http://extension.usu.edu/ogden>

Orem

Phone: (801) 863-8333
E-mail: Eloise K. Young, eloisey@ext.usu.edu

Out-of-State Centers

5035 Old Main Hill
Logan UT 84322-5035
Phone: (435) 797-3218

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://www.usu.edu/vpr>

Associate Vice Presidents for Research:

Ann E. Aust, Main 159, (435) 797-1199,
ann.aust@usu.edu

Joyce A. Kinkead, Main 142, (435) 797-1706,
joyce.kinkead@usu.edu

H. Paul Rasmussen, Agricultural Science 225, (435) 797-2282,
paul.rasmussen@usu.edu

The policy of the University is to encourage and support research and all forms of creative, scholarly activities by faculty and staff members. Much of the research is supported by funds directly assigned to various administrative units of the University. Unrestricted funds for general support of research are administered through the Research Office. The Research Office serves as a coordinating center for all research associated with the University. General policies and procedures pertaining to research and the promotion of a coordinated research program are the responsibility of the University Research Council.

Research Support Units

Environmental Health and Safety: Steven C. Bilbao, (435) 797-2892

Innovation Campus: Teresa W. McKnight, (435) 797-9610

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: Dennis J. Paffrath, (435) 797-1226

Major Research Committees

Biohazards Committee: Robert W. Sidwell, (435) 797-1902

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

High Performance Computing: Thomas Hauser

College of Agriculture

Agricultural Experiment Station: H. Paul Rasmussen

Center for Epidemiologic Studies: Ronald G. Munger

Center for Integrated BioSystems: Bart C. Weimer

Center for Profitable Use of Agriculture Byproducts:

Only L. Hansen

Center for Rural Economic Development: Christopher Fawson

Center for Water Efficient Landscaping: Roger K. Kjellgren

Institute for Antiviral Research: Robert W. Sidwell

Rocky Mountain Dairy Herd Improvement Affiliate: Jim Nix

Utah Botanical Center: William A. Varga

Utah Climate Center: Esmaiel Malek

Western Dairy Center: Marie K. Walsh

Western SARE (Sustainable Agricultural Research Program):

V. Philip Rasmussen

College of Business

Management Institute: Glenn M. McEvoy

Partners in Business Program: Ross E. Robson

Shingo Prize for Manufacturing Excellence: Ross E. Robson

College of Education and Human Services

Center for Open and Sustainable Learning (COSL):

Byron R. Burnham

Center for Persons with Disabilities (CPD): Sarah Rule

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

HOPE Institute: Aziele S. Jenson

Mountain Plains Regional Resource Center: John D. Copenhaver

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:

George K. Liang

Buried Structures Laboratory: Alma P. Moser, Steven L. Folkman

Center for Self-Organizing and Intelligent Systems:

Yangquan Chen

Huntsman Environmental Research Center: Maurice G. Thomas

Institute for Natural Systems Engineering: Thomas B. Hardy

International Irrigation Center: L. Humberto Yap-Salinas

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 Space Engineering Center: Charles M. Swenson

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

University Research

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: To be appointed
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: Michael D. Pavich
Technology Commercialization Office: Steven J. Kubisen

State Centers of Excellence

Center for Advanced Imagery LADAR: Robert T. Pack
Center for Advanced Satellite Manufacturing: Brent E. Stucker
Center for High-Speed Information Processing: Jacob H. Gunther
Center for Profitable Uses of Agricultural By-Products:
Conly L. Hansen
Center for Rapid Microbe Detection and Physiology:
Bart C. Weimer

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: N. Jerry Chatterton
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

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 getting them ready 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.

International Affairs

Vice Provost for International Affairs:

Steven H. Hanks

Location: Main 148

Phone: (435) 797-1840

FAX: (435) 797-3880

WWW: <http://www.usu.edu/aia/international>

Director, International Program Development:

Morris D. Whitaker, Main 150, (435) 797-1842,
morris.whitaker@usu.edu

Members, International Academic Advisory Board (IAAB):

D. Layne Coppock, College of Natural Resources

Tilak R. Dhiman, College of Agriculture

Christopher Fawson, chair

Kay W. Forsyth, Study Abroad Office

Juan N. Franco, Vice President for Student Services

Michael K. Freeman, College of Education and Human Services

R. Edward Glatfelter, College of Humanities, Arts,
and Social Sciences

Vijay R. Kannan, College of Business

Richard J. Mueller, College of Science

Shannon Peterson, representative at large

Edward M. Reeve, representative at large

Weldon S. Sleight, Extension

Maria Spicer-Escalante, Languages

Wynn R. Walker, College of Engineering

Veronica Ward, International Studies major and minor

Morris D. Whitaker, International Program Development

International Education

The Office of International Affairs is responsible for developing and implementing a wide variety of international education policies and

activities at USU. The Vice Provost oversees the Office of International Students and Scholars, as well as the Study Abroad Office. He also serves as an institutional liaison for international education projects, the International Studies major and minor, Title VI program development, and international agreements and memoranda of understanding. The Vice Provost also works directly with University colleges and departments on international dimensions of teaching, research, and extension education. International Affairs is involved with entrepreneurial efforts to provide the resources necessary to support its mission and seeks to be a catalyst to help USU become a premier international university.

International Program Development

Director: Morris D. Whitaker

The Office of International Affairs 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. Since the early 1950s, USU has implemented more than 125 major international technical assistance and training projects having a combined value of more than US\$150 million. Much of USU's experience and development has made the University an international leader in the areas associated with irrigation and water resources; arid-land agriculture; livestock production on rangelands; dairy production and processing; management of natural resources; institutional building in research, extension, and education; and planning and implementation of skills development programs.

University Advancement

Vice President for University Advancement: M. Scott Mietchen
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, scott.mietchen@usu.edu
Campus Office: Main 101B, (435) 797-1158, FAX (435) 797-1364

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) 961-1345, FAX (801) 961-1350, david.driggs@usu.edu
Campus Office: Main 110, (435) 797-1239, 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, simmonds@cc.usu.edu

Director of Research: Tonya R. Davis, Main 102, (435) 797-1331, FAX (435) 797-1364, tonyad@cc.usu.edu

Director of Development Events: Patty Halaufia, Main 102, (435) 797-2053, FAX (435) 797-1364, halaufia@cc.usu.edu

Director of Annual Giving: Lee Roderick, Main 101E, (435) 797-2194, FAX (435) 797-1364, leer@cc.usu.edu

Director of Operations: April Barker, Main 106, (435) 797-3583, FAX (435) 797-1364, april@cc.usu.edu

Director of Development Publications: Jared H. Thayne, Main 112C, (435) 797-1153, FAX (435) 797-1364, jared.thayne@usu.edu

Director of Planned Giving: To be appointed, J.D., Main 101D, (435) 797-3885, FAX (435) 797-1364, angelinaw@cc.usu.edu

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

Executive Director of Alumni Relations:
To be appointed, David B. Haight Alumni Center, (435) 797-2018, FAX (435) 797-2591, alumni@cc.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 Angelina Wilkinson at: University Advancement, Main 101D, 1440 Old Main Hill, Logan UT 84322-1440, (435) 797-3885 or toll-free (888) OLD-MAIN (653-6246).

Development Officers

Major Gift Officers:

Jon Paulding, Salt Lake Office: Wells Fargo Center, 299 South Main Street, Suite 220, Salt Lake City UT 84111, (801) 961-1343, FAX (801) 961-1350, jon.paulding@usu.edu

Ryan L. Marsh, Main 108, (435) 797-2640, FAX (435) 797-1364, ryan.marsh@usu.edu

College of Agriculture:

Victor J. Saunders, Agricultural Science 214, (435) 797-2208, FAX (435) 797-7470, vics@cc.usu.edu

College of Business:

Alta Markeson, Business 202F, (435) 797-3520, FAX (435) 797-3929, alta.markeson@usu.edu

Teresa Shelton, Business 212G, (435) 797-8179, FAX (435) 797-3929, teresa.shelton@usu.edu

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, vpotter@engineering.usu.edu

College of Humanities, Arts, and Social Sciences:

To be appointed
Dean Gary Kiger, Main 338A, (435) 797-1195, FAX (435) 797-1092, gary.kiger@usu.edu

College of Natural Resources:

To be appointed
Dean Nat B. Frazer, Natural Resources 108A, (435) 797-2446, FAX (435) 797-2443, nat.frazer@cc.usu.edu

College of Science:

Chris Tallackson, Eccles Science Learning Center 245, (435) 797-3510, FAX (435) 797-3378, chris.tallackson@usu.edu

Athletics:

Ken Beazer, Spectrum 301, (435) 797-1325, FAX (435) 797-2615, ken.beazer@usu.edu

University Advancement

Library:

Linda L. Wolcott, Vice Provost, Libraries and Instructional Support,
Merrill-Cazier Library 250, (435) 797-2687, FAX (435) 797-2880,
linda.wolcott@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

School of the Arts:

Julie Pitcher, Family Life 320B, (435) 797-1560,
FAX (435) 797-8245, julie.pitcher@usu.edu

University Alumni Association

President: Kellie Wood

Director of Alumni Relations:

To be appointed, David B. Haight Alumni Center, (435) 797-2055 or
800-291-2586

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.

Affirmative Action/Equal Opportunity Office

Co-directors: BrandE Faupell and David L. Ottley

Location: Military Science 216

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), 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, and faculty can work, study, and live without fear of discrimination or sexual 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. The major responsibilities of the office include:

1. 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.
2. Monitoring the representation and status of women and minorities who are prospective or current faculty or staff.
3. Investigating, processing, and resolving discrimination and sexual harassment complaints.
4. Providing training on affirmative action/equal opportunity laws, policies, prevention of sexual harassment, and valuing diversity.
5. Enhancing awareness of and sensitivity toward diversity and "differences."

Utah State University is dedicated to providing equal opportunity in education and employment to all students, faculty, and staff. University members who feel their rights have been violated, want information, or just need some guidance relating to their course of action should contact the Affirmative Action/Equal Opportunity Office, located in Main 161, or call (435) 797-1266. Copies of the complete Affirmative Action Program, Affirmative Action/Equal Opportunity Policy, Sexual Harassment Policy, and Discrimination Complaint Policy, as well as information pertaining to other AA/EO-related laws and policies at the local (USU), state, and federal levels, are available in the AA/EO Office and on the AA/EO website: <http://www.usu.edu/aaeo>

School of Graduate Studies

Graduate General Information

Interim Dean of School of Graduate Studies: Laurens H. Smith, Jr.

Location: Main 164

Phone: (435) 797-1189

FAX: (435) 797-1192

E-mail: gradsch@cc.usu.edu

WWW: http://www.usu.edu/gradsch

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-one of the University's 43 departments participate in graduate degree programs, including several interdepartmental programs. Included are 90 master's programs, 35 doctoral programs, 3 educational specialist programs, 1 engineer degree, and 3 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 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)
 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
 Applied Economics.....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.....MBA¹
 Business Information Systems.....MS
 Chemistry.....MS, PhD
 Civil and Environmental Engineering.....ME, MS, CE, PhD
 Communication.....MA, MS
 Communicative Disorders and Deaf Education.....MEd, MA, MS, EdS
 Computer Science.....MS, MCS, PhD
 Dairy Science.....MS
 Dietetics Administration.....MDA
 Disability Disciplines.....PhD
 Ecology.....MS³, PhD³
 Economics.....MA, MS, PhD
 Education.....EdD¹, PhD¹
 Electrical Engineering.....ME, MS, PhD
 Elementary Education.....MEd, MA, MS
 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 Resources.....MS
 Industrial Mathematics.....MS
 Instructional Technology.....MEd, MS, EdS, PhD
 Irrigation Engineering.....MS, PhD
 Landscape Architecture.....MLA
 Mathematical Sciences.....PhD
 Mathematics.....MS, MMath
 Mechanical Engineering.....ME, MS, PhD
 Natural Resources.....MNR¹
 Nutrition and Food Sciences.....MS, PhD
 Physics.....MS, PhD
 Plant Science.....MS, PhD
 Political Science.....MA, MS
 Psychology.....MS, PhD
 Range Science.....MS, PhD
 Recreation Resource Management.....MS, PhD
 Rehabilitation Counseling.....MRC
 Second Language Teaching.....MSLT
 Secondary Education.....MEd, MA, MS
 Social Sciences.....MSS¹
 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.....MS¹, PhD¹
 Watershed Science.....MS¹, PhD¹
 Wildlife Biology.....MS, PhD

Certificates

National Environmental Policy Act (NEPA)²
 Natural Resource and Environmental Policy²
 Natural Resources and Environmental Education (NREE)²

¹Interdisciplinary degree program.

²Interdisciplinary certificate program.

³The MS and PhD in Ecology are offered within each of the following departments: Biology; Plants, Soils, and Biometeorology; Watershed Sciences; and Wildland Resources.

School of Graduate Studies

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 101). 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. The cumulative GPA on the last 60 semester credits will be used to determine eligibility as a graduate assistant if the student has not yet started the graduate program. 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 stipends 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

Stipends 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>.

Waiver of the Nonresident Portion of the Tuition Fee

A nonresident student who holds a 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. **Out-of-state, noninternational graduate students who receive nonresident tuition waivers must apply for Utah residency after completing 40 semester credits.** It is important to note that graduate students who are seeking residency may count *any credits at the 5000 level and above* at 1.5 times the actual credit. For example, a 3-credit 5000-level class would count for 4.5 credits toward residency requirements *only* (not toward graduation requirements). Waivers *cannot* be used to audit classes. Waivers *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 Remission for Doctoral Students

A student who is matriculated in a doctoral degree program and is a graduate assistant or graduate fellow receiving at least \$600 per month may be awarded a resident (instate) tuition remission. Full-time registration is required (see page 101). If credits other than those required for the doctoral degree are needed to meet the 9-credit requirement, registration must be for Dept. 7990 (Continuing Graduate Advisement). A doctoral in-state tuition remission *cannot* be used to audit classes or for coursework below the 5000 level.

Waiver/Remission

The designated departmental staff must submit an online waiver/remission request to the graduate dean for approval according to the deadlines outlined in the Tuition Waivers and Remissions Policy. The waiver and/or remission 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 waiver and/or remission are available for a 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 waiver/remission. For more information, refer to the Graduate Student Tuition Waivers and Remission Policy on the School of Graduate Studies website:

<http://www.usu.edu/gradsch/financial/assistantships.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 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://wiche.edu/SEP/WRGP>

School of Graduate Studies

Fellowships

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, and for doctoral students, the resident tuition remission. 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, and for doctoral students, the resident tuition remission. 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.

University Fellowships also include a \$12,000 stipend for the academic year, a waiver of the nonresident portion of tuition, and for doctoral students, the resident tuition remission. Criteria are the same as for Presidential Fellowships.

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 remission. 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.

Scholarships

Resident Tuition Scholarships

Scholarships 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

Seely-Hinckley Scholarships are awarded each year to six 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 23, 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 Procedures

School of Graduate Studies
Utah State University
0900 Old Main Hill
Logan UT 84322-0900
tel. (435) 797-1189

Requirements

Application-for-admission forms are obtained online at: <http://www.usu.edu/gradsch/admission/>

Note: The fee must be paid before an application will be evaluated.

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 107-108).

Bachelor's Degree

A bachelor's degree from an accredited college or university is required for admission to a graduate program. A three-year bachelor's degree is generally not acceptable. A master's degree may be required for admission to a doctoral program.

Grade Point Average

A minimum 3.0 GPA for the last 60 semester credits is required.

Transcripts

Each previously attended college and/or university, including USU, must be listed on the application form, and the applicant must have an official transcript from each institution (except USU) sent directly to the USU School of Graduate Studies. Transcripts accumulated on one record are not acceptable. Transcripts must be submitted for **all** coursework above the high-school level and **all** prior degrees. Transcripts not in English must be accompanied by a notarized translation.

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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.

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 Business 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.

Recommendation Letters

Three letters of recommendation are required; each 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.** The letters should be written on the forms provided on the School of Graduate Studies website:

<http://www.usu.edu/gradsch/forms/RECOMMENDATION.pdf>

The letters of recommendation *must* be sent directly to the School of Graduate Studies by the writers.

All materials submitted as part of the application credentials become the property of the School of Graduate Studies and will not be copied or returned to the student.

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 80 (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.

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 different 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. The official notification of acceptance or rejection is sent by the graduate dean.

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.

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

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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 99-100), 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.

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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 below *C* 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. Credits for a course with a *P* grade cannot be transferred from another university.

Correspondence Course Credits

Continuing 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 Credits

A student's supervisory committee may recommend transfer of **graduate** credits earned at another accredited institution. The credits must not have been used for another degree. Only 12 semester credits earned before matriculation at USU may be transferred. Credits with *P* grades cannot be transferred. Transfer credits cannot replace required residency credit. Transfer credits are subject to approval of the supervisory committee and the dean of the School of Graduate Studies. Transfer credit which is more than eight years old may not be acceptable (see *Time Limit* section, pages 100-101). Transfer credits will be shown on official USU transcripts upon completion of the degree.

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, including summer, must be registered as full-time matriculated students (see page 101). More than 3 credits of continuous registration may be required by a department. An off-campus student in a planned Extension 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 \$15 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.

School of Graduate Studies

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 \$15 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 Extension 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 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 to explain 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. Should a student holding a University appointment as a teaching or research assistant or fellow be changed to probationary status, the assistantship or fellowship will be terminated. Until a Program of Study is submitted to the School of Graduate Studies, the GPA will be computed using all coursework completed at USU since the prior degree. Once a Program of Study, approved by the student's supervisory committee and department head, is filed in the School of Graduate Studies, the courses listed on it will be used to compute the student's GPA if approved by the student's department head. Departments may have more restrictive scholarship policies.

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 41 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.
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.**

School of Graduate Studies

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 redefense 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, who may become the student's major professor. 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.

Three copies of a **Program of Study** form, one of which must be the original with signatures in ink, should be submitted to the School of Graduate Studies by the student **before the end of the second semester following matriculation**. The Program of Study must be submitted at least two months prior to the final examination or, for Plan

C programs, completion of coursework. Amendments to the Program of Study require the signature of the major professor and written notification to each member of the supervisory committee. 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**, signed by the entire committee, should be submitted by the student to the School of Graduate Studies along with the **Program of Study** form.

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 with his or her copy of the approved Supervisory Committee form and must be submitted to the School of Graduate Studies **prior to the final defense**.

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 to be microfiched, 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 (approximately 15 semester credits) of an acceptable second language, which may include American Sign Language, with grades of C or above (unless a higher minimum grade

School of Graduate Studies

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 15 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: (a) certification of English competency through either a TOEFL score of 550 or above, a passing score on the IELI English Proficiency Test, or completion of IELI courses; and (b) certification of a second language through 1, 2, or 3 above.

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 an approved Program of Study from Utah State University.

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 require the signature of the major professor and written notification to the other members of the supervisory committee. 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 with his or her copy of the approved supervisory committee form and must be submitted by the student to the School of Graduate Studies with the **Program of Study**.

Some departments or interdepartmental programs administer qualifying examinations. Each department or program has the responsibility of administering comprehensive examinations.

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, 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 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

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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.

Transfer Credits

With the approval of the supervisory committee and the graduate dean, graduate credit may be transferred from an accredited graduate school, provided the minimum residency requirements are met and the credit has not been used for any other degree. Transfer credit more than eight years old may not be acceptable (see **Time Limit** section, pages 100-101). Transfer credits will be shown on official USU transcripts upon completion of the degree.

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/gradsch/thesis-diss-info/>

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 summer or fall semester and at least eleven weeks prior to the spring semester commencement deadline. At other times, the signed thesis/dissertation must be submitted at least four weeks prior to anticipated program completion.

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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 payment at the Registrar's Office.
2. **Commencement Data Card**
3. **Survey of Earned Doctorates**, if a doctoral student
4. **Alumni Card**

In addition, three copies of the thesis or dissertation and one additional copy of the title page and an abstract for ProQuest (UMI) (150-word maximum for theses and 350-word maximum for dissertations) must be submitted to Current Periodicals in the Merrill-Cazier Library. The following fees must be paid at this time:

Binding fee for two of the three required copies	\$30
Binding and processing fee for personal copies*	\$15 per copy
Processing and handling fee	\$15
ProQuest (formerly UMI) Microfilming Fee	\$55 (doctoral)
ProQuest (formerly UMI) Microfilming Fee	\$45 (master's)
ProQuest Copyright Registration Fee	\$45 (optional)
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.

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.

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. If a student needs verification of completion of a degree before the end of the semester, the registrar will provide an official **Certificate of Completion** prior to the last two weeks of the semester. The actual date of completion is usually the date the graduate dean approves a thesis/dissertation or the date a departmental letter of completion is received by the School of Graduate Studies.

During fall and spring semesters, only students completing degrees by the published Commencement deadline dates for a given year 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.
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.

School of Graduate Studies

Guidelines for Concurrent Doctoral-Master's Degree Programs

In special cases, a student may complete concurrently the 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 Doctoral Program in Education (EdD, PhD), 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 three interdisciplinary certificates: National Environmental Policy Act (NEPA), Natural Resource and Environmental Policy, and 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.

College of Agriculture

Dean: Noelle E. Cockett
Location: Agricultural Science 223
Phone: (435) 797-2215
FAX: (435) 797-3321
E-mail: agriculture.info@usu.edu
WWW: http://www.ag.usu.edu

Associate Dean for Academic Programs:
Donald L. Snyder, Agricultural Science 218, (435) 797-2383,
don.snyder@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)
Economics (Econ)
(jointly administered with the College of Business)
Nutrition and Food Sciences (NFS)
Plants, Soils, and Biometeorology (PSB)

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.

Agriculture today 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.

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. This includes about half a million scientists who serve agriculture directly or indirectly. The agricultural industry is the biggest buyer, seller, and borrower in the United States, and it has the largest investment of any industry.

Today's agriculture 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 agriculture is manifest by the achievements of the graduates. They are setting new standards for agricultural production and in positions as professional specialists, teachers, research investigators, and leaders in agriculture and related industries locally, nationally, and internationally.

Education in 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 Biometeorology 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, and the Veterinary Science Building. The Agricultural Systems Technology and Education Department is located in the Agricultural Systems Technology and Education Building. The 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 in more distant areas of 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. Pre-veterinary training is offered in the Department of Animal, Dairy and Veterinary Sciences.

There are three basic curricula offered by most departments: (1) science, (2) general or production, and (3) business. Departmental listings detail the requirements for earning a degree in these curricula.

Science

Students who choose the science curriculum are taught the fundamentals of physical and biological sciences that are significant to agriculture, including biotechnology and genomics. In the basic science courses, students prepare themselves for graduate work and eventually research and teaching careers in the 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 Biometeorology.

General or Production

This 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. The production curriculum will satisfy the needs of a student who plans to be involved in production agriculture, 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 Technology and Education; Plants, Soils, and Biometeorology; and in the animal and dairy majors of the ADVS Department.

Business

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

College of Agriculture

producer's needs, as well as marketing firms that assemble, process, ship, and merchandise agricultural products. Managers of large-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 or industrial career should consider the business option.

This curriculum is offered in the Departments of Economics; Agricultural Systems Technology and Education; Nutrition and Food Sciences; Plants, Soils, and Biometeorology; and in the animal and dairy majors of the ADVS Department.

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 needs. The College of Agriculture participates in the Interdisciplinary Studies Major (see pages 342-343), 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 over 100 scholarships, internships, and assistantships. The college and the local agribusinesses also support many students through work experience programs. For further information, contact the College of Agriculture Dean's Office (Agricultural Science 223) and/or individual department offices.

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 safety precautions 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.

Course Descriptions

Agriculture (AG), page 555.

Dean: To be appointed
Location: Business 212
Phone: (435) 797-2272
FAX: (435) 797-0272
E-mail: ceo@business.usu.edu
WWW: http://www.usu.edu/cob

Senior Associate Dean:

Clifford R. Skousen, Business 202C, (435) 797-2331,
cliff.skousen@usu.edu

Associate Dean for Graduate Studies and Director of Management

Institute: Glenn M. McEvoy, Business 807, (435) 797-2375,
glenn.mcevoy@usu.edu

Associate Dean for Business Relations:

Ross E. Robson, Merrill Library 210B, (435) 797-2279,
ross.robson@usu.edu

Director of Development:

Alta L. Markeson, Business 202F, (435) 797-3720,
alta.markeson@usu.edu

Director of Business Undergraduate Programs:

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

Director of Business Graduate Programs:

Mary Jo Blahna, Business 809, (435) 797-2360,
maryjo.blahna@usu.edu

Academic Departments

The College 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
Business Administration**

Business Information Systems

Economics (jointly administered with the College of Agriculture)

Management and Human Resources

Interdisciplinary/College Programs

The College 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 *Master of Business Administration (MBA)* section.

Major in Business

Dual Major and Second Bachelor's in Business

Minor in Business

Minor in International Business

Master of Business Administration (MBA)

Nondegree and Other Programs

A wide variety of seminars and development programs are sponsored by college units and academic departments. For example, Business Relations operates the Partners in Business program and the Shingo Prize for Excellence in Manufacturing. *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 Excellence in Manufacturing* is an award given to North American organizations in recognition of world-class business performance achieved through focused improvements in core manufacturing and business processes. The Shingo Prize is

also awarded for research and writing that expands the knowledge and understanding of lean manufacturing processes. The college 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 Business Information Systems Department in the College 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

College 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.

Vision

The College of Business is a School of Opportunity. It strives to be a highly sought first-rate business school, providing a springboard from which students can excel confidently and ethically in a global market.

Mission

The college is engaged in three primary activities: learning, discovery, and outreach. The **learning** or **educational** mission is to prepare future managers and leaders to positively contribute in a world community with a quest for life-long learning and self-improvement. The **discovery** mission is to aggressively support basic and applied research, ensuring the continued enlargement of the base of understanding about business, government, and other complex institutions; about the processes of managing and leading; and about the economic foundations upon which they function. The **outreach** mission is to provide innovative opportunities for the extended community through its own initiatives and through partnering with others.

Learning Goals

Regardless of their major, undergraduate College 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 and are assessed for achievement. 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.

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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 college'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 College of Business can be found at:

<http://www.usu.edu/cob/web/cob/assessment.htm>

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 College 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 College of Business honors advisor.

ECON 1500H (BAI) Introduction to Economic Institutions, History, and Principles 3
(taken during the first fall semester)

ACCT 2010H Survey of Accounting I 3
(taken during the fall of the second year)

MHR 3110H (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 4950H, BA 4950H, BIS 4950H, ECON 4950H, or MHR 4950H (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 Shauna Karren, College of Business Internship Director, Business 309, (435) 797-0333, shauna.karren@usu.edu.

College Honors Advisor

Clifford R. Skousen, Senior Associate Dean, College of Business, Business 202, (435) 797-2331, cliff.skousen@usu.edu.

Undergraduate Programs

Admission and Graduation Requirements

Freshman Admission

Students may be admitted directly into the College 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 College of Business major on USU application or submitted a College of Business application to the College of Business Career and Education Opportunities Center; (3) ACT Composite of 24 or higher; and (4) high school GPA of 3.5 or higher.

All admitted freshmen, regardless of declared College of Business major, must first complete the following four courses, or their equivalents, with a C grade or better in each course, as prerequisites to College of Business courses numbered 3000 and above: ECON 1500, Introduction to Economic Institutions, History, and Principles; MATH 1100, Calculus Techniques; STAT 2300, Business Statistics; and PSY or SOC 1010, General Psychology or Introductory Sociology.

Non-Freshman and Transfer Admission

USU students and transfer students from other accredited colleges and universities may be admitted directly to any College 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 College of Business major on USU application (transfer students) or submitted a College of

Business application to the College of Business Career and Education Opportunities Center (USU continuing students).

Admission for students not meeting the above conditions is competitive based on available space in the College of Business. Application forms, available at the College of Business Career and Education Opportunities Center, may be submitted after completion of at least 24 credits of coursework, including the pre-business course requirements, or equivalent, with a C grade 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 (ECON 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. (College of Business courses are limited to one repeat.)

Matriculation Requirement and Transfer Limitation

No more than 15 USU College of Business credits (ACCT, BA, BIS, BUS, MHR), numbered 2000 and above, earned as a nonbusiness major (before acceptance into the College of Business) can be applied to a College of Business degree. More than 15 business credits can be transferred from other accredited institutions. However, additional USU College 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 College of Business major, at least 50 percent of the required College of Business credits must be earned from coursework taken from the Utah State University College of Business.

Enrollment Restrictions

Admission to the College 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, MHR 2050, and BIS 2100, 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 College of Business Majors.) In addition, BIS 2100 requires the CIL exam or equivalent.
3. Most 3000-, 4000-, and 5000-level departmental courses in the College of Business are restricted to students admitted to the College of Business or another USU major with an overall GPA of at least 2.67 and completion of at least 40 credits.
4. MHR 4880 and 4890 require completion of at least 90 credits for admission.
5. College of Business courses may be repeated only once.
6. Many College of Business courses have prerequisites and other restrictions requiring adherence. Before registering for courses within the College of Business, 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 College 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 Career and Education Opportunities Center, Business 309, to clarify their specific requirements in this area. Additional information about these requirements is available on pages 49-57 of this catalog.

USU Credits and Business Credits

At least 30 of the last 60 semester credits must be taken from Utah State University, 10 of which must be included within the last 40 credits presented for the degree. At least 50 percent of the College of Business credits required for a College of Business degree must be taken from the Utah State University College of Business or its departments, which include: School of Accountancy, Business Administration, Business Information Systems, Economics, and Management and Human Resources.

Optional PID+, D, F Grade Restriction

This option (see the USU "Grading Policy," pages 38-40) is not available for any required courses for majors and minors in the College of Business.

College of Business Stop-out Policy

Students having a break in attendance of College of Business programs in excess of one year will be subject to the college and departmental requirements in effect at the time of their return.

Graduation

Students must satisfy all University, college, and departmental major requirements to be eligible for graduation. Refer to appropriate sections of this catalog for details.

Major in Business

The College 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 college, they are administered by the college, rather than by a specific department. These programs are primarily designed to be offered through the University's Continuing Education centers. However, students may also satisfy degree requirements by taking equivalent coursework on the Logan campus. Further information is available in the College of Business Career and Education Opportunities 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 typically required for business courses taught through Continuing Education. 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 admitted to the College 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.

College of Business

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 49-57 of this catalog.

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)

ECON 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
BIS 2100 Principles of Management Information Systems.....	3
BIS 2200 (CI) Business Communication.....	3
MHR 2050 Legal and Ethical Environment of Business.....	3
ECON 2010 (BSS) Introduction to Microeconomics.....	3
ECON 3400 (DSS) International Economics for Business.....	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

Option Areas (18 credits)

One of the following four 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

BUS 4010 Selected Topics in Finance.....	3
BUS 4020 Selected Topics in Marketing.....	3
BUS 4030 Selected Topics in Management.....	3
BUS 4040 Selected Topics in Human Resources.....	3
BUS 4250 Advanced Internship (6 cr) or	
Approved upper-division coursework (6 cr).....	6

General Option

The general 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 College 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 College of Business offers *both* a dual major *and* a second bachelor's degree in business. The requirements for a dual major or a second bachelor's degree are described above in the *Major in Business* section. For information concerning other dual majors or second bachelor's degrees having specializations in the college, see departmental sections of this catalog.

Minor in Business

The college offers a minor for nonbusiness majors consisting of the six 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 College of Business Career and Education Opportunities 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; BA 3400 or 3460; BA 3500; MHR 3110; and two of the following courses: ACCT 2020, BA 3700, BIS 2100, ECON 3400, and MHR 2050. Equivalent courses having a BUS prefix may be used to satisfy any of the course requirements.

Minor in International Business

Both College of Business majors and nonmajors are eligible to receive the International Business Minor. This minor is designed to develop a general background and perspective in business. All students who plan to pursue this minor receive academic advisement from the College of Business Career and Education Opportunities Center in Business 309. This minor consists of four courses selected from a group of six courses (listed below) and completion of either a Language Competency Option or a Regional Studies Option. Four of the following six courses are required as part of this minor: BA 4300 (International Finance), BIS 5700 (Internet Management and Electronic Commerce), ECON 3400 (International Economics for Business), ECON 5150 (Comparative Economic Systems), MHR 3820 (International Management), and MHR 4890 (Business Strategy in a Global Context). Information about the Language Competency and Regional Studies Options is available in the Career and Education Opportunities Center, Business 309.

Minors in Other Business Subjects

Minors are available in other business subjects, as indicated in departmental sections of this catalog.

College of Business Sponsored Student Organization

Phi Beta Lambda (PBL)

A cocurricular student organization. The organization's goal is to provide opportunities to develop business career competencies and to promote civic and personal responsibility. Membership is open to all students interested in business.

Other Professional Student Organizations

The following student organizations are sponsored by College of Business departments and are available for membership, depending upon student objectives and qualifications.

American Marketing Association (AMA)

Organization for marketing and marketing education majors.

American Production and Inventory Control Society (APICS)

Professional society for production majors.

Beta Alpha Psi

National honorary and professional accounting fraternity.

Beta Gamma Sigma

Honorary business fraternity. (See page 81 for further information.)

Association for Systems Management (ASM)

Organization for students planning careers in information processing and information systems management.

Delta Pi Epsilon (DPE)

National graduate honorary fraternity in business education.

Delta Epsilon Chi (DEX)

Co-curricular organization for marketing education and marketing majors.

Economics Club

Organization for students majoring in economics.

Finance Club

Organization for students majoring in finance.

Institute of Management Accountants (IMA)

Organization designed for accounting majors.

MBA Association

Organization for MBA graduate students.

Sigma Iota Epsilon (SIE)

National honorary and professional management fraternity.

Society for Human Resource Management (SHRM)

Organization for majors in fields of personnel and human resource management.

Scholarships, Fellowships, and Assistantships

A number of scholarships and assistantships are available to College 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 Career and Education Opportunities Center, Business 309.

Course Descriptions

Business (BUS), pages 581-582.

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 Teacher Education, Graduation, and Educator Licensing:

Francine Fukui Johnson, Education 101, (435) 797-1443,
francine.johnson@usu.edu

Associate Dean for Education Extension:

Michael K. Freeman, Education 114A, (435) 797-1474,
michael.freeman@usu.edu

Associate Dean for Research:

James T. Dorward, Education 453A, (435) 797-1471,
jim.dorward@usu.edu

The College of Education and Human Services has the following departments:

Communicative Disorders and Deaf Education
Elementary Education
Family, Consumer, and Human Development
Health, Physical Education and Recreation
Instructional Technology
Psychology
Secondary Education
Special Education and Rehabilitation

The 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 College of Education and Human Services participates in the Interdisciplinary Studies Major (see pages 342-343), 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 for Teacher Education and is accredited by the National Council for the Accreditation of Teacher Education and 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 Sciences, American Psychological Association, American Speech-Language-Hearing Association, 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 College of Education and Human Services must complete the USU University Studies requirements (see pages 49-57).

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 Teacher Education, 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, and take a speech and hearing test. Students are not permitted to enroll in the 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 Teacher Education, Graduation, and Educator Licensing.

Teacher Licensing

The Dean of the College of Education and Human Services is assigned responsibility for the development, approval, and administration of Teacher Licensing requirements for students.

The 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 and 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 Teacher Education, Graduation, and Educator Licensing or from the department in which the major work is offered. All students who desire licensure must complete a criminal background check and must pass the Utah State Office of Education approved content test (Praxis II) in their major area prior to student teaching.

For the early childhood, elementary, secondary, or special education licensure, a closely supervised program of student teaching is conducted in selected schools throughout the state. Students should be financially prepared to live off campus during the semester selected as their professional semester of student teaching.

Dual Licensing

A student desiring to obtain early childhood and elementary education, elementary and secondary education, elementary and special education, elementary and deaf education, early childhood and deaf education, early childhood and special education, or secondary and special education licenses should consult with an advisor in the education departments early in his or her program. Ordinarily, dual licensure will require at least one additional semester of work.

Teacher Placement Service

The Teacher Placement Service functions as an integral part of the University Placement Center. Students may register with the service, which will help in compiling the proper credentials to be used in placement interviews. Application for placement services should be made prior to student teaching whenever possible. No fee is charged for using the center.

College of Education and Human Services

Facilities

The 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 training center.

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.

Graduate Study

Programs at the graduate level, leading to advanced professional degrees and/or licensure, are available in the administrative, supervisory, human services, clinical, library media, and counseling areas. The Master of Education (MEd), Master of Science (MS), and Master of Arts (MA) degrees are offered in most departments. An Educational Specialist (EdS) program is available in the following departments: Communicative Disorders and Deaf Education, Instructional Technology, and Special Education and Rehabilitation. Interdepartmental Doctorate of Education (EdD) and Doctorate of Philosophy (PhD) degrees are available with specializations in Business Information Systems, Curriculum and Instruction, and Research and Evaluation. A professional Doctorate of Audiology (AuD) is available in the Department of Communicative Disorders and Deaf Education. PhD degrees are offered within the following departments: Family, Consumer, and Human Development; Instructional Technology; Psychology; and Special Education and Rehabilitation. The Master of Family and Human Development (MFHD) degree is offered by the Family, Consumer, and Human Development Department. The Master of Rehabilitation Counseling (MRC) degree is offered by the Special Education and Rehabilitation Department.

Course Descriptions

Education (EDUC), pages 607-609.

College of Engineering

Dean: H. Scott Hinton
Location: Engineering 413
Phone: (435) 797-2775
FAX: (435) 797-2769
E-mail: office@engineering.usu.edu
WWW: http://www.engineering.usu.edu

Associate Dean:
Wynn R. Walker, Engineering 413B, (435) 797-2788,
wynnwalk@cc.usu.edu

Associate Dean:
Christine E. Hailey, Engineering 413C, (435) 797-3332,
chailey@engineering.usu.edu

Associate Dean:
Maurice G. Thomas, Engineering 413F, (435) 797-1797,
mthomas@cc.usu.edu

Academic Advisors:
Joan P. Smith, Engineering 310, (435) 797-2705,
joan.smith@usu.edu

Kathleen E. Bayn, Engineering 308, (435) 797-2705,
kathy.bayn@usu.edu

Ronnie Green, Engineering 312, (435) 797-2790,
ronnie@engineering.usu.edu

Development Director: Val K. Potter, Engineering 413L,
(435) 797-8012, val.potter@usu.edu

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:

George K. Liang, Interim Director

Buried Structures Laboratory: Alma P. Moser and

Steven L. Folkman, Co-directors

Center for Self-Organizing and Intelligent Systems (CSOIS):

Yangquan Chen, Interim Director

Huntsman Environmental Research Center (HERC):

Maurice G. Thomas, Director

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

Toxic and Hazardous Waste Management: Ronald C. Sims, Director

Utah Local Technical Assistance Program: Doyt T. Bolling, Director

Utah On-Site Wastewater Training Center: Judith L. Sims, Director

Utah Space Engineering Center: Charles M. Swenson, Director

Utah Transportation Center: Kevin C. Womack, Director

State Centers of Excellence

Center for Advanced Imagery LADAR: Robert T. Pack, Director

Center for Advanced Satellite Manufacturing (CASM):

Brent E. Stucker, Director

Center for High-Speed Information Processing (CHIP):

Jacob H. Gunther, Director

Center for Profitable Uses of Agricultural Byproducts:

Conly L. Hansen, Director

National Science Foundation (NSF) Center

National Center for Engineering and Technology Education

(NCETE): Christine E. Hailey, Director

Utah State University Research Foundation

Space Dynamics Laboratory (SDL): Michael D. Pavich, Director

Utah State University

Utah Water Research Laboratory (UWRL): Mac McKee, Director

Inland Northwest Research Alliance at USU:

Ronald C. Sims, Coordinator

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 the Accreditation Board for Engineering and Technology (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 273-277).

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

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.

College of Engineering

- 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 136-137) or the Department of Military Science section (pages 407-408) 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, Civil Engineering, and Environmental Engineering must complete their junior year in engineering with a 3.0 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 during the last 60 semester credits. 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

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 Engineering Experiment Station and 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.

Utah Water Research Laboratory

The Utah Water Research Laboratory offers facilities and student support for water research, including surface and ground water resources management and use. Strong programs have been developed through multiple projects in weather modification, water quality control, waste water treatment, hydraulics, flood and erosion

control, hydrology, groundwater modeling, salinity control, water use in energy development, water systems optimization, and the socioeconomic aspects of water resources planning. Studies are coordinated with academic programs in the departments of Civil and Environmental Engineering, Biological and Irrigation Engineering, and related departments in other colleges.

International Irrigation Center

The International Irrigation Center conducts an extensive program of irrigation training and technology transfer through multi-lingual courses and through research. The center contributes significantly to improve irrigation practice, water management, and food production through these activities.

Other Research Centers

The College of Engineering also includes the following research centers: the Center for Self-Organizing and Intelligent Systems, the Center for High-Speed Information Processing (CHIP), the Center for Advanced Imagery LADAR, and the Utah Engineering Center.

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 618.

College of Humanities, Arts, and Social Sciences

Dean: Gary Kiger
Location: Main 338
Phone: (435) 797-1195
FAX: (435) 797-1092
E-mail: hass.general@usu.edu
WWW: <http://www.hass.usu.edu>

**Associate Dean; Director, Center for International Studies;
Director, Asian Studies Major and Minor:**

R. Edward Glatfelter, Main 333, (435) 797-1196,
ed.glatfelter@usu.edu

Associate Dean:

Christine Hult, Main 338E, (435) 797-8619, christine.hult@usu.edu

Director, Caine School of the Arts: Tom C. Peterson,
Family Life 320A, (435) 797-1563, tom.peterson@usu.edu

Director, College of HASS Advising Center:

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

Liberal Arts Program:

Contact College of HASS Advising Center, 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
Interior Design
International Studies
Journalism and Communication
Landscape Architecture and Environmental Planning
Languages, Philosophy, and Speech Communication
Liberal Arts
Military Science
Music
Political Science
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 which 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.

It is probably fair to say that the 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 and/or space, a few departments within the college, such as Art, 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 303-304), which offers flexibility for qualifying students who cannot find an existing degree that meets their needs.

Caine School of the Arts

Director: Tom C. Peterson, (435) 797-1563, tom.peterson@usu.edu

Believing in the unique power of the arts to celebrate, illuminate, transform, and inspire the human spirit, the Caine School of the Arts seeks to make the arts more visible, more innovative, and more fully integrated into the intellectual life of Utah State University and the communities it serves. A collaborative community, representing the collective strengths and voices of the arts, the Caine School offers a means for connecting people and programs. This collaboration will facilitate opportunities for interdisciplinary creation and research, and foster a culture that values the arts and promotes access to the arts in the University, the community, and the region. Utah State's Caine School of the Arts represents the broadest interpretation of "the arts": art as personal expression, art for art's sake, art as communication, art as an important social and cultural force, art for personal enjoyment, and art as a contribution to what it means to be both an individual and a part of the larger cultures that connect us.

In achieving this mission, the Caine School of the Arts fulfills multiple roles.

On an advocacy level, the Caine School of the Arts 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.

On a curricular level, arts education grounded in a strong liberal arts tradition is offered. 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

College of Humanities, Arts, and Social Sciences

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.

On an outreach level, a rich program of lectures, exhibitions, and performances is offered for the USU campus and extended communities. Educational programs for pre-K through grade 12, as well as partnerships with arts-related groups, extend throughout the State of Utah. Many of the Caine School of the Arts programs provide design solutions for clients, locally and around the world.

On an organizational level, an environment in which dialogue and relationships can flourish across traditional boundaries is promoted, opening the way for new creative endeavors and understandings. An organizational structure encouraging and facilitating meaningful and effective collaborations is provided.

On a cultural level, the Caine School of the Arts seeks to infuse the University and its extended community with an increasing passion for the creation, investigation, and appreciation of the arts. The Caine School aims to position Utah State University as a national model for the "new land-grant university"—a place where personal, professional, academic, and community enrichment through the arts is a major institutional goal.

Nora Eccles Harrison Museum of Art

Director: Victoria Rowe, (435) 797-0164, victoria.rowe@usu.edu

Collections Manager and Registrar:

Susanne Lambert, (435) 797-0166, susanne.lambert@usu.edu

Assistant Education Curator: Nadra Haffar-Peragallo,
(435) 797-0165, nadra.peragallo@usu.edu

Administrative Program Coordinator:

Rachel Hamm, (435) 797-1414, rachel.hamm@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 Director: Elaine Thatcher, Main 303, (435) 797-3630

Utah History Fair Director: Michael W. Johnson, (435) 797-3633

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 and Handcart Awards, the Bennion Teachers' Workshop, the L. T. and J. T. Dee Visiting Scholars Program, the Utah History Fair, the USU Faculty Fellowship, and several scholarships. Recent projects have included the Mountain West Songfest (with the Music Department), a driving tour of historic barns in northern Utah (with the Bear River Association of Governments and the Bear River Heritage Area), symposia on the fiftieth anniversary of the end of the Korean War and on the one-hundredth anniversary of the Cache National Forest, student internships in oral history and folklore, and student workshops on working in the public sector arts and humanities.

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.

College of Humanities, Arts, and Social Sciences

College of HASS Advising Center

Director: Mary E. Leavitt

Assistant Director: Irene B. McInerney

Advisor: Lisa R. Hamblin

Advisor: Sally B. Peterson

Advisor: Marcia R. Roberts

Advisor: Lynne M. Slade

Program Coordinator: Susan Parkinson

Office in 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 639.

Interdisciplinary Studies (ITDS), page 652.

Latin American Studies (LATS), page 658.

Women and Gender Studies (WGS), page 726.

College of Natural Resources

Dean: Nat B. Frazer
Director of Graduate Education: Todd A. Crowl
Director of Undergraduate Education: Mark W. Brunson
Location: Natural Resources 108
Phone: (435) 797-2452
FAX: (435) 797-2443
E-mail: nradvise@cc.usu.edu
WWW: <http://www.cnr.usu.edu>

Undergraduate Advisor:
Maureen A. Wagner, Natural Resources 120, (435) 797-2448,
maureen@cc.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 433.

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 (see pages 342-343), which offers flexibility for qualifying students who cannot find an existing degree that meets their needs.

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 staff and student employees of the College of Natural Resources Academic Services Center maintain contacts with public and private sector employers from around the region, not only to connect students with summer jobs, but also to provide students with

opportunities for volunteer participation during the school year, as well as with internships combining work done for academic credit with a chance to learn about future employment.

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

A number of scholarships are available to students enrolled in the College of Natural Resources. During recent years, more than \$100,000 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 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 369), the Natural Resource and Environmental Policy Certificate Program (page 368), and the National Environmental Policy Act (page 363).

College of Natural Resources

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 and tuition waivers are offered to incoming graduate students on a competitive basis. Application is made through the student's major professor.

Financial Assistance

Assistantships

Teaching or research assistantships are awarded through the departments. For further information, students should check with their department and major professor.

Fellowships

Fellowships and tuition waivers are awarded on a competitive basis. Incoming graduate students should apply through their major professor.

Course Descriptions

Natural Resources (NR), pages 680-681.

National Environmental Policy Act (NEPA), page 676.

College of Science

Dean: Donald W. Fiesinger
Location: Eccles Science Learning Center 245
Phone: (435) 797-2478
FAX: (435) 797-3378
E-mail: scido@cc.usu.edu
WWW: <http://www.usu.edu/science/>

Associate Dean: Richard J. Mueller, ESLC 245G, (435) 797-2479,
rmueller@biology.usu.edu

Associate Dean: Lisa M. Berreau, ESLC 245J, (435) 797-3509,
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 209-210).

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 98-99).

College of Science

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 342-343), 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 Descriptions

Science (SCI), page 709.

School of Accountancy

Department Head: Richard L. Jenson
Location: Business 511
Phone: (435) 797-2335
FAX: (435) 797-1475
E-mail: maryann.clark@usu.edu
WWW: <http://www.usu.edu/cob/acct>

Director of Graduate Accounting Programs:
David H. Luthy, Business 504, (435) 797-2429,
david.luthy@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 College 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 accounting preparation for professional 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 high-quality 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, business information systems, business communications, business administration, accountancy, 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 College of Business section of this catalog (page 112).

Learning Objectives and Assessment

Assessment information for the School of Accountancy can be found online at: <http://www.usu.edu/cob/acct/about/assess.htm>.

Requirements

College of Business Admission Requirements

All students majoring in accounting must satisfy the College of Business admission requirements, provided on pages 112-113. Academic advising about these requirements is available in the College of Business Career and Education Opportunities 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 49-57 of this catalog.

Matriculation Requirement and Transfer Limitation

No more than 15 USU College of Business credits (ACCT, BA, BIS, BUS, MHR), numbered 2000 and above, earned as a nonbusiness major (before acceptance into the College of Business) can be applied to a College of Business degree. More than 15 business credits can be transferred from other accredited institutions. However, additional USU College 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 College of Business major, at least 50 percent of the required College of Business credits must be earned from coursework taken from the Utah State University College of Business.

USU Credits and Business Credits

At least 30 of the last 60 semester credits must be taken from Utah State University, 10 of which must be included within the last 40 credits presented for the degree. At least 50 percent of the College of Business credits required for a College of Business degree must be taken from the Utah State University College of Business or its departments, which include: School of Accountancy, Business Administration, Business Information Systems, Economics, and Management and Human Resources. At least 15 credits in upper-

School of Accountancy

division accounting courses must be completed through the USU School of Accountancy (Logan campus).

Accounting Admission Requirements

In addition to meeting the College 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 15 credits of upper-division accounting courses must be completed through the USU School of Accountancy (Logan Campus). 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 49-57), the Pre-Business course requirements, the College of Business Core, and the Required Accounting Courses.

Pre-Business Course Requirements (13 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp)	3
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
PSY 1010 (BSS) General Psychology (F,Sp,Su) (3 cr) or	
SOC 1010 (BSS) Introductory Sociology (F,Sp) (3 cr)	3

College 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
BA 3400 (QI) Corporate Finance (F,Sp,Su)	3
BA 3500 Fundamentals of Marketing (F,Sp,Su).....	3
BA 3700 Operations Management (F,Sp,Su).....	3
BIS 2100 Principles of Management Information Systems (F,Sp,Su) ...	3
BIS 2200 (CI) Business Communication (F,Sp,Su).....	3
BUS 3250 Discussions With Business Leaders (F,Sp)	1
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp).....	3
ECON 3400 International Economics for Business (F,Sp,Su).....	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su).....	3
MHR 3110 Managing Organizations and People (F,Sp,Su)	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (F,Sp) (3 cr) or	
MHR 4890 (CI) Business Strategy in a Global Context (F,Sp,Su) (3 cr)	3

Required Accounting Courses (24 credits)

The courses listed below may *not* be taken *Pass/Fail*.

ACCT 3110 Intermediate Financial Accounting and Reporting I (F,Sp,Su)	3
ACCT 3120 Intermediate Financial Accounting and Reporting II (F,Sp,Su)	3
ACCT 3310 Strategic Cost Management (F,Sp,Su)	3
ACCT 3410 Income Taxation I (F,Sp,Su)	3
ACCT 4200 Advanced Accounting (F,Sp)	3
ACCT 4410 Income Taxation II (F,Sp).....	3
ACCT 4500 Accounting Information Systems (F,Sp)	3
ACCT 4510 (CI) 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 on page 133 and at:

<http://www.usu.edu/cobssc/web/fouryeardegreeplans.htm>

Accounting Minor (18 credits)

Students with a major in an area other than accounting may qualify for an accounting minor by completing 18 semester credits as follows:

ACCT 2010 Survey of Accounting I (F,Sp,Su).....	3
ACCT 2020 Survey of Accounting II (F,Sp,Su).....	3
ACCT 3110 Intermediate Financial Accounting and Reporting I (F,Sp,Su)	3
ACCT 3120 Intermediate Financial Accounting and Reporting II (F,Sp,Su)	3
ACCT 3310 Strategic Cost Management (F,Sp,Su).....	3
ACCT 3410 Income Taxation I (F,Sp,Su) (3 cr) or	
ACCT 4500 Accounting Information Systems (F,Sp) (3 cr).....	3

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*.

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. The required courses consist of 15 semester credits as follows:

ACCT 3410 Income Taxation I (F,Sp,Su)	3
PFP 5060 Personal Financial Planning and Advising (F).....	3
PFP 5070 Retirement Planning (Sp)	3
PFP 5080 Estate Planning (Sp).....	3
BA 3460 Fundamentals of Personal Investing (3 cr) or	
BA 4460 Investments (F,Sp) (3 cr)	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:

ECON 4010 Managerial Economics (F,Sp) (3 cr) or	
ECON 5010 Microeconomics (Sp) (3 cr).....	3
ECON 4020 Macroeconomics for Managers (F,Sp) (3 cr) or	
ECON 5000 Macroeconomics (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 60.

School of Accountancy

Beta Alpha Psi

The Delta Omega Chapter of Beta Alpha Psi, the national honorary and professional accounting fraternity, provides many professional accounting experiences for qualifying accounting students throughout their academic program.

Institute of Management Accountants

The student chapter of the Institute of Management Accountants (IMA) provides professional experiences in the area of management accounting. This organization is especially for students interested in careers in industry, not-for-profit organizations, governmental organizations, and accounting and business entrepreneurship.

Financial Planning Student Association

The Financial Planning Student Association (FPSA) provides students with opportunities to supplement classroom instruction with speakers from the financial planning industry, office visits, and internships at state and national meetings of professional associations in the financial services industry.

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/ats/majorsheets/>

Suggested Four-year Course of Study for Accounting Major

The following curriculum is required for the BS degree in accounting. Students enrolled in the accounting major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1050 (QL) College Algebra.....	4
USU 1010 University Connections	2
OSS 1400² Microcomputer Applications (3 cr) or Passing scores on Computer and Information Literacy (CIL) exams (0 cr).....	0-3
<i>(Note: Although OSS 1400 includes the CIL exams, the CIL requirement is met only by passing all six exams, not by simply passing OSS 1400.)</i>	
Breadth Creative Arts (BCA) course ¹	3
Elective course(s) ²	0-3

Spring Semester (15 credits)

ECON 2010 (BSS) Introduction to Microeconomics	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1100 (QL) Calculus Techniques	3
PSY 1010 (BSS) General Psychology (3 cr) or SOC 1010 (BSS) Introductory Sociology (3 cr).....	3
Breadth Humanities (BHU) course ¹	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I.....	3
BIS 2100 Principles of Management Information Systems	3
MHR 2050 Legal and Ethical Environment of Business	3
STAT 2300 (QL) Business Statistics	4
Breadth Life Sciences (BLS) course ¹	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II.....	3
BA 3400 (QI) Corporate Finance	3
BIS 2200 (CI) Business Communication	3
Breadth Physical Sciences (BPS) course ¹	3
Elective course(s).....	3

Junior Year (29 credits)

Fall Semester (14 credits)

ACCT 3110 Intermediate Financial Accounting and Reporting I.....	3
ACCT 3310 Strategic Cost Management	3
BA 3500 Fundamentals of Marketing	3
BUS 3250 Discussions With Business Leaders.....	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Elective course	1

Spring Semester (15 credits)

ACCT 3120 Intermediate Financial Accounting and Reporting II.....	3
ACCT 3410 Income Taxation I	3
BA 3700 Operations Management.....	3
ECON 3400 (DSS) International Economics for Business	3
Elective course(s).....	3

Senior Year (30 credits)

Fall Semester (15 credits)

ACCT 4410 Income Taxation II	3
ACCT 4500 Accounting Information Systems	3
MHR 3110 Managing Organizations and People	3
Depth Humanities and Creative Arts (DHA) course	3
Elective course(s).....	3

Spring Semester (15 credits)

ACCT 4200 Advanced Accounting	3
ACCT 4510 (CI) Auditing Principles and Techniques	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Content (3 cr) or MHR 4890 (CI) Business Strategy in a Global Context (3 cr)	3
Depth Life and Physical Sciences (DSC) course	3
Elective course(s).....	3

¹At least two of the required Breadth Courses must be University Studies courses having a USU prefix.

²If opting out of OSS 1400, students must take an extra 3 elective credits.

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 College of Business, qualify graduates to sit for the Certified Public Accountant examination.

School of Accountancy

Admission Requirements

See general admission requirements, pages 99-100. 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 197. 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 101.)

Students with an undergraduate degree in accounting which meets the USU undergraduate accounting program requirements 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. Students are encouraged to satisfy undergraduate deficiencies by taking equivalent graduate business administration, management and human resources, and economics core courses when possible.

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 an undergraduate accounting major or equivalent (30 credits)

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. At least 15 credits must be earned in approved Accounting courses numbered 6000 or above. 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, 6800; and PFP 6560.

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 6350, 6500, 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 complete, or have previously completed, the equivalent of BA 3460 or 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 6350, 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, page 197.) 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 197-198), and the following: PFP 6060, 6070, 6080; ACCT 3410; and BA 3460 or 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.

School of Accountancy

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

ATK Thiokol Professor

Richard L. Jenson, systems

Larzette G. Hale Professor

I. Richard Johnson, financial, business combinations

Richard C. and Vera C. Stratford Professor

David H. Luthy, systems

Arthur Andersen Alumni Professor

Richard L. Ratliff, auditing, financial, internal audit

Ernst & Young Professor

Clifford R. Skousen, international, managerial, financial

Arthur Andersen Executive Professor

Jay H. Price, Jr., financial, governmental, business combinations

Adjunct Professor

M. Kay Jeppesen, government contract accounting and administration

Professors Emeritus

James W. Brackner

Frank A. Condie

Larzette G. Hale

Associate Professors

Rosemary R. Fullerton, financial, managerial

E. Vance Grange, financial planning and tax

Irvin T. Nelson, accounting education, financial, managerial

Assistant Professors

Cindy Durtschi, financial, forensic

Garth F. Novack, tax

Principal Lecturer

Franklin D. Shuman, financial, managerial, governmental, business combinations

Lecturers

Ryan E. Larkin, tax and financial

Jack W. Peterson, financial

Dale G. Siler, business law and tax

Course Descriptions

Accounting (ACCT), pages 550-551.

Personal Financial Planning (PFP), page 687.

Department of Aerospace Studies

Department Head: Lt. Colonel Michael A. Swift
Location: Military Science 107
Phone: (435) 797-8723
FAX: (435) 797-8733
E-mail: afrotc@hass.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.** 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-, two-, or one-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 1110 Leadership Laboratory I.....	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 1120 Leadership Laboratory I.....	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 (5 weeks)	1-5
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

One-Year Program

AS 3500 Field Training (5 weeks)	1-5
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

Department of Aerospace Studies

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 five weeks. Up to five university 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.

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/ats/majorsheets/>

Scholarships and Financial Aid

Scholarships

Air Force ROTC scholarships are available on a competitive basis in four-, three-, two-, and one-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 College Scholarship Program (CSP) 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 \$250-400 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 Michael A. Swift

Assistant Professors

Captain James Lovewell, Commandant of Cadets
Major Walter D. Martin, Unit Admissions Officer

Information Manager

Technical Sergeant Holly A. Huff

Director of Personnel

Staff Sergeant Jessica L. Bruckner

Course Descriptions

Aerospace Studies (AS), page 562.

Department of Agricultural Systems Technology and Education

Department Head: Bruce E. Miller
Location: Agricultural Systems Technology and Education 101C
Phone: (435) 797-2230
FAX: (435) 797-4002
E-mail: bruce.miller@usu.edu
WWW: http://www.aste.usu.edu

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:
 Betty J. Murri, Family Life 303A, (435) 797-1565, betty.murri@usu.edu

Degrees offered: Bachelor of Science (BS) in Agricultural Education; 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 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, 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 16-20. 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 College of Education and Human Services requirements, page 116). 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 49-57). In addition, students must complete the following courses in preparation for teacher licensure:

Professional Education (14 credits)

SCED 3100 Motivation and Classroom Management (F,Sp)	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp)	3
SCED 4200 (CI) Reading, Writing, and Technology (F,Sp)	3
SCED 4210 Cognition and Evaluation of Student Learning (F,Sp)	3
SPED 4000 Education of Exceptional Individuals (F,Sp,Su)	2

Agricultural Education (26 credits)

ASTE 2710 Orientation to Agricultural Education (F)	2
ASTE 3100 Leadership Applications in Agricultural Science, Management, and Development (Sp)	2
ASTE 3240 (CI) Teaching in Laboratory Settings (Sp)	3
ASTE 3300 Clinical Experience I in Agricultural Education (Sp)	1
ASTE 3620 Managing the FFA and SAE Programs (Sp,Su)	2
ASTE 4150 (CI) Methods of Teaching Agriculture (F)	3
ASTE 4300 Clinical Experience II in Agricultural Education (F)	1
ASTE 5500 Agricultural Education Secondary Curriculum Seminar (Sp)	2
ASTE 5630 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:

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
ADVS 1110 Introduction to Animal Science (F,Sp)	4
BIOL 1610 Biology I (F)	4
CHEM 1110 (BPS) General Chemistry I (F,Sp)	4
SOIL 3000 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 (50-57 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 (50 credits)

ADVS 1110 Introduction to Animal Science (F,Sp)	4
ADVS 4560 (QI) Principles of Animal Breeding (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 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
ECON 3030 (DSS) Introduction to Agribusiness Marketing (F) (3 cr) or ECON 3050 (DSS) Introduction to Agribusiness Management (Sp) (3 cr)	3
PLSC 3050 Greenhouse Management and Crop Production (Sp)	4
PLSC 3700 Plant Propagation (F)	4
PLSC 4280 Field Crops (F)	3
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4

Horticulture (57 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)	1.5
PLSC 2610 Indoor Plants and Interiorscaping (F)	1.5
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F)	3
PLSC 2650 Identification and Selection of Plants in Production Agriculture (F)	1
PLSC 3010 Basic Flower Arranging (F)	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)	4
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4

Agricultural Systems (57 credits)

ADVS 1110 Introduction to Animal Science (F,Sp)	4
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 5100 Electrical Controls and Motors for Agri-Industrial Applications (Sp)	3
ASTE 5260 (CI) Environmental Impacts of Agricultural Systems (F)	3
CHEM 1110 (BPS) General Chemistry I (F,Sp)	4
ECON 3030 (DSS) Introduction to Agribusiness Marketing (F) (3 cr) or ECON 3050 (DSS) Introduction to Agribusiness Management (Sp) (3 cr)	3
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 (55 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
FRWS 3600 Wildland Plant Ecology and Identification (F)	4
FRWS 3610 Wildland Animal Ecology and Identification (F)	4
FRWS 3900 Managing Dynamic Ecological Systems (Sp)	4
FRWS 4000 Principles of Rangeland Management (Sp)	3
SOIL 3000 Fundamentals of Soil Science (F,Sp) (4 cr) or SOIL 4000 Soil and Water Conservation (F) (4 cr)	4

Suggested Four-year Course of Study for Agricultural Education Major

Freshman Year (32 credits)

Fall Semester (16 credits)

ADVS 1110 Introduction to Animal Science	4
ASTE 2710 Orientation to Agricultural Education	2
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) College Algebra	4
USU 1320 (BHU) Civilization: Humanities	3

Spring Semester (16 credits)

ASTE 2200 Electricity in Agricultural Systems	3
ASTE 2900 (BSS) Humanity in the Food Web	3
CHEM 1110 (BPS) General Chemistry	4
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
USU 1350 (BLS) Integrated Life Science	3

Sophomore Year (29-30 credits)

Fall Semester (16 credits)

ASTE 2830 Agribusiness Sales and Marketing	3
ASTE 3030 Metal Welding Processes and Technology in Agriculture	3
BIOL 1610 Biology I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
USU 1330 (BCA) Civilization: Creative Arts	3

Department of Agricultural Systems Technology and Education

Spring Semester (13-14 credits)

ASTE 3040 (QI) Fabrication Practices in Agricultural Buildings.....	2
ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications.....	3
ASTE 3100 Leadership Applications in Agricultural Science, Management, and Development.....	2
PLSC 3050 Greenhouse Management and Crop Production.....	4
ADVS elective Production course.....	2-3

Junior Year (31 credits)

Fall Semester (15 credits)

ADVS 4560 (QI) Principles of Animal Breeding.....	3
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture.....	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing.....	3
PLSC 3700 Plant Propagation.....	4
USU 3330 (DHA) Arts Symposium.....	2

Spring Semester (Level I—16 credits)

ASTE 3240 (CI) Teaching in Laboratory Settings.....	3
ASTE 3300 Clinical Experience I in Agricultural Education.....	1
ASTE 3620 Managing the FFA and SAE Programs.....	2
SCED 3100 Motivation and Classroom Management.....	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations.....	3
SOIL 3000 Fundamentals of Soil Science.....	4

Senior Year (Level II—27 credits)

Fall Semester (15 credits)

ASTE 4150 (CI) Methods of Teaching Agriculture.....	3
ASTE 4300 Clinical Experience II in Agricultural Education.....	1
PLSC 4280 Field Crops.....	3
SCED 4200 (CI) Reading, Writing, and Technology.....	3
SCED 4210 Cognition and Evaluation of Student Learning.....	3
SPED 4000 Education of Exceptional Individuals.....	2

Spring Semester (12 credits)

ASTE 5500 Agricultural Education Secondary Curriculum Seminar.....	2
ASTE 5630 Agricultural Education Student Teaching in Secondary Schools.....	10

In addition to the courses listed above, students must complete enough elective credits to meet the University's requirement of *at least* 120 total credits.

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
CHEM 1110 (BPS) General Chemistry I (F,Sp).....	4
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp).....	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing (F).....	3
ECON 3050 (DSS) Introduction to Agribusiness Management (Sp).....	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

Agricultural Systems Courses (minimum of 23 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).....	6
ASTE 1620 Agricultural Machinery Power Trains (Sp).....	6
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 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
ECON courses (Agricultural).....	6-12
MHR courses.....	6-12
BA courses.....	6-12
BIS courses.....	6-12
PLSC courses.....	6-12
SOIL courses.....	6-12

Electives (maximum of 11 credits)

Total Credits for Graduation.....92

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.

Suggested Four-year Course of Study for Agricultural Systems Technology Major

Freshman Year (32 credits)

Fall Semester (16 credits)

ASTE 1010 Introduction to Agricultural Systems Technology.....	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
MATH 1050 (QL) College Algebra.....	4
PHIL 1000 (BHU) Introduction to Philosophy.....	3
Designated elective course ¹	3

Department of Agricultural Systems Technology and Education

Spring Semester (16 credits)	
ASTE 2200 Electricity in Agricultural Systems	3
CHEM 1110 (BPS) General Chemistry	4
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
USU 1350 (BLS) Integrated Life Science	3
Designated elective course ¹	3

Sophomore Year (29 credits)	
Fall Semester (15 credits)	
ASTE 2830 Agribusiness Sales and Marketing	3
ASTE 3030 Metal Welding Processes and Technology in Agriculture	3
ACCT 2010 Survey of Accounting I	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
USU 1330 (BCA) Civilization: Creative Arts	3

Spring Semester (14 credits)	
ASTE 2900 (BSS) Humanity in the Food Web.....	3
ASTE 3040 (QI) Fabrication Practices in Agricultural Buildings.....	2
ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications.....	3
Designated elective courses ¹	6

Junior Year (31 credits)	
Fall Semester (15 credits)	
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture	3
ASTE 3090 Computer Applications in Agriculture	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing	3
Designated elective courses ¹	6

Spring Semester (16 credits)	
ASTE 4100 Agricultural Structures and Environment	3
ECON 3050 (DSS) Introduction to Agribusiness Management	3
SOIL 3000 Fundamentals of Soil Science.....	4
Designated elective courses ¹	6

Senior Year (29 credits)	
Fall Semester (14 credits)	
ASTE 5260 (CI) Environmental Impacts of Agricultural Systems.....	3
USU 3330 (DHA) Arts Symposium.....	2
Designated elective courses ¹	9

Spring Semester (15 credits)	
ASTE 4900 Senior Project Research and Creative Opportunity	3
Designated elective courses ¹	12

¹Students must complete a minimum of 24 credits of designated elective courses in ASTE, ADVS, ACCT, ECON (Agricultural), MHR, BA, BIS, PLSC, or SOIL courses. Of these, 12 credits must be selected from upper-division (3000-level and above) courses. Students must complete enough elective credits to meet the University's requirement of at least 120 total credits.

Agricultural Systems Technology and Agribusiness Composite Major Economics Courses (27 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp)	3
ECON 1550 (BSS) Introduction to Environmental and Natural Resource Economics (F)	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing (F)	3
ECON 3050 (DSS) Introduction to Agribusiness Management (Sp)	3
ECON 4010 (DSS) Managerial Economics (F,Sp)	3
ECON 4030 (CI) Agribusiness Finance (F)	3
ECON 5030 Agricultural Marketing and Price Analysis (F)	3

ECON 5050 Farm and Ranch Planning and Analysis (Sp)	3
ECON 5350 (CI) Agribusiness, Cooperatives, and Management (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
MHR 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

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:	
ASTE 1010 Introduction to Agricultural Systems Technology (F).....	3
ASTE 1120 Forage and Harvest Equipment (F)	3
ASTE 1130 Planting and Tillage Equipment (Sp).....	3
ASTE 1610 Agricultural Machinery Engines (F).....	6
ASTE 1620 Agricultural Machinery Power Trains (Sp).....	6

Department of Agricultural Systems Technology and Education

ASTE 2200 Electricity in Agricultural Systems (AC) (Sp).....	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 3600 Management of Agricultural Machinery Systems (Sp).....	3
ASTE 3710 Agricultural Machinery Hydraulic Systems and Diagnosis (F).....	3
ASTE 3720 Agricultural DC Electrical Systems and Diagnosis (F).....	3
ASTE 3730 Agricultural Machinery Auxiliary Systems and Diagnosis (Sp).....	3

Business or Related Elective Classes (select 9 credits)

ADVS 1110 Introduction to Animal Science (F,Sp).....	4
ASTE 2250 Occupational Experience in Agriculture (F,Sp).....	5
ASTE 2830 Agribusiness Sales and Marketing (F).....	3
ASTE 2900 (BSS) Humanity in the Food Web (F,Sp).....	3
ASTE 2930 Individualized Projects in Agricultural Mechanics (F,Sp).....	1-3
ASTE 3040 Fabrication Practices in Agricultural Buildings (Sp).....	2
ASTE 3050 Technical and Professional Communication Principles in Agriculture (F,Sp).....	3
ASTE 3090 Computer Applications in Agriculture (F).....	3
ASTE 3100 Leadership Applications in Agricultural Science, Management, and Development (Sp).....	2
ASTE 3200 Irrigation Principles and Practices (Sp).....	3
ASTE 3900 Special Problems in Agricultural Systems Technology and Education (F,Sp,Su).....	1-6
ASTE 4100 Agricultural Structures and Environment (Sp).....	3
ASTE 5100 Electrical Controls and Motors for Agri-Industrial Applications (Sp).....	3
ASTE 5260 Environmental Impacts of Agricultural Systems (F).....	3
AWER 1200 (BLS) Biodiversity: Its Conservation and Future (F,Sp).....	3
BIOL 1610 Biology I (F).....	4
CHEM 1110 (BPS) General Chemistry I (F,Sp).....	4
FRWS 4000 Principles of Rangeland Management (Sp).....	3
MATH 1030 (QL) Quantitative Reasoning (F,Sp).....	3
NR 1010 (BSS) Humans and the Changing Global Environment (F,Sp).....	3
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration.....	4
PLSC 2200 Pest Management Principles and Practices (Sp).....	3
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F).....	3
PLSC 2650 Identification and Selection of Plants in Production Agriculture (F).....	1
PLSC 3050 Greenhouse Management and Crop Production (Sp).....	4
PLSC 3300 Residential Landscapes (Sp).....	3
PLSC 3400 Landscape Management Principles and Practices (F).....	3
PLSC 3800 Turfgrass Management (F).....	3
PLSC 5550 Weed Biology and Control (F).....	4

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

ASTE 1010 Introduction to Agricultural Systems Technology.....	3
ASTE 1120 Forage and Harvest Equipment.....	3
ASTE 1610 Agricultural Machinery Engines.....	6
ASTE 3090 Computer Applications in Agriculture.....	3
ASTE 3710 Agricultural Machinery Hydraulic Systems and Diagnosis.....	3

Spring Semester

ASTE 1130 Planting and Tillage Equipment.....	3
ASTE 1620 Agricultural Machinery Power Trains.....	6
ASTE 2250 Occupational Experience in Agriculture.....	1-6
ASTE 3080 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

MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
CHEM 1110 (BPS) General Chemistry I (F).....	4
CHEM 1120 (BPS) General Chemistry II (Sp).....	4

Major Required Courses (88 credits)

A grade of C or better must be earned in these courses

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 3350 (DSS/QI) Family Finance (F,Sp).....	3
FCHD 4550 Preschool Methods and Curriculum (F,Sp).....	3
FCHD 4960 Practice Teaching in Child Development Laboratories (F,Sp,Su) (3 cr) or	
FCSE 4250 Internship in Family and Consumer Sciences Education (F,Sp,Su) (1-3 cr).....	1-3
FCSE 2040 Clothing Production Principles (F,Sp).....	3

Department of Agricultural Systems Technology and Education

FCSE 2510 Orientation to Family and Consumer Sciences Education (Sp).....	3
FCSE 3030 (DSC) Textile Science (Sp).....	4
FCSE 3040 Advanced Clothing Production Principles (F).....	3
FCSE 3060 (DSS/CI) Human Behavior Related to Dress (F) (3 cr) or	
FCSE 3080 Dress and Humanity (F,Su) (3 cr).....	3
FCSE 3300 Family and Consumer Sciences Education Clinical Experience I (40 hrs. minimum) (Sp).....	1
FCSE 3400 Family and Consumer Sciences Education Methods I (Sp).....	3
FCSE 4300 Family and Consumer Sciences Education Clinical Experience II (40 hrs. minimum) (F).....	1
FCSE 4400 Family and Consumer Sciences Education Methods II (F).....	3
FCSE 5500 Student Teaching Seminar (2 weeks) (Sp).....	2
FCSE 5630 Student Teaching in Secondary Schools (13 weeks, full-time) (Sp).....	10
ID 1790 (BCA) Interior Design Theory (Sp).....	3
ID 3790 Architectural Systems (F).....	3
INST 3500 Technology Tools for Secondary Teachers (F,Sp).....	1
NFS 1020 (BLS) Science and Application of Human Nutrition (F,Sp).....	3
NFS 1240 Culinary Basics (F,Su).....	3
NFS 2020 Nutrition Throughout the Life Cycle (Sp).....	3
NFS 4070 Experimental Foods (Sp).....	4
SCED 3100 Motivation and Classroom Management (F,Sp).....	3
SCED 3210 (DSS/CI) Educational and Multicultural Foundations (F,Sp).....	3
SCED 4200 (CI) Reading, Writing, and Technology (F,Sp).....	3
SCED 4210 Cognition and Evaluation of Student Learning (F,Sp).....	3
SPED 4000 Education of Exceptional Individuals (F,Sp,Su) (May be taken anytime).....	2

Suggested Four-year Course of Study for Family and Consumer Sciences Education Major

Freshman Year (31-34 credits)

Fall Semester (15-18 credits)	
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
FCHD 1500 (BSS) Human Development Across The Lifespan.....	3
FCHD 2450 (BSS) The Consumer and the Market.....	3
FCSE 2040 Clothing Production Principles.....	3
MATH 1010 Intermediate Algebra.....	3
OSS 1400 Microcomputer Applications (3 cr) or	
Passing scores on Computer and Information Literacy (CIL) exams (0 cr).....	0-3
(Note: Although OSS 1400 includes the CIL exams, the CIL requirement is met <i>only</i> by passing all six exams, <i>not</i> by simply passing OSS 1400.)	

Spring Semester (16 credits)

FCSE 2510 Orientation to Family and Consumer Sciences Education.....	3
ID 1790 (BCA) Interior Design Theory.....	3
MATH 1050 (QL) College Algebra.....	4
NFS 1020 (BLS) Science and Application of Human Nutrition.....	3
USU 1320 (BHU) Civilization: Humanities.....	3

Sophomore Year (30 credits)

Fall Semester (16 credits)	
CHEM 1110 (BPS) General Chemistry I.....	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
ID 3790 Architectural Systems.....	3
NFS 1240 Culinary Basics.....	3
USU 1300 (BAI) U.S. Institutions.....	3

Spring Semester (14 credits)

CHEM 1120 (BPS) General Chemistry II.....	4
FCHD 2400 (BSS) Marriage and Family Relationships.....	3
FCSE 3030 (DSC) Textile Science.....	4
NFS 2020 Nutrition Throughout the Life Cycle.....	3

Junior Year (32 credits)

Fall Semester (17 credits)	
FCHD 3350 (QI) Family Finance.....	3
FCHD 4550 Preschool Methods and Curriculum.....	3
FCSE 3040 Advanced Clothing Production Principles.....	3
FCSE 3060 (CI) Human Behavior Related to Dress (3 cr) or	
FCSE 3080 Dress and Humanity (3 cr).....	3
SPED 4000 Education of Exceptional Individuals.....	2
Depth Humanities and Creative Arts (DHA) course.....	3

Spring Semester (15 credits)

FCSE 3300 Family and Consumer Sciences Education Clinical Experience I.....	1
FCSE 3400 Family and Consumer Sciences Education Methods I.....	3
INST 3500 Technology Tools for Secondary Teachers.....	1
NFS 4070 Experimental Foods.....	4
SCED 3100 Motivation and Classroom Management.....	3
SCED 3210 (CI) Educational and Multicultural Foundations.....	3

Senior Year (23-25 credits)

Fall Semester (11-13 credits)	
FCHD 4960 Practice Teaching in Child Development Laboratories (3 cr) or	
FCSE 4250 Internship in Family and Consumer Sciences Education (1-3 cr).....	1-3
FCSE 4300 Family and Consumer Sciences Education Clinical Experience II.....	1
FCSE 4400 Family and Consumer Sciences Education Methods II.....	3
SCED 4200 (CI) Reading, Writing, and Technology.....	3
SCED 4210 Cognition and Evaluation of Student Learning.....	3

Spring Semester (12 credits)

FCSE 5500 Student Teaching Seminar.....	2
FCSE 5630 Student Teaching in Secondary School.....	10

In addition to the courses listed above, students must complete enough elective credits to meet the University's requirement of *at least* 120 total credits.

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

Department of Agricultural Systems Technology and Education

Program, Main 15, (435) 797-2715, honors@cc.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/ats/majorsheets/>

Graduate Programs

Admission Requirements

See general admission requirements, pages 99-100. 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; Animal, Dairy and Veterinary Sciences; Economics; Biology; Plants, Soils, and Biometeorology; Wildland Resources; and Instructional Technology.

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; Economics; Biology; Plants, Soils, and Biometeorology; and Instructional Technology.

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.

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
Weldon S. Sleight, extension education
Gary S. Straquadine, agricultural education/extension

Adjunct Professor

Kevin C. Kesler, 4-H and youth development programs

Professor Emeritus

Gilbert A. Long, agricultural education

Department of Agricultural Systems Technology and 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

John D. Harrison, agricultural waste management/extension specialist
Nancy Thompson, family and consumer sciences education
Brian K. Warnick, agricultural education, teacher preparation

Instructor

Betty J. Murri, apparel and textiles

Lecturers

Affia Sabir, education and outreach, Biotechnology Center
Julie P. Wheeler, family and consumer sciences education

Academic Advisor

Eric B. Worthen

Course Descriptions

Agricultural Systems Technology and Education (ASTE),
page 562.

Family and Consumer Sciences Education (FCSE),
pages 627-628.

Department of Animal, Dairy and Veterinary Sciences

Department Head: Mark C. Healey
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 Head:
Thomas D. Bunch, Agricultural Science 220, (435) 797-2148,
tombunch@cc.susu.edu

Undergraduate Advisor for Animal Science and Dairy Science majors:
Tami Spackman, Agricultural Science 242, (435) 797-2150,
tami.spackman@susu.edu

Undergraduate Advisor for Bioveterinary Science majors:
Stanley D. Allen, Veterinary Science 211, (435) 797-1900,
sallen@cc.susu.edu

Graduate Programs Coordinator:
Jeffrey L. Walters, Agricultural Science 246, (435) 797-2161,
jeffrey.walters@susu.edu

Degrees offered: Bachelor of Science (BS) in Animal Science, Dairy Science, Bioveterinary Science; 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 Science*—Animal Industries, Biotechnology, Science; *Dairy Science*—Dairy Industries, Science; *Bioveterinary Science*—Biotechnology

Graduate Specializations: *Animal/Dairy Science*—Animal Nutrition, Breeding and Genetics, Molecular Biology, Reproductive Biology, Animal or Dairy Management (MS only); *Bioveterinary Science (PhD only)*—Parasitology, Toxicology, Virology

Certificate Program: Dairy Herdsman

Undergraduate Programs

Objectives

Bachelor's degree students majoring in Animal Science may choose a program from three career emphasis areas: **Science, Animal Industries, or Biotechnology**. Students majoring in Dairy Science may choose a program from two career emphasis areas: **Science or Dairy Industries**. The curricula in the animal and dairy sciences are designed to prepare students for a broad base of rewarding careers in the dynamic disciplines of animal agriculture. Teaching and research facilities, flocks, and herds are available for "hands-on" practical laboratory experiences, along with faculty-mentored research projects. An assigned faculty advisor helps students develop, arrange, and expedite their personal undergraduate program.

Bioveterinary Science (preveterinary) bachelor's degree programs are intended to prepare students for admission to professional veterinary medical schools and/or graduate study in the biomedical sciences. A preveterinary bachelor's degree is considered a nonterminal degree. Preveterinary students may earn a bachelor's degree in Bioveterinary Science, or in the Science Emphasis of Animal Science or Dairy Science.

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.

Animal and Dairy Sciences

Science Emphasis

Designed for students desiring education beyond the bachelor's degree, this emphasis is a preparatory course of study for students who have a career interest in the following areas: animal research in genetics; reproductive biology, nutrition (public or private sector); biotechnology; teaching; and advanced degrees (MS, PhD, and veterinary school). The Science Emphasis requires an especially close student-advisor relationship, as post-graduate training is considered essential for professional success in these disciplines.

Animal (Dairy) Industries Emphasis

This emphasis is designed to prepare students who earn a bachelor's degree for the broadest range of career opportunities in animal agriculture. The Animal Industries Emphasis stresses both traditional skills in the areas of basic and applied animal sciences and related learning experiences in the other agricultural sciences, as well as in the areas of business administration, economics, and management. Students can select either an advanced research project or an internship experience in the animal industries as an integral component of their program of study during the junior or senior year. Graduates from this emphasis may seek career opportunities in production animal agriculture in farm or ranch 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, economics, accounting, agricultural real estate sales and appraisal, financing and credit operations, public policy, agricultural media and communications, insurance, commodity trading, animal product processing, agricultural cooperatives, and producer/commodity associations.

Animal and Bioveterinary Sciences

Biotechnology Emphasis

This 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. Recent 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.

Those students who enjoy lab work and would like to have a BS degree with good job opportunities, and still qualify to apply to veterinary school, may elect to add the Biotechnology Emphasis to their Bioveterinary Science or Animal Science degree.

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

Department of Animal, Dairy and Veterinary Sciences

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.

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 Science and Dairy Science programs 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 major. 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 major. All students with 60 or more semester credits need a 2.75 total GPA to be admitted to advanced standing in Bioveterinary Science, except that students declaring a Biotechnology Emphasis must have a 2.25 total GPA.

Departmental Standards

The following minimum requirements apply to all students working toward any bachelor's degree offered by the ADVS department. 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, Animal Science and Dairy Science bachelor's degree candidates must attain a grade point average of at least 2.50 in the ADVS courses specified as requirements in their respective emphasis curricula to graduate. Animal Science and Dairy Science degree candidates must attain an overall GPA of at least 2.25 to graduate. Bioveterinary Science degree candidates must attain an overall GPA of at least 3.0 to graduate, *except* for students with a Biotechnology Emphasis, who must attain an overall GPA of at least 2.50 to graduate.

Graduation Requirements

Courses required and recommended for meeting BS degree graduation requirements in the various options available in the department are as follows.

Animal Science Major

Animal Industries Emphasis Curriculum (2.25 GPA) Freshman Year (32.5-33.5 credits)

Fall Semester (16.5-17.5 credits)

ADVS 1110 Introduction to Animal Science	4
ADVS 1910 Orientation to Animal and Dairy Science	0.5
ADVS 2130 ⁵ Dairy Production Practices (3 cr) or	
ADVS 2190 ⁵ Horse Production Practices (2 cr)	2 or 3
BIOL 1010 (BLS) Biology and the Citizen.....	3
MATH 1050 (QL) College Algebra.....	4
Breadth Course ¹	3

Spring Semester (16 credits)

ADVS 1250 (QI) Applied Agricultural Computations	2
ADVS 2200 Anatomy and Physiology of Animals	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
ADVS 2080 ⁵ Beef Production Practices (2 cr) and/or	
ADVS 2090 ⁵ Sheep Production Practices (2 cr) and/or	
ADVS 2120 ⁵ Swine Production Practices (2 cr)	4

Sophomore Year (32-33 credits)

Fall Semester (16-17 credits)

CHEM 1110 (BPS) General Chemistry I	4
STAT 1040 (QL) Introduction to Statistics (3 cr) or	
STAT 2000 (QI) Statistical Methods (3 cr) or	
STAT 2300 (QL) Business Statistics (4 cr)	3 or 4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
Directed Elective	3
Breadth Course ¹	3

Spring Semester (16 credits)

ADVS 3000 Animal Health and Hygiene	3
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture	3
CHEM 1120 (BPS) General Chemistry II	4
Directed Elective ³	3
Breadth Course ¹	3

Junior Year (31 credits)

Fall Semester (15 credits)

ADVS 3500 Principles of Animal Nutrition.....	3
Directed Electives ³	9
Free Elective	3

Spring Semester (16 credits)

ADVS 3510 (QI) Applied Animal Nutrition	3
ADVS 4200 (CI) Physiology of Reproduction and Lactation	4
ADVS 4250 Internship in Animal Industry (3 cr) or	
ADVS 4800 Undergraduate Research or Creative Opportunity (3 cr) ..	3
Depth Course ²	3
Directed Elective ³	3

Senior Year (25.5-34.5 credits)

Fall Semester (14.5 credits)

ADVS 4560 (QI) Principles of Animal Breeding	3
ADVS 4910 Preprofessional Orientation.....	0.5
ADVS 4920 (CI) Undergraduate Seminar	2
ADVS 5120 ⁴ Swine Management	3
Depth Course ²	3
Directed Electives ³	3-6

Department of Animal, Dairy and Veterinary Sciences

Spring Semester (11-20 credits)

ADVS 5080 ⁴ Beef Cattle Management (3 cr) and/or	
ADVS 5090 ⁴ Sheep Management and Wool Technology (4 cr) and/or	
ADVS 5130 ⁴ Dairy Cattle Management (3 cr) and/or	
ADVS 5190 ⁴ Horse Management (3 cr)	3-7
Directed Electives ³	8-13

¹Must take one Breadth course from each of the following four categories: Creative Arts, Humanities, Physical Sciences, and Social Sciences. (Note: ECON 1500 fulfills the American Institutions Breadth Course requirement.)

²Must take one Depth course from each of the following two categories: Humanities and Creative Arts, and Social Sciences.

³Must take four courses from the following list: ACCT 2010; BUS 3400, 3500, 3700; ECON 2010, 3030, 3050, 4010, 4030, 5030; MHR 2990, 3110; and six courses from the following list: one 5000-level species management course in addition to the two courses required for the major; ADVS 3650, 5030, 5520, 5530, 5860; NFS 5020; PLSC 4320; FRWS 2200, 3600, 3850, 4000; SOIL 2000 or 3000.

⁴Must take two courses selected from: ADVS 5080, 5090, 5120, 5130, and 5190.

⁵Must take any three courses selected from: ADVS 2080, 2090, 2120, 2130, and 2190.

Animal Science Major Science Emphasis Curriculum (2.25 GPA)

Freshman Year (30.5 credits)

Fall Semester (16.5 credits)

ADVS 1110 Introduction to Animal Science	4
ADVS 1910 Orientation to Animal and Dairy Science	0.5
CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
MATH 1050 (QL) College Algebra	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3

Spring Semester (14 credits)

ADVS 2200 Anatomy and Physiology of Animals	4
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
ADVS 2080 ⁹ Beef Production Practices (2 cr) and/or	
ADVS 2090 ⁹ Sheep Production Practices (2 cr) and/or	
ADVS 2120 ⁹ Swine Production Practices (2 cr)	2-6
Breadth Course ⁶	3

Sophomore Year (31-32 credits)

Fall Semester (14-15 credits)

ADVS 2130 ⁹ Dairy Production Practices (3 cr) or	
ADVS 2190 ⁹ Horse Production Practices (2 cr)	2 or 3
BIOL 1610 Biology I	4
CHEM 2310 Organic Chemistry I	4
CHEM 2315 Organic Chemistry Laboratory I	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3

Spring Semester (17 credits)

ADVS 3000 Animal Health and Hygiene	3
BIOL 1620 (BLS) Biology II	4
CHEM 2320 Organic Chemistry II	4
Breadth Courses ⁶ (2)	6

Junior Year (33-34 credits)

Fall Semester (16-17 credits)

ADVS 3500 Principles of Animal Nutrition	3
BIOL 3300 General Microbiology	4
MATH 1100 (QL) Calculus Techniques (3 cr) or	
MATH 1210 (QL) Calculus I (4 cr)	3 or 4
STAT 2000 (QI) Statistical Methods	3
Breadth Course ⁶	3

Spring Semester (17 credits)

ADVS 3510 (QI) Applied Animal Nutrition	3
ADVS 4200 (CI) Physiology of Reproduction and Lactation	4

BIOL 3060 (QI) Principles of Genetics	4
CHEM 3700 Introductory Biochemistry	3
Elective ⁸	3

Senior Year (27.5-31.5 credits)

Fall Semester (15.5 credits)

ADVS 4560 (QI) Principles of Animal Breeding	3
ADVS 4910 Preprofessional Orientation	0.5
ADVS 4920 (CI) Undergraduate Seminar	2
ADVS 5120 ¹⁰ Swine Management	3
Depth Course ⁷	3
Electives ⁸	4-7

Spring Semester (12-16 credits)

ADVS 4250 Internship in Animal Industry (3 cr) or	
ADVS 4800 Undergraduate Research or Creative Opportunity (3 cr) ..	3
ADVS 5080 ¹⁰ Beef Cattle Management (3 cr) and/or	
ADVS 5090 ¹⁰ Sheep Management and Wool Technology (4 cr) and/or	
ADVS 5130 ¹⁰ Dairy Cattle Management (3 cr) and/or	
ADVS 5190 ¹⁰ Horse Management (3 cr)	3-7
Depth Course ⁷	3
Electives ⁸	3

⁶Must take one Breadth course from each of the following four categories: American Institutions, Creative Arts, Humanities, and Social Sciences.

⁷Must take one Depth course from each of the following two categories: Humanities and Creative Arts, and Social Sciences.

⁸Recommended electives include: ADVS 5160, 5240, 5260; CHEM 3710; PHYS 2110.

⁹Must choose two courses from: ADVS 2080, 2090, 2120, 2130, and 2190.

¹⁰Must choose two courses from: ADVS 5080, 5090, 5120, 5130, and 5190.

Animal Science Major Biotechnology Emphasis Curriculum (2.25 GPA)

Freshman Year (32.5 credits)

Fall Semester (16.5 credits)

ADVS 1110 Introduction to Animal Science	4
ADVS 1910 Orientation to Animal and Dairy Science	0.5
CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
MATH 1050 (QL) College Algebra	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3

Spring Semester (16 credits)

ADVS 2040 Introduction to Biotechnology	1
ADVS 2200 Anatomy and Physiology of Animals	4
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
STAT 1040 (QL) Introduction to Statistics (3 cr) or	
STAT 2000 (QI) Statistical Methods (3 cr)	3
Breadth Course ¹¹	3

Sophomore Year (29 credits)

Fall Semester (15 credits)

BIOL 1610 Biology I	4
CHEM 2310 Organic Chemistry I	4
CHEM 2315 Organic Chemistry Laboratory I	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Breadth Course ¹¹	3

Spring Semester (14 credits)

BIOL 1620 (BLS) Biology II	4
CHEM 2320 Organic Chemistry II	4
Breadth Courses ¹¹ (2)	6

Department of Animal, Dairy and Veterinary Sciences

Junior and Senior Years (58 credits)

Required Classes

ADVS 3020 Biotechnology in Agriculture (F)	3
ADVS 3200 Ethical Issues in Genetic Engineering and Biotechnology (Sp)	3
ADVS 4260 Internship in Animal Biotechnology Industry (F,Sp,Su)	3-12
ADVS 5160 Methods in Biotechnology: Cell Culture (Sp)	3
ADVS 5260 Methods in Biotechnology: Molecular Cloning (F)	3
ADVS 5280 Animal Molecular Biology (Sp)	3
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su)	4
BIOL 3300 General Microbiology (F,Sp)	4
CHEM 3700 Introductory Biochemistry (Sp)	3
Two University Studies Depth Courses ¹²	6

Directed Electives (14-23 credits; must include two CI classes)

ADVS 3000 Animal Health and Hygiene (Sp)	3
ADVS 3500 Principles of Animal Nutrition (F)	3
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
ADVS 5820 Animal Cytogenetics and Gene Mapping (F)	3
BIOL 3065 Genetics Laboratory (F)	1
BIOL 5150 Immunology (Sp)	3
BIOL 5190 Molecular Genetics (Sp)	3
BIOL 5210 Cell Biology (F)	3
BIOL 5230 Developmental Biology (Sp)	3
BIOL 5600 Comparative Animal Physiology (F)	3
PHYS 2110 The Physics of Living Systems I	4
PHYS 2120 (BPS) The Physics of Living Systems II	4

¹¹Must take one Breadth course from each of the following four categories: American Institutions, Creative Arts, Humanities, and Social Sciences.

¹²Must take one Depth course from each of the following two categories: Humanities and Creative Arts, and Social Sciences.

Dairy Science Major Dairy Industries Emphasis Curriculum (2.25 GPA)

Freshman Year (29.5 credits)

Fall Semester (14.5 credits)

ADVS 1110 Introduction to Animal Science	4
ADVS 1910 Orientation to Animal and Dairy Science	0.5
ADVS 2130 Dairy Production Practices	3
BIOL 1010 (BLS) Biology and the Citizen	3
MATH 1050 (QL) College Algebra	4

Spring Semester (15 credits)

ADVS 1250 (QI) Applied Agricultural Computations	2
ADVS 2200 Anatomy and Physiology of Animals	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
Breadth Course ¹³	3

Sophomore Year (29-31 credits)

Fall Semester (13-14 credits)

CHEM 1110 (BPS) General Chemistry I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
STAT 1040 (QL) Introduction to Statistics (3 cr) or STAT 2000 (QI) Statistical Methods (3 cr) or STAT 2300 (QL) Business Statistics (4 cr)	3 or 4
Breadth Course ¹³	3

Spring Semester (16-17 credits)

ADVS 3000 Animal Health and Hygiene	3
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture	3
CHEM 1120 (BPS) General Chemistry II	4
SOIL 2000 (BPS) Soils, Waters, and the Environment (3 cr) or SOIL 3000 Fundamentals of Soil Science (4 cr)	3 or 4
Breadth Course ¹³	3

Junior Year (30 credits)

Fall Semester (14 credits)

ADVS 3500 Principles of Animal Nutrition	3
Depth Course ¹⁴	3
Directed Electives ¹⁵	8

Spring Semester (16 credits)

ADVS 3510 (QI) Applied Animal Nutrition	3
ADVS 4200 (CI) Physiology of Reproduction and Lactation	4
ADVS 4250 Internship in Animal Industry (3 cr) or ADVS 4800 Undergraduate Research or Creative Opportunity (3 cr)	3
Depth Course ¹⁴	3
Directed Elective	3

Senior Year (30.5 credits)

Fall Semester (15.5 credits)

ADVS 4560 (QI) Principles of Animal Breeding	3
ADVS 4910 Preprofessional Orientation	0.5
ADVS 4920 (CI) Undergraduate Seminar	2
NFS 4900 ST: Dairy Food Processing	4
Directed Elective ¹⁵	3
Free Elective	3

Spring Semester (15 credits)

ADVS 5130 Dairy Cattle Management	3
Directed Electives ¹⁵	9
Free Elective	3

¹³Must take one Breadth course from each of the following four categories: Creative Arts, Humanities, Physical Sciences, and Social Sciences. (Note: ECON 1500 fulfills the American Institutions Breadth Course requirement.)

¹⁴Must take one Depth course from each of the following two categories: Humanities and Creative Arts, and Social Sciences.

¹⁵Must take four courses from the following list: ACCT 2010; BUS 3400, 3500, 3700; ECON 2010, 3030, 3050, 4010, 4030, 5030; MHR 2050, 3110; and three courses from the following list: ADVS 5030, 5520, 5530; ASTE 3600, 4100; PLSC 4320.

Dairy Science Major Science Emphasis Curriculum (2.25 GPA)

Freshman Year (31.5-32.5 credits)

Fall Semester (16.5 credits)

ADVS 1110 Introduction to Animal Science	4
ADVS 1910 Orientation to Animal and Dairy Science	0.5
CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
MATH 1050 (QL) College Algebra	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3

Spring Semester (15-16 credits)

ADVS 2200 Anatomy and Physiology of Animals	4
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
MATH 1100 (QL) Calculus Techniques (3 cr) or MATH 1210 (QL) Calculus I (4 cr)	3 or 4
Breadth Course ¹⁶	3

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Sophomore Year (32 credits)

Fall Semester (15 credits)

ADVS 2130 Dairy Production Practices	3
BIOL 1610 Biology I	4
CHEM 2310 Organic Chemistry I	4
CHEM 2315 Organic Chemistry Laboratory I	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3

Spring Semester (17 credits)

ADVS 3000 Animal Health and Hygiene	3
ASTE 3090 Computer Applications in Agriculture	3
BIOL 1620 (BLS) Biology II	4
CHEM 2320 Organic Chemistry II	4
Breadth Course ¹⁶	3

Junior Year (30 credits)

Fall Semester (13 credits)

ADVS 3500 Principles of Animal Nutrition	3
BIOL 3300 General Microbiology	4
STAT 2000 (QI) Statistical Methods	3
Breadth Course ¹⁶	3

Spring Semester (17 credits)

ADVS 3510 (QI) Applied Animal Nutrition	3
ADVS 4200 (CI) Physiology of Reproduction and Lactation	4
BIOL 3060 (QI) Principles of Genetics	4
CHEM 3700 Introductory Biochemistry	3
Breadth Course ¹⁶	3

Senior Year (30.5 credits)

Fall Semester (15.5 credits)

ADVS 4560 (QI) Principles of Animal Breeding	3
ADVS 4910 Preprofessional Orientation	0.5
ADVS 4920 (CI) Undergraduate Seminar	2
Depth Course ¹⁷	3
Electives ¹⁸	7

Spring Semester (15 credits)

ADVS 4250 Internship in Animal Industry (3 cr) or	
ADVS 4800 Undergraduate Research or Creative Opportunity (3 cr) or	3
ADVS 5130 Dairy Cattle Management	3
Depth Course ¹⁷	3
Electives ¹⁸	6

¹⁶Must take one Breadth course from each of the following four categories: American Institutions, Creative Arts, Humanities, and Social Sciences.

¹⁷Must take one Depth course from each of the following two categories: Humanities and Creative Arts, and Social Sciences.

¹⁸Recommended Electives include ADVS 5160, 5240, 5260; CHEM 3710; PHYS 2110.

Bioveterinary Science (Preveterinary)

Major Requirements

(120 credits) (3.0 min. total GPA) (2.5 min. total GPA if including Biotechnology Emphasis)

This is a four-year program, preparing students for application to and admittance to veterinary school or graduate school, or for finding employment in biotechnology research. Courses required for the major may not be taken pass-fail, except for ADVS 3920. 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. If declaring the Biotechnology Emphasis, students must have earned an overall GPA of at least 2.25.

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.

Semester Schedule

Freshman Year (30 credits)¹⁹

Fall Semester (15 credits)

ADVS 1110 Introduction to Animal Science	4
ADVS 1920 Orientation to Bioveterinary Science	1
CHEM 1210 ^{20,21} Principles of Chemistry I	4
CHEM 1215 ²⁰ Chemical Principles Laboratory I	1
MATH 1100 (QL) ^{20,22} Calculus Techniques	3
Electives	2

Spring Semester (15 credits)

ADVS 2200 Anatomy and Physiology of Animals	4
CHEM 1220 (BPS) ²⁰ Principles of Chemistry II	4
CHEM 1225 ²⁰ Chemical Principles Laboratory II	1
ENGL 1010 (CL) ^{20,23} Introduction to Writing: Academic Prose	3
University Studies Breadth Course ^{20,24}	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 (30.5 credits)

Fall Semester (15 credits)

ADVS 3500 Principles of Animal Nutrition	3
BIOL 1610 ²⁰ Biology I	4
CHEM 2310 ²⁰ Organic Chemistry I	4
CHEM 2315 ²⁰ Organic Chemistry Laboratory I	1
University Studies Breadth Course ^{20,24}	3

Spring Semester (15.5 credits)

BIOL 1620 (BLS) ²⁰ Biology II	4
CHEM 2320 ²⁰ Organic Chemistry II	4
ADVS 2920 Orientation to Veterinary Medicine	0.5
BIOL 3060 (QI) ²⁰ Principles of Genetics	4
University Studies Breadth Course ^{20,24}	3

Junior Year (33 credits)

Fall Semester (17 credits)

BIOL 3300 ²⁰ General Microbiology	4
PHYS 2110 ²⁰ The Physics of Living Systems I	4
ENGL 2010 (CL) ²⁰ Intermediate Writing: Research Writing in a Persuasive Mode	3
STAT 2000 (QI) Statistical Methods	3
University Studies Breadth Course ^{20,24}	3

Spring Semester (16 credits)

ADVS 3000 Animal Health and Hygiene	3
PHYS 2120 (BPS) The Physics of Living Systems II	4
CHEM 3700 ²⁰ Introductory Biochemistry	3
Two Upper-division University Studies Depth Courses ²⁵	6

Senior Year (at least 29 credits)

Students must complete at least 120 semester credits for the BS degree, of which 40 credits must be in upper-division courses. The student must complete two courses which are communications intensive, and one course which is quantitative intensive. Students must include at least 15 credits from the following list. An additional 7

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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 a bioveterinary science 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
BIOL 5600 Comparative Animal Physiology (F)	3
BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp)	2
BIOL 5620 Medical Physiology (Sp)	3

Bioveterinary Science Major Biotechnology Emphasis

Semester Schedule

Freshman Year (30 credits)¹⁹

Fall Semester (14 credits)

ADVS 1110 Introduction to Animal Science	4
ADVS 1920 Orientation to Bioveterinary Science	1
CHEM 1210 ^{20,21} Principles of Chemistry I	4
CHEM 1215 ²⁰ Chemical Principles Laboratory I	1
MATH 1100 (QL) ^{20,22} Calculus Techniques	3
Elective	1

Spring Semester (16 credits)

ADVS 2040 Introduction to Biotechnology	1
ADVS 2200 Anatomy and Physiology of Animals	4
CHEM 1220 (BPS) ^{20,26} Principles of Chemistry II	4
CHEM 1225 ²⁰ Chemical Principles Laboratory II	1
ENGL 1010 (CL) ^{20,23} Introduction to Writing: Academic Prose	3
University Studies Breadth Course ^{20,24}	3

Sophomore Year (32 credits)

Fall Semester (15 credits)

BIOL 1610 ²⁰ Biology I	4
CHEM 2310 ²⁰ Organic Chemistry I	4
CHEM 2315 ²⁰ Organic Chemistry Laboratory I	1
Two University Studies Breadth Courses ^{20,24}	6

Spring Semester (17 credits)

BIOL 1620 (BLS) ²⁰ Biology II	4
CHEM 2320 ²⁰ Organic Chemistry II	4
CHEM 3700 ²⁰ Introductory Biochemistry	3
ENGL 2010 (CL) ²⁰ Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth Course ^{20,24}	3

Junior and Senior Years (58 credits)

Required Classes

ADVS 3020 Biotechnology in Agriculture (F)	3
ADVS 3200 Ethical Issues in Genetic Engineering and Biotechnology (Sp)	3
ADVS 4260 Internship in Animal Biotechnology Industry (F,Sp,Su)	3-12
ADVS 5160 Methods in Biotechnology: Cell Culture (Sp)	3
ADVS 5260 Methods in Biotechnology: Molecular Cloning (F)	3
ADVS 5280 Animal Molecular Biology (Sp)	3
BIOL 3060 (QI) ²⁰ Principles of Genetics (F,Sp,Su)	4
BIOL 3300 ²⁰ General Microbiology (F,Sp)	4
STAT 2000 (QI) ²⁰ Statistical Methods (F,Sp)	3
Two University Studies Depth Courses ²⁵	6

Directed Electives (14-23 credits; must include two CI classes)

ADVS 3000 Animal Health and Hygiene (Sp)	3
ADVS 3500 Principles of Animal Nutrition (F)	3
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 5350 Introductory Pharmacology and Pharmacokinetics (Sp)	3
ADVS 5690 Animal Histology (F)	3
ADVS 5700 (CI) General Animal Pathobiology (Sp)	3
ADVS 5820 Animal Cytogenetics and Gene Mapping (F)	3
BIOL 3065 Genetics Laboratory (F)	1
BIOL 5150 Immunology (Sp)	3
BIOL 5190 Molecular Genetics (Sp)	3
BIOL 5210 Cell Biology (F)	3
BIOL 5230 Developmental Biology (Sp)	3
BIOL 5600 Comparative Animal Physiology (F)	3
PHYS 2110 ²⁶ The Physics of Living Systems I	4
PHYS 2120 (BPS) The Physics of Living Systems II	4

¹⁹If a student is unable to pass the Computer and Information Literacy (CIL) Test, USU 1000 and OSS 1400 should be taken the first year.

²⁰Required for Colorado, Washington, and Oregon veterinary schools.

²¹Students with little exposure to chemistry or an ACT Math score less than 25 will need to begin with a lower-level chemistry class and/or take MATH 1050 first. (See an advisor for assistance.)

²²Students with math ACT scores of less than 25 must start with a lower-level class.

²³Can also be met by an AP English Language and Composition or Literature and Composition test score of 3 or higher, an ACT English test score of 29 or higher, a CLEP English Composition test score of 50 or higher, a CLEP Freshman College Composition test score of 53 or higher, or an SAT Verbal test score of 640 or higher.

²⁴Must take one Breadth course from each of the following four categories: Humanities, Creative Arts, Social Sciences, and American Institutions. Two of these courses must be taken with a USU prefix. AP or CLEP tests may be used to fulfill some Breadth requirements.

²⁵Two approved Depth courses are required: one in Humanities and Creative Arts and one in Social Sciences (3000 level or higher). It is recommended that one of these courses be a Communications Intensive (CI) course.

²⁶PHYS 2110 must be taken if the student plans to apply to veterinary school in Colorado, Washington, or Oregon.

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.

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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/Bioveternary Science. 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 animal science and dairy science majors also apply to all minors (see page 147).

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.

General Animal Science

ADVS 1110; choose one or more courses from ADVS 2080, 2090, 2120, 2190; 10 elective ADVS credits with approval of an animal science advisor.

General Dairy Science

ADVS 1110, 2130; 10 elective ADVS credits with approval of a dairy science advisor.

Bioveternary Science

ADVS 2200, 3000; 7 elective ADVS credits with approval of a bioveternary science advisor. A minimum grade of C is required in all courses applied toward this minor.

Horse Production

ADVS 1110, 2190, 2250; 6 or more elective ADVS credits with approval of an animal science advisor.

Horse Training

ADVS 1110, 1600, 2190, 2600; 2 or more elective ADVS credits with approval of an animal science advisor.

Dairy Herdsman

ADVS 1020, 1030, 1040, 1050, 1060. (*Not available to Dairy Science Majors.*)

Transfer students must have a minimum of one 3-credit upper-division course in residency with the approval of an ADVS advisor.

Undergraduate Program Assessment

The ADVS Department assessment plan defines learning objectives for each of its undergraduate programs. These learning objectives are mapped to each of the required courses in each program, so that they may be evaluated for their contribution to program goals. Outcome measures have also been defined for each program, and a process has been implemented to conduct exit interviews with all graduating students in Animal and Dairy Science. Rate of admission to a professional veterinary medical program has been identified as the critical outcome measure for the Bioveternary Science program. 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 programs.

Learning Objectives

Animal Science Major (Animal Industries 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 science.
3. Attain depth in two subfields of animal 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.

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Animal Science and Dairy Science Majors (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/dairy science.
3. Attain depth in one subfield of animal/dairy science.
4. Achieve understanding in the disciplines of animal genetics, health, nutrition, and reproduction.
5. Effectively integrate knowledge from basic sciences to applications in the animal sciences.

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.

Animal Science and Bioveterinary Science Majors (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 Major

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.

Dairy Science Major (Dairy Industries 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 dairy science.
3. Achieve understanding in the disciplines of animal genetics, health, nutrition, reproduction, and lactation.
4. Integrate knowledge from the various disciplines to effectively conduct dairy 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.

Undergraduate Research Opportunities

Students interested in pursuing undergraduate research opportunities in the ADVS Department should contact Jeffrey L. Walters, Agricultural Science 246, jeffrey.walters@usu.edu, (435) 797-2161, 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. Departmental honors programs are available for students majoring in Animal Science, Dairy Science, or Bioveterinary Science. 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

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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 4800H, Thesis/Project Seminar; 3 to 6 credits of HONR 4900H, 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@cc.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/ats/majorsheets/>

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 the student's entry into the department can keep academic problems to a minimum.

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

Admission Requirements

In addition to the general admission requirements (see pages 99-100), applicants should have satisfactory (3.0 GPA or better) grades in completion of previous degree programs. GRE exam, verbal, quantitative, and analytical scores at or above the 40th percentile are required.

The applicant for a graduate program in animal or dairy science should have completed a BS undergraduate program similar to the USU animal science or dairy science Science Emphasis BS degree. This background would include the following courses and their prerequisites: BIOL 1610 and 1620 or their equivalents; CHEM 2310 and 2320 or their equivalents; MATH 1050 and STAT 1040 or their equivalents. Applicants with deficiencies in these areas may be admitted to the graduate program subject to the completion of remedial coursework specified by the department. Other preparatory courses may be specified by the student's supervisory committee.

Applicants to the bioveterinary science graduate program should have a degree in bioveterinary science, biology, microbiology, chemistry, or one of the animal sciences. Pre-veterinary students oriented towards graduate research studies are strongly encouraged to apply.

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 master's degrees in related disciplines. Exceptionally well-qualified applicants may be considered for admission to a postbaccalaureate PhD program. The PhD degree in bioveterinary science has three specializations and 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.

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

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departments of the University, and USDA collaborators, along with research funding from private industry, strengthens the graduate program in this area.

Course requirements: Students in the MS program are required to complete the following courses: ADVS 6800, any four ADVS graduate nutrition courses at the discretion of the supervisory committee; one 5000-level Statistics course. Students in the MS program are required to complete or to have completed CHEM 3700 or its equivalent, but will not receive graduate credit for it. Students in the PhD program are required to meet or have met all MS program requirements, as well as to complete the following coursework: ADVS 6800 (additional to the MS requirement), ADVS graduate nutrition courses as directed by the supervisory committee; CHEM 5700, 5710; one 5000-level Statistics course (additional to the MS requirement); additional coursework at the discretion of the supervisory committee to a total of at least 30 credits.

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.

Course requirements: Students in the MS program are required to complete the following courses: ADVS 6300, 6800; BIOL 6380; STAT 5110; and a minimum of 6 credits in the student's area of study. Students in the PhD program are required to complete the following courses in addition to those required for the MS degree: ADVS 6800, 6820; MATH 5710, 5720; STAT 6710, 6720.

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.

Course requirements: Students in the MS program are required to complete the following courses: ADVS 5160 or 5240 or 5260; ADVS 6800; BIOL 5210 or 5220 or 6210; BIOL 5190; STAT 5200; and a minimum of 6 credits in the student's area of study. Students in the PhD program are required to complete the following courses in addition to those required for the MS degree: ADVS 6800; CHEM 5700, 5710.

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.

Course requirements: Students in the MS program are required to complete the following courses: ADVS 6200, 6800; BIOL 5210, 5220; STAT 5200. Students in the PhD program are required to complete the following coursework additional to the MS requirements: ADVS 6800; BIOL 5150, 6210; CHEM 5700, 5710. Additional coursework for the MS and PhD degree may be required at the discretion of the supervisory committee.

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.

Course requirements: Students choosing either the option with thesis (Plan A) or the option without thesis (Plan B) are required to complete the following courses: ADVS 6200, 6300, 6520 or 6530, 6800; plus one of the following (if comparable course not previously completed at the undergraduate level): ADVS 6080, 6090, 6120, 6130, 6190; one 5000-level Statistics course. Additional courses in related areas will be required as directed by the supervisory committee.

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.

Course requirements: Students in the MS program are required to complete the following courses: ADVS 6700, 6800; CHEM 5700; STAT 3000. Students in the PhD program are required to complete the following courses: ADVS 6700, 6800; CHEM 5700, 5710; STAT 5200. Additional coursework will be determined by the supervisory committee.

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 a number of graduate assistantships, which are available on a competitive basis to matriculated graduate students who are U.S.

Department of Animal, Dairy and Veterinary Sciences

citizens, nationals, or residents. Students interested in departmental assistantships may request an application form from the department. 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.

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

Trustee Professor

Robert W. Sidwell, virology

Professors

Stanley D. Allen, veterinary medicine, laboratory animal management
Clell V. Bagley, veterinary medicine
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

Mark C. Healey, parasitology
Lyle G. McNeal, sheep production, wool science
Kenneth L. White, reproductive physiology, developmental biology

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
Lynn F. James, animal physiology
Amrit K. Judd, medicinal chemistry as applied to treatment of viral diseases
Michael R. Marshall, veterinary medicine
Kanok Pavasuthipaisit, medical science, anatomy
R. Dean Plowman, dairy genetics, management
Rex S. Spendlove, microbiology

Professors Emeritus

Clive W. Arave, behavior, dairy genetics
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
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
Tilak R. Dhiman, dairy nutrition
David D. Frame, poultry production and management
Jeffery O. Hall, veterinary pathology, toxicology
Kenneth C. Olson, range livestock nutrition, management
Lee S. Rickords, molecular genetics, developmental biology
Randall D. Wiedmeier, beef cattle nutrition, management
Allen J. Young, dairy management, reproduction
Dale R. ZoBell, beef cattle production, management

Adjunct Associate Professors

Dale R. Gardner, chemistry/toxicology
Kip E. Panter, animal science/toxicology
Roy W. Silcox, physiology, nutrition
Bryan L. Stegelmeier, pathology
John T. Stellflug, reproductive physiology, biochemistry, statistics
J. Christopher Wilson, veterinary medicine, fisheries

Associate Professor Emeritus

Larry M. Slade, equine nutrition, management

Research Associate Professor

Dale L. Barnard, virology

Adjunct Research Associate Professor

Shiquan Wang, cytogenetics, reproductive physiology

Assistant Professors

Patricia A. Evans, equine management
Ramona T. Skirpstunas, bacterial diseases of fish, veterinary pathology, veterinary laboratory diagnostic medicine
Quinton A. Winger, reproductive physiology, molecular biology

Department of Animal, Dairy and Veterinary Sciences

Adjunct Assistant Professors

Breck D. Hunsaker, veterinary immunology
Stephen T. Lee, analytical chemistry
Timothy A. McAllister, ruminant nutrition, microbiology

Research Assistant Professors

Brian B. Gowen, immunology, virology
Justin G. Julander, virology, microbiology
Jeffrey L. Walters, dairy cattle breeding, statistics

Clinical Assistant Professor

Rusty Stott, clinical veterinarian, animal health

Research Assistant Professor Emeritus

Robert E. Warnick, turkey nutrition

Lecturers

Brett R. Bowman, animal science/nutrition
Parl Galloway, animal science, manager of Animal Science Farm
Justin A. Jenson, dairy herdsman coordinator, dairy youth specialist

Course Descriptions

Animal, Dairy and Veterinary Sciences (ADVS), pages 551-555.

Department of Art

Department Head: John Neely
Location: Fine Arts Visual 122
Phone: (435) 797-3460
FAX: (435) 797-3412
E-mail: neelyjc@cc.usu.edu
WWW: <http://www.art.usu.edu/index1.php>

Assistant Head and Graduate Program Director:
Christopher T. Terry, Fine Arts Visual 216, (435) 797-3409,
cterry@cc.usu.edu

Assistant Head and Undergraduate Program Director:
Robert Winward, Fine Arts Visual 110, (435) 797-1394,
bob.winward@usu.edu

Art Education Undergraduate Advisor:
Jane S. Catlin, Fine Arts Visual 114, (435) 797-3469,
jcatlin@hass.usu.edu

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, 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 ten 35 mm slides or digital images on CD-ROM of their best work. Details are available from the Art Department. Entrance to the BFA program 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 BFA program 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, 30 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 30 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 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:

ART 1020 Drawing I (3 cr) or	
ART 1110 Drawing I (Art Majors Only) (3 cr)	3
ART 1120 Two-dimensional Design (3 cr) or	
ART 1150 Two-dimensional Design (Art Majors Only) (3 cr)	3
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval.....	3

Freshman year—second semester:

ART 1130 Three-dimensional Design (3 cr) or	
ART 1160 Three-dimensional Design (Art Majors Only) (3 cr).....	3
ART 2110 Drawing II	3
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern	3

Subsequent curriculum requirements are specific to these individual emphasis areas:

Art Education

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:

ART 1020 Drawing I (F,Sp) (3 cr) or	
ART 1110 Drawing I (Art Majors Only) (F,Sp) (3 cr).....	3
ART 1120 Two-dimensional Design (F,Sp) (3 cr) or	
ART 1150 Two-dimensional Design (Art Majors Only) (F,Sp) (3 cr).....	3
ART 1130 Three-dimensional Design (F,Sp) (3 cr) or	
ART 1160 Three-dimensional Design (Art Majors Only) (F,Sp) (3 cr) ..	3
ART 2110 Drawing II (F,Sp)	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
ART 2650 Introduction to Ceramics (F,Sp,Su).....	3
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval (F) 3	
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern (Sp)	3
ART 1050 Introduction to Photography (F)	3
ART 2810 Photography I (F,Sp).....	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:

ART 3000 Secondary Art Methods I (F,Sp).....	3
ART 3300 Clinical Experience I (Sp)	1
ART 4000 Secondary Art Methods II (F)	3
ART 4300 Clinical Experience II (F)	1
ART 5500 Student Teaching Seminar (F,Sp)	2
ART 5630 Student Teaching in Secondary Schools (F,Sp).....	10
INST 3500 Technology Tools for Secondary Teachers (F,Sp,Su).....	1
SCED 3100 Motivation and Classroom Management (F,Sp).....	3
SCED 3210 (DSS/CI) Educational and Multicultural Foundations (F,Sp).....	3
SCED 4200 (CI) Reading, Writing, and Technology (F,Sp).....	3
SCED 4210 Cognition and Evaluation of Student Learning (F,Sp)	3
SPED 4000 Education of Exceptional Individuals (F,Sp,Su).....	2

Sample Four-year Plan for Art Major, Art Education Emphasis

Minimum GPA for Admission: 2.75, USU; 2.75 Career

Additional Admission Requirement: admission granted by professor

Minimum GPA for Graduation: 2.75, course/foundation courses; 2.75, major; 2.75, USU; 2.75 Career

Minimum Grade Accepted: B- in emphasis courses; C in remaining ART courses

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ART 1110 Drawing I (Art Majors Only)	3
ART 1150 Two-dimensional Design (Art Majors Only).....	3
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Quantitative Literacy (QL) course	3

Spring Semester (15 credits)

ART 1160 Three-dimensional Design (Art Majors Only)	3
ART 2110 Drawing II	3
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern	3
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

ART 2200 Painting I	3
ART 2400 Computers and Art.....	3
Art History upper-division course	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth course	3

Spring Semester (15 credits)

ART 2230 Basic Printmaking	3
ART 2600 Basic Sculpture	3
Art History upper-division course	3
University Studies Breadth courses	6

Junior Year (29 credits)

Fall Semester (14 credits)

ART 1050 Introduction to Photography (3 cr) or	
ART 2810 Photography I (3 cr)	3
ART 2650 Introduction to Ceramics	3
ART 3000 Secondary Art Methods I.....	3
ART 3300 Clinical Experience I	1
INST 3500 Technology Tools for Secondary Teachers.....	1
Depth Life and Physical Sciences (DSC) course	3

Spring Semester (15 credits)

SCED 3100 Motivation and Classroom Management.....	3
SCED 3210 (DSS/CI) Educational and Multicultural Foundations	3
Art Area of Concentration courses	6
Quantitative Intensive (QI) course	3

Department of Art

Senior Year (21 credits)

Fall Semester (13 credits)

ART 4000 Secondary Art Methods II.....	3
ART 4300 Clinical Experience II	1
SCED 4210 Cognition and Evaluation of Student Learning	3
Art Area of Concentration courses	6

Spring Semester (8 credits)

SPED 4000 Education of Exceptional Individuals	2
Art Area of Concentration courses	6

Certification Year (23 credits)

Fall Semester (9 credits)

SCED 4200 (CI) Reading, Writing, and Technology	3
Art Area of Concentration courses	6

Spring Semester (14 credits)

ART 4910 Senior BFA Exhibition	2
ART 5500 Student Teaching Seminar	2
ART 5630 Student Teaching in Secondary Schools.....	10

Art History (52 total credits)

For the BA degree in Art with an emphasis in Art History, all students must take the following required foundation courses (15 credits):

ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval (F) 3	
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern (Sp).....	3
HIST 1100 (BHU) Foundations of Western Civilization: Ancient and Medieval (F,Sp,Su).....	3
HIST 1110 (BHU) 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 ART 4790, Research/Writing/Methods (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.

Sample Four-year Plan for Art Major, Art History Emphasis

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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
HIST 1100 (BHU) Foundations of Western Civilization:	
Ancient and Medieval	3
ART Studio course	3
University Studies Quantitative Literacy (QL) course	3

Spring Semester (15 credits)

ARTH 2720 (BHU) Survey of Western Art:	
Renaissance to Post-Modern	3
HIST 1110 (BHU) Foundations of Western Civilization: Modern	3
University Studies Breadth courses	6
Elective course(s).....	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

ARTH upper-division course.....	3
Foreign Language 1010-level course*	4
University Studies Breadth courses	6
Depth Social Sciences (DSS) course	3

Spring Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing:	
Research Writing in a Persuasive Mode	3
ARTH upper-division course.....	9
Foreign Language 1020-level course*	4

Junior Year (29 credits)

Department of Art

Fall Semester (16 credits)

Approved "Track" upper-division courses.....	6
University Studies Breadth course.....	3
Foreign Language 2010-level course*.....	4
Elective course(s).....	3

Spring Semester (13 credits)

Communications Intensive (CI) course.....	3
Depth Life and Physical Sciences (DSC) course.....	3
Foreign Language 2020-level course*.....	4
Elective course(s).....	3

Senior Year (30 credits)

Fall Semester (15 credits)

Upper-division elective courses.....	6
Communications Intensive (CI) course.....	3
Elective courses.....	6

Spring Semester (15 credits)

ART 4790 Art History Seminar and Special Problems.....	3
Upper-division elective courses.....	9
Elective course(s).....	3

*Students must complete this course in one of the following languages: German, French, or Italian. German is preferred. No other foreign language will be accepted.

Ceramics

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 ¹ Technology of Ceramic Art (F,Sp,Su).....	6
ART 4650 ² Advanced Ceramic Studio (F,Sp,Su).....	12
ART 4910 Senior BFA Exhibition (Sp).....	2
Two upper-division Art History courses.....	6
CHEM 1010 (BPS) Introduction to Chemistry (F,Sp) (3 cr) or CHEM 1110 (BPS) General Chemistry I (4 cr) (F,Sp).....	3 or 4
GEO 1010 (BPS) Geology of National Parks: Introduction to Geology (F,Su) (3 cr) or GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp) (4 cr).....	3 or 4

¹ART 4640 is repeatable for credit, and must be taken during at least two semesters.

²ART 4650 is repeatable for credit, and must be taken during at least four semesters.

Sample Four-year Plan for Art Major, Ceramics Emphasis

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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ART 1110 Drawing I (Art Majors Only).....	3
ART 1150 Two-dimensional Design (Art Majors Only).....	3
ART 2400 Computers and Art.....	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
University Studies Quantitative Literacy (QL) course.....	3

Spring Semester (15 credits)

ART 1160 Three-dimensional Design (Art Majors Only).....	3
ART 2110 Drawing II.....	3
ART 2650 Introduction to Ceramics.....	3
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern.....	3
CHEM 1010 (BPS) Introduction to Chemistry.....	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

ART 2200 Painting I (3 cr) or ART 2230 Basic Printmaking (3 cr).....	3
ART 3650 Intermediate Ceramics: Handbuilding.....	3
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval.....	3
GEO 1110 (BPS) The Dynamic Earth: Physical Geology.....	4
University Studies Breadth course.....	3

Spring Semester (16 credits)

ART 2600 Basic Sculpture.....	3
ART 1050 Introduction to Photography (3 cr) or ART 2810 Photography I.....	3
ART 3660 Intermediate Ceramics: Throwing on the Potter's Wheel.....	3
ART 3710 Fine Art Seminar.....	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
University Studies Breadth course.....	3

Junior Year (32 credits)

Fall Semester (16 credits)

ART 3610 Intermediate Sculpture.....	3
ART 3710 Fine Art Seminar.....	1
ART 4640 Technology of Ceramic Art.....	3
ART 4650 Advanced Ceramic Studio.....	3
University Studies Breadth course.....	3
Communications Intensive (CI) course.....	3

Spring Semester (16 credits)

ART 3710 Fine Art Seminar.....	1
ART 4610 Sculpture Projects.....	3
ART 4640 Technology of Ceramic Art.....	3
ART 4650 Advanced Ceramic Studio.....	3
Art History upper-division course.....	3
University Studies Breadth course.....	3

Senior Year (26 credits)

Department of Art

Fall Semester (13 credits)

ART 3710 Fine Art Seminar	1
ART 4650 Advanced Ceramic Studio.....	3
Quantitative Intensive (QI) course.....	3
Depth Life and Physical Sciences (DSC) course	3
Art upper-division course.....	3

Spring Semester (13 credits)

ART 3710 Fine Art Seminar	1
ART 4650 Advanced Ceramic Studio.....	3
ART 4910 Senior BFA Exhibition	2
Communications Intensive (CI) course	3
Depth Social Sciences (DSS) course.....	3
Elective course	1

Drawing and Painting

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) or	
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) or	
ART 2650 Introduction to Ceramics (F,Sp,Su) (3 cr).....	3
ART 3200 Painting II (Sp)	3
ART 3260 Anatomy for Artists (F)	3
ART 3610 Intermediate Sculpture (F).....	3
ART 4200 Advanced Painting Studio (F,Sp)	6
ART 4210 Figure Painting (Sp)	3
ART 4260 Life Drawing (Sp)	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.

Sample Four-year Plan for Art Major, Drawing and Painting Emphasis

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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ART 1110 Drawing I (Art Majors Only)	3
ART 1150 Two-dimensional Design (Art Majors Only)	3
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Quantitative Literacy (QL) course.....	3

Spring Semester (15 credits)

ART 1160 Three-dimensional Design (Art Majors Only)	3
ART 2110 Drawing II	3
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern	3
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

ART 2200 Painting I	3
ART 2230 Basic Printmaking	3
ART 3710 Fine Art Seminar	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth courses	6

Spring Semester (16 credits)

ART 1050 Introduction to Photography (3 cr) or	
ART 2810 Photography I (3 cr)	3
ART 3200 Painting II	3
ART 3710 Fine Art Seminar	1
ARTH 4750 Twentieth Century Art	3
University Studies Breadth course	3
Elective course(s).....	3

Junior Year (32 credits)

Fall Semester (16 credits)

ART 3710 Fine Art Seminar	1
ART 4200 Advanced Painting Studio	3
ART 4260 Life Drawing	3
Art History upper-division course	3
Depth Social Sciences (DSS) course	3
Communications Intensive (CI) course	3

Spring Semester (16 credits)

ART 2600 Basic Sculpture (3 cr) or	
ART 2650 Introduction to Ceramics (3 cr).....	3
ART 3710 Fine Art Seminar	1
ART 4210 Figure Painting	3
Communications Intensive (CI) course	3
Depth Life and Physical Sciences (DSC) course	3
Quantitative Intensive (QI) course	3

Senior Year (26 credits)

Fall Semester (13 credits)

ART 3230 Lithography (3 cr) or	
ART 3240 Intaglio (3 cr) or	
ART 3250 Relief Prints (3 cr)	3

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ART 3710 Fine Art Seminar	1
ART 4200 Advanced Painting Studio	3
ART 4260 Life Drawing	3
Art elective course(s)	3

Spring Semester (13 credits)

ART 2400 Computers and Art	3
ART 3710 Fine Art Seminar	1
ART 4200 Advanced Painting Studio	3
ART 4910 Senior BFA Exhibition	2
Elective course(s)	4

Graphic Design

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)	3
ART 3400 Typography (Sp)	3
ART 3420 ³ 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
Additional Art Basic Core courses	9
Two upper-division Art History courses (3000- or 4000-level)	6

³ART 3420 is repeatable for credit, and must be taken during a minimum of three semesters.

Sample Four-year Plan for Art Major, Graphic Design Emphasis

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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ART 1110 Drawing I (Art Majors Only)	3
ART 1150 Two-dimensional Design (Art Majors Only)	3
ART 2400 Computers and Art	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Quantitative Literacy (QL) course	3

Spring Semester (15 credits)

ART 1160 Three-dimensional Design (Art Majors Only)	3
ART 2110 Drawing II	3
ART 3400 Typography	3
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval	3
ART 3370 Illustration Concepts	3
ART 3420 Communication Arts Seminar	1
ART 4420 Brand Identity Design	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth course	3

Spring Semester (16 credits)

ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern	3
ART 3420 Communication Arts Seminar	1
ART 4370 Illustration Studio	3
ART 4440 Type, Image, and Visual Continuity	3
University Studies Breadth courses	6

Junior Year (32 credits)

Fall Semester (16 credits)

ART 2200 Painting I	3
ART 3420 Communication Arts Seminar	1
ART 4410 Graphic Interface Design I	3
Art History upper-division course	3
Depth Social Sciences (DSS) course	3
Communications Intensive (CI) course	3

Spring Semester (16 credits)

ART 1050 Introduction to Photography (3 cr) or ART 2810 Photography I (3 cr)	3
ART 3420 Communication Arts Seminar	1
ART 4430 Graphic Interface Design II	3
Art History upper-division course	3
Communications Intensive (CI) course	3
Depth Life and Physical Sciences (DSC) course	3

Senior Year (26 credits)

Fall Semester (13 credits)

ART 2230 Basic Printmaking	3
ART 3420 Communication Arts Seminar	1
ART 4450 Portfolio Preparation	3
Quantitative Intensive (QI) course	3
Elective course(s)	3

Spring Semester (13 credits)

ART 3420 Communication Arts Seminar	1
ART 4470 Special Topics in Graphic Design and Illustration	3
ART 4910 Senior BFA Exhibition	2
Elective courses	7

Photography

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 will enable the student to pursue a variety of photographic professions.

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Requirements for the Photography emphasis include:

ART 2810 Photography I (F,Sp)	3
ART 3810 Photography II (Sp)	3
ART 3820 History of Early Photography (Sp)	3
ART 3830 History of Contemporary Photography (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

Sample Four-year Plan for Art Major, Photography Emphasis

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

This is a sample plan. It outlines 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.

Freshman Year (31 credits)

Fall Semester (15 credits)

ART 1110 Drawing I (Art Majors Only)	3
ART 1150 Two-dimensional Design (Art Majors Only)	3
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Quantitative Literacy (QL) course	3

Spring Semester (16 credits)

ART 1160 Three-dimensional Design (Art Majors Only)	3
ART 2110 Drawing II	3
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern	3
ART 3710 Fine Art Seminar	1
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

ART 2400 Computers and Art	3
ART 2810 Photography I	3
ART 3710 Fine Art Seminar	1
ART 3820 History of Early Photography	3
University Studies Breadth courses	6

Spring Semester (16 credits)

ART 2200 Painting I (3 cr) or ART 2230 Basic Printmaking (3 cr)	3
ART 3710 Fine Art Seminar	1
ART 3810 Photography II	3
ART 3830 History of Contemporary Photography	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth course	3

Junior Year (32 credits)

164

Fall Semester (16 credits)

ART 2600 Basic Sculpture (3 cr) or ART 2650 Introduction to Ceramics (3 cr)	3
ART 3710 Fine Art Seminar	1
ART 4810 Digital Photography	3
ART 4840 Color Photography I	3
Communications Intensive (CI) course	3
Quantitative Intensive (QI) course	3

Spring Semester (16 credits)

ART 3710 Fine Art Seminar	1
ART 4830 Independent Projects in Photography	3
ART 4850 Color Photography II	3
Depth Social Sciences (DSS) course	3
Communications Intensive (CI) course	3
Elective course(s)	3

Senior Year (25 credits)

Fall Semester (13 credits)

ART 3710 Fine Art Seminar	1
ART 4820 Nineteenth Century Photography Printing Processes	3
ART 4830 Independent Projects in Photography	3
ART 4860 Photographic Studio	3
Depth Life and Physical Sciences (DSC) course	3

Spring Semester (12 credits)

ART 3710 Fine Art Seminar	1
ART 4850 Color Photography II	3
ART 4870 Photographic Portfolio	3
ART 4910 Senior BFA Exhibition	2
Elective course(s)	3

Printmaking

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 3220 ⁴ Screen Printing (Sp)	3
ART 3230 ⁴ Lithography (F)	3
ART 3240 ⁴ Intaglio (Sp)	3
ART 3250 ^{4,5} 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

⁴A total of 12 credits must be taken in a combination of ART 3220, 3230, 3240, and 3250.

⁵ART 3250 may be repeated for credit.

Sample Four-year Plan for Art Major, Printmaking Emphasis

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

This is a sample plan. It outlines University and major requirements in

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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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ART 1110 Drawing I (Art Majors Only)	3
ART 1150 Two-dimensional Design (Art Majors Only)	3
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Quantitative Literacy (QL) course	3

Spring Semester (15 credits)

ART 1160 Three-dimensional Design (Art Majors Only)	3
ART 2110 Drawing II	3
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern	3
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

ART 2230 Basic Printmaking	3
ART 2400 Computers and Art	3
ART 3710 Fine Art Seminar	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth courses	6

Spring Semester (16 credits)

ART 1050 Introduction to Photography (3cr) or ART 2810 Photography I (3cr)	3
ART 3220 Screen Printing	3
ART 3710 Fine Art Seminar	1
University Studies Breadth course	3
Communications Intensive (CI) course	3
Elective course(s)	3

Junior Year (28 credits)

Fall Semester (13 credits)

ART 2200 Painting I (3 cr) or ART 2600 Basic Sculpture (3 cr) or ART 2650 Introduction to Ceramics (3 cr)	3
ART 3240 Intaglio	3
ART 3710 Fine Art Seminar	1
Art History upper-division course	3
Depth Social Sciences (DSS) course	3

Spring Semester (15 credits)

ART 3710 Fine Art Seminar	1
ART 4250 Advanced Printmaking Studio	3
Art upper-division course	3
Art History upper-division course	3
Quantitative Intensive (QI) course	3
Elective course(s)	2

Senior Year (31 credits)

Fall Semester (16 credits)

ART 3710 Fine Art Seminar	1
ART 4250 Advanced Printmaking Studio	3
Art upper-division course	3
Communications Intensive (CI) course	3

Depth Life and Physical Sciences (DSC) course	3
Elective course(s)	3

Spring Semester (15 credits)

ART 3710 Fine Art Seminar	1
ART 4250 Advanced Printmaking Studio	3
ART 4910 Senior BFA Exhibition	2
ART 3230 Lithography	3
Art upper-division course	3
Elective course(s)	3

Sculpture

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. They develop 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 2600 Basic Sculpture (F,Sp)	3
ART 2650 Introduction to Ceramics (F,Sp,Su)	3
ART 1050 Introduction to Photography (F) (3 cr) or ART 2810 Photography I (F,Sp) (3 cr)	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 Plan for Art Major, Sculpture Emphasis

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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ART 1110 Drawing I (Art Majors Only)	3
ART 1150 Two-dimensional Design (Art Majors Only)	3
ARTH 2710 (BHU) Survey of Western Art: Prehistoric to Medieval	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Quantitative Literacy (QL) course	3

Spring Semester (15 credits)

ART 1160 Three-dimensional Design (Art Majors Only)	3
ART 2110 Drawing II	3
ARTH 2720 (BHU) Survey of Western Art:	

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Renaissance to Post-Modern	3
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

ART 2600 Basic Sculpture	3
ART 2650 Introduction to Ceramics	3
ART 3710 Fine Art Seminar	1
University Studies Breadth courses	6
Communications Intensive (CI) course	3

Spring Semester (16 credits)

ART 1050 Introduction to Photography (3 cr) or	
ART 2810 Photography I (3 cr)	3
ART 3610 Intermediate Sculpture	3
ART 3710 Fine Art Seminar	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a	
Persuasive Mode	3
University Studies Breadth course	3
Elective course(s)	3

Junior Year (32 credits)

Fall Semester (16 credits)

ART 2200 Painting I (3 cr) or	
ART 2230 Basic Printmaking (3 cr)	3
ART 3710 Fine Art Seminar	1
ART 4610 Sculpture Projects	3
Art History upper-division course	3
Depth Social Sciences (DSS) course	3
Communications Intensive (CI) course	3

Spring Semester (16 credits)

ART 3710 Fine Art Seminar	1
ART 4660 Advanced Sculpture Studio	3
Art History upper-division course	3
Quantitative Intensive (QI) course	3
Art upper-division course	3
Elective course*	3

Senior Year (26 credits)

Fall Semester (13 credits)

ART 3710 Fine Art Seminar	1
ART 4660 Advanced Sculpture Studio	3
Depth Life and Physical Sciences (DSC) course	3
Art upper-division courses	6

Spring Semester (13 credits)

ART 3710 Fine Art Seminar	1
ART 4660 Advanced Sculpture Studio	3
ART 4910 Senior BFA Exhibition	2
Art upper-division course	3
Elective course(s)	4

*In addition, it is recommended that students complete one design course through Landscape Architecture and Environmental Planning (LAEP), Theatre Arts (THEA), or Interior Design (ID).

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 (ART 3820, 3830, 4790, ARTH 4720, 4740, 4750).

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 Department of Secondary 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. 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 Alexa Sand, the departmental honors advisor, to complete an honors program of study contract form. Dr. Sand may be contacted at: Fine Arts Visual 144, (435) 797-8549, or by e-mail at alexa.sand@usu.edu.

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 4900H (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/ats/majorsheets/>

Graduate Programs

The Department of Art offers two graduate degrees and cooperates with the 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 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 slides 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.

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 35mm slides or 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.

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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

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
Julie M. Johnson, art history
J. Daniel Murphy, ceramics
Alexa Sand, art history
Woody Shepherd, drawing, painting
Dave Smellie, graphic design
Koichi Yamamoto, printmaking

Course Descriptions

Art (ART), pages 557-560.

Art History (ARTH), pages 561-562.

Asian Studies Major and Minor

Program Director: R. Edward Glatfelter
Location: Main 333
Phone: (435) 797-1196
FAX: (435) 797-1092
E-mail: ed.glatfelter@usu.edu

Advisor: Annie Inhae Kim, Animal Science 101E, (435) 797-0799,
 anniekim@cc.usu.edu (Please call for an appointment.)

Major

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.

Minor

For an Asian Studies Minor, students 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 language courses for the minor.

Core Courses

BIS 4550 (CI) Principles of International Business Communications (Sp).....	3
ECON 5400 International and Development Economics (F).....	4
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 3460 Comparative Asian History.....	3
HIST 3480 History of China.....	3
HIST 4821 World War II in Asia.....	3
LANG 3550 Culture of East Asia.....	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
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 (Sp).....	3
ANTH 5160 (DSS) Cities and Development (Sp).....	3
BA 4300 International Finance (F,Sp).....	3
BA 4590 Global Marketing Strategy (F,Sp).....	3
ECON 3400 (DSS) International Economics for Business (F,Sp,Su).....	3

ECON 5120 Economics of Russia and Eastern Europe, 9th Century to 21st Century (F).....	3
ECON 5150 (DSS) Comparative Economic Systems (Sp).....	3
ECON 5850 Regional and Community Economic Development (F).....	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
NR 1010 (BSS) Humans and the Changing Global Environment (F,Sp).....	3
PLSC 4300 World Food Crops and Cropping Systems: The Plants That Feed Us (Sp).....	3
POLS 2100 Introduction to International Politics (F,Sp).....	3
POLS 2200 (BSS) Comparative Politics (F,Sp).....	3
POLS 5200 Global Environment (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/GEOG 5650 (DSS) Developing Societies (F).....	3
SOC 6310 Sociology of Work and Occupations (Sp).....	3

Sample Four-year Plan for Asian Studies Major

Minimum GPA for Admission: 2.5, USU; 2.2, Career
Minimum GPA for Graduation: 2.5, major requirements including foreign language
Minimum Grade Accepted: C- in all major requirements including foreign language

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

Asian Language 1010-level course.....	5
Quantitative Literacy (QL) course.....	3
University Studies Breadth courses.....	6
Elective course.....	1

Spring Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....

Asian Language 1020-level course.....	5
University Studies Breadth courses.....	6
Elective course.....	1

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

Asian Language 2010-level course.....	5
Asian General Elective course.....	3
University Studies Breadth courses.....	6
Elective course.....	1

Spring Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....

Asian Language 2020-level course.....	5
Asian Core course.....	3
Asian General Elective course.....	3
Elective course.....	1

Asian Studies Major and Minor

Junior Year (30 credits)

Fall Semester (15 credits)

Asian General Elective course	3
Asian upper-division Core course	3
Communications Intensive (CI) course	3
Quantitative Intensive (QI) course	3
Depth Social Sciences (DSS) course (cannot be used toward minimum credits for Asian Studies major)	3

Spring Semester (15 credits)

Asian upper-division Core courses	6
Communications Intensive (CI) course	3
Depth Life and Physical Sciences (DSC) course	3
Asian General Elective course	3

Senior Year (30 credits)

Fall Semester (15 credits)

Asian upper-division Core course	3
Upper-division elective courses	10
Elective course	2

Spring Semester (15 credits)

Asian upper-division Core course	3
Upper-division elective courses	9
Elective course	3

Asian Languages

Descriptions of Asian language courses can be found in the *Course Descriptions* section of this catalog.

Department of Biological and Irrigation Engineering

Department Head: Ronald C. Sims
Location: Engineering 402G
Phone: (435) 797-2785
FAX: (435) 797-1248
E-mail: bieusu@cc.usu.edu
WWW: <http://www.engineering.usu.edu/bie>

Undergraduate Advising:

Engineering Advising Center, Engineering 314A, (435) 797-2705,
kathy@engineering.usu.edu, ronnie@engineering.usu.edu,
joan.smith@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; 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, then sharpened with the study of engineering topics that develop practical problem-solving abilities; expand a sensitivity to the economic, social, and legal dimensions of technical problems; provide an understanding of ethics and professional responsibility; and stimulate a desire for life-long 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 to:

1. Develop practical problem-solving and communication abilities that will contribute to biological engineering practice, advance knowledge, and contribute to society;
2. Expand a professional sensitivity to the economic, social, and legal dimensions of technical problems, in order that engineering solutions are more holistic and applicable; and
3. Stimulate a desire for life-long learning and adaptation as one 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.
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 the Accreditation Board for Engineering and Technology (ABET).

The continuing 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 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:

1. Annual faculty self-assessment survey
2. Fundamentals of Engineering Examination performances

Department of Biological and Irrigation Engineering

3. Biological and Irrigation Engineering Advisory Board activities, including employer responses and board reviews
4. Alumni survey
5. Graduating student exit interviews
6. Teaching evaluations

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).

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 119-121. 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:

BIE 1880 Engineering Quantification of Biological Processes (Sp)	3
BIE 2330 Engineering Properties of Biological Materials (Sp)	3
CHEM 1210 Principles of Chemistry I (F,Sp)	4
CHEM 1215 Chemical Principles Laboratory I (F,Sp)	1
CHEM 2300 Principles of Organic Chemistry (F)	3
CHEM 2315 Organic Chemistry Laboratory I (F)	1
ENGR 1000 Introduction to Engineering Design (F)	2

ENGR 2010 Engineering Mechanics Statics (F,Sp)	2
ENGR 2030 Engineering Mechanics Dynamics (F,Sp)	3
ENGR 2200 Engineering Numerical Methods I (F)	3
BIOL 1610 (BLS)¹ Biology I (F)	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su)	3
ETE 2270 Computer Engineering Drafting (F,Sp,Su)	2
MAE 2300 Thermodynamics I (Sp,Su)	3
MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su) ..	4
PHYS 2200 Elements of Mechanics	2
Communications Literacy	3

Professional Program:

BIE 3000 Instrumentation for Biological Systems (Sp)	2
BIE 3200 Introduction to Unit Operations in Biological Engineering (F)	3
BIE 3670 Transport Phenomena in Bio-Environmental Systems (Sp) ..	3
BIE 3870 Biological Engineering Design I (F,Sp,Su)	1
BIE 4880 (CI) Biological Engineering Design II (F,Sp,Su)	3
BIE 4890 (CI) Biological Engineering Design III (F,Sp,Su)	3
BIOL 3300 (BLS)¹ General Microbiology (F,Sp)	4
BIOL 5020 (QI) Modeling Biological Systems (F)	3
CEE 3500 Civil and Environmental Engineering Fluid Mechanics (F,Sp)	3
CHEM 3700 Introductory Biochemistry (Sp)	3
CHEM 3710 Introductory Biochemistry Laboratory (Sp)	1
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3
ETE 2300 (QI) 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

Preengineering: Freshman and Sophomore

Freshman Year (32 credits)

Fall Semester (15 credits)

BIOL 1610 (BLS)^{1,3} Biology I	4
CHEM 1210³ Principles of Chemistry I	4
CHEM 1215³ Chemical Principles Laboratory I	1
ENGR 1000³ Introduction to Engineering Design	2
MATH 1210 (QL)³ Calculus I	4

Spring Semester (17 credits)

BIE 1880³ Engineering Quantification of Biological Processes	3
ETE 2270³ Computer Engineering Drafting	2
MATH 1220 (QL)³ Calculus II	4
PHYS 2200³ Elements of Mechanics	2
University Studies Breadth courses	6

Sophomore Year (33 credits)

Fall Semester (16 credits)

BIE 2330³ Engineering Properties of Biological Materials	3
CHEM 2300³ Principles of Organic Chemistry	3
CHEM 2315³ Organic Chemistry Laboratory I	1
ENGR 2010³ Engineering Mechanics Statics	2
ENGR 2200³ Engineering Numerical Methods I	3
MATH 2250 (QI)³ Linear Algebra and Differential Equations	4

Department of Biological and Irrigation Engineering

Spring Semester (17 credits)

BIOL 3300 (BLS)¹ General Microbiology	4
ENGL 2010 (CL2)³ Intermediate Writing: Research Writing in a Persuasive Mode.....	3
ENGR 2030³ Engineering Mechanics Dynamics.....	3
ETE 2300 (QI) Electronic Fundamentals.....	4
MAE 2300³ Thermodynamics I (or BIE equivalent course).....	3

Professional Engineering: Junior and Senior

Junior Year (31 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 ²	3
University Studies Breadth course	3

Spring Semester (16 credits)

BIE 3000 Instrumentation for Biological Systems	2
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 ²	3
University Studies Breadth course	3

Senior Year (32-34 credits)

Fall Semester (15-16 credits)

BIE 4880 (CI) Biological Engineering Design II.....	3
BIE 5930 Special Studies: Modeling Biological Systems.....	3
University Studies Depth Humanities and Creative Arts (DHA) course	2-3
Technical Elective courses ²	7

Spring Semester (17-18 credits)

BIE 4890 (CI) Biological Engineering Design III.....	3
Technical Elective courses ²	8
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).....	3
BIE 5110 Sprinkle and Trickle Irrigation (F).....	4
BIE 5150 Surface Irrigation Design (Sp).....	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 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 5850 Biomaterials Engineering (F).....	3
BIE 5890 Tissue Engineering (Sp).....	3
BIE 5910 Introduction to Biosensors (F).....	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
AWER 4490 Small Watershed Hydrology (F).....	4
AWER 4500 Limnology: Ecology of Inland Waters (Sp).....	3
AWER 5660 Watershed and Stream Restoration (Sp).....	2
BIE 4250 Cooperative Practice (F,Sp,Su).....	3
BIOL 2320 Human Anatomy (Sp,Su).....	4
BIOL 2420 Human Physiology (F,Sp,Su).....	4
BIOL 3100 (CI) Bioethics (Sp).....	3
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su).....	4
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 (Sp).....	3
CEE 2240 Engineering Surveying (F,Su).....	3
CEE 3610 Environmental Management (F).....	3
CEE 3870 Professional/Technical Writing in Civil and Environmental Engineering (F).....	2
CHEM 2320 Organic Chemistry II (Sp).....	4
CHEM 2325 Organic Chemistry Laboratory II (Sp).....	1
CHEM 3070 (QI) Physical Chemistry (Sp).....	3
ECE 2270 Electrical Circuits (F,Sp).....	4
ECE 2700 Digital Circuits (F,Sp).....	4
ENGR 2140 Strength of Materials (F,Sp).....	2
ETE 3030 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
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,Sp).....	4
SOIL 5650 Environmental Soil Physics (F).....	3

Other technical courses may be accepted with prior written approval from the 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^{1,3} Biology I.....	4
CHEM 1210³ Principles of Chemistry I.....	4
CHEM 1215³ Chemical Principles Laboratory I.....	1

Department of Biological and Irrigation Engineering

ENGR 1000 ³ Introduction to Engineering Design.....	2
MATH 1210 (QL) ³ Calculus I.....	4

Spring Semester (16 credits)

BIE 1880 ³ 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) ³ Calculus II.....	4

Second Year (32 credits)

Fall Semester (15 credits)

PHYS 2210 (QI) ³ General Physics—Science and Engineering I.....	4
MATH 2250 (QI) ³ Linear Algebra and Differential Equations.....	4
ENGL 1010 (CL1) ³ Introduction to Writing: Academic Prose.....	3
ENGR 2010 ³ Engineering Mechanics Statics.....	2
ETE 2270 ³ Computer Engineering Drafting.....	2

Spring Semester (17 credits)

PHYS 2220 (BPS/QI) General Physics—Science and Engineering II ..	4
ENGL 2010 (CL2) ³ Intermediate Writing: Research Writing in a Persuasive Mode.....	3
ENGR 2030 ³ Engineering Mechanics Dynamics.....	3
ETE 2300 (QI) Electronic Fundamentals.....	4
University Studies Breadth American Institutions (BAI) course.....	3

Third Year (31 credits)

Fall Semester (15 credits)

BIE 2330 ³ Engineering Properties of Biological Materials.....	3
ENGR 2200 ³ Engineering Numerical Methods I.....	3
CHEM 2310 ³ Organic Chemistry I.....	4
CHEM 2315 Organic Chemistry Laboratory I.....	1
BIOL 2420 Human Physiology.....	4

Spring Semester (16 credits)

CHEM 2320 Organic Chemistry II.....	4
CHEM 2325 Organic Chemistry Laboratory II.....	1
BIOL 2320 Human Anatomy.....	4
BIOL 3060 (QI) Principles of Genetics.....	4
MAE 2300 ³ Thermodynamics I (or BIE equivalent course).....	3

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
BIOL 5210 Cell Biology.....	3
University Studies Breadth Humanities (BHU) course.....	3
University Studies Breadth Social Sciences (BSS) course.....	3

Spring Semester (15 credits)

BIOL 3300 (BLS) ^{1,3} 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 (29 credits)

Fall Semester (15 credits)

BIE 4880 (CI) Biological Engineering Design II.....	3
BIE 5850 Biomaterials Engineering.....	3

BIE 5930 Special Studies: Modeling Biological Systems.....	3
STAT 3000 (QI) Statistics for Scientists.....	3
BIE elective course.....	3

Spring Semester (14 credits)

BIE 3000 Instrumentation for Biological Systems.....	2
BIE 4890 (CI) Biological Engineering Design III.....	3
Engineering Elective.....	3
University Studies Depth Humanities and Creative Arts (DHA) course.....	3
University Studies Depth Social Sciences (DSS) course.....	3

¹The Breadth Life Sciences (BLS) area in the University Studies Program is satisfied by the combination of BIOL 1610 and 3300.

²To emphasize irrigation, bioprocesses, premedical, etc., contact department for suggested technical electives.

³This course is required for admission to the Professional Engineering Program (PEP).

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@cc.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/ats/majorsheets/>

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

Department of Biological and Irrigation Engineering

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 118-122.)

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 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).

Department of Biological and Irrigation Engineering

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
Thomas B. Hardy, natural systems
Robert W. Hill, irrigation and water resource extension
Christopher M. U. Neale, remote sensing
Richard C. Peralta, groundwater
Linda S. Powers, bioprocess engineering
Ronald C. Sims, biological process engineering
Wynn R. Walker, surface irrigation, Associate Dean of College of Engineering

Research Professors

Darwin L. Sorensen, soil microbiology
L. Humberto Yap-Salinas, drainage

Adjunct Professors

Richard Allen, irrigation
Anne J. Anderson, plant root-microbe interactions
H. Scott Hinton, biophotonics
Lawrence E. Hipps, biometeorology
Bart C. Weimer, microbiology, Director of Center for Integrated BioSystems

Professors Emeritus

George H. Hargreaves, crop water requirements
Jack Keller, sprinkle and drip irrigation
Glen E. Stringham, surface irrigation

Associate Professor

Gary P. Merkley, conveyance systems

Research Associate Professors

Joan E. McLean, soil chemistry
Judith L. Sims, soil biology

Adjunct Associate Professors

Michael J. McFarland, biosolids
Daryll B. DeWald, cell biology, Associate Director of Center for Integrated BioSystems

Associate Professor Emeritus

Edwin C. Olsen III, international irrigation, water management

Assistant Professors

David W. Britt, biomedical engineering
Anhong Zhou, nanobiotechnology

Research Assistant Professor

Sinisha Ivans, biometeorology, surface irrigation

Adjunct Assistant Professors

David G. Chandler, soil processes
Andrew A. Keller, irrigation
Kytai T. Nguyen, biomedical engineering
Paul D. Schreuders, biomedical engineering

Adjunct Research Assistant Professors

Hui Fang Dou, electrical engineering
Arnulfo González-Meza, irrigation system transfer
Scott B. Jones, soil physics
Charles D. Miller, biology

Research Assistant Professor Emeritus

R. Kern Stutler, irrigation structures

Principal Lecturer

Timothy A. Taylor, bioprocess engineering

Course Descriptions

Biological and Irrigation Engineering (BIE), pages 571-574.

Department of Biology

Department Head: Jon Y. Takemoto
Location: Biology-Natural Resources 121
Phone: (435) 797-2485
FAX: (435) 797-1575
E-mail: undergrad_info@biology.usu.edu
or graduate_info@biology.usu.edu
WWW: <http://www.biology.usu.edu/>

Associate Head:
Timothy A. Gilbertson, Biology-Natural Resources 327,
(435) 797-7314, tag@biology.usu.edu

Director of Undergraduate Studies:
Dennis L. Welker, Biology-Natural Resources 101, (435) 797-3552,
dennis.welker@usu.edu

Director of Graduate Studies:
Peter C. Ruben, Biology-Natural Resources 343, (435) 797-2490,
pruben@biology.usu.edu

Biology Advisor:
Liz Heffernan, Biology-Natural Resources 101,
(435) 797-2577, heffernanliz@biology.usu.edu

Advisor for Prehealth Professions Programs:
D. M. Andy Anderson, Veterinary Science and Bacteriology 231,
(435) 797-1913, andy@biology.usu.edu

Advisor for Public Health Major:
David Wallace, Biology-Natural Resources 333, (435) 797-7155,
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. Most biology degrees provide a foundation for graduate work. 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 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 licensed to teach at the secondary level. **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 BNR 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 detailed information, obtain an official Major Requirement Sheet from the Biology Advising Center or online at: <http://www.usu.edu/ats/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 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

Department of Biology

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. 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 Liz Heffernan, Biology Advisor, at heffernanliz@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 49-57 in this catalog.)

College of Science Requirements

All college requirements are met by completing the departmental degree requirements; no additional coursework is required.

Departmental Admission Requirements

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), new freshmen 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 Department of Secondary Education.

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 applies 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 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; both must be taken to meet the requirement:

BIOL 5600	Comparative Animal Physiology (F)	3
BIOL 5610 (QI)	Animal Physiology Laboratory (F,Sp)	2
Or		
BIOL 5620	Medical Physiology (Sp) (Alt. Years)	3
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. 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

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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

**Suggested Four-year Course of Study
for Biology Major, Biology Emphasis**
The suggested schedule shown below should be used in conjunction
with the major requirement sheet.

Freshman Year (30 credits)
Fall Semester (15 credits)
BIOL 1610 Biology I 4
CHEM 1210 Principles of Chemistry I 4
CHEM 1215 Chemical Principles Laboratory I 1
University Studies or MATH¹ prerequisite courses 6

Spring Semester (15 credits)
BIOL 1620 (BLS) Biology II 4
CHEM 1220 (BPS) Principles of Chemistry II 4
CHEM 1225 Chemical Principles Laboratory II 1
University Studies or MATH¹ prerequisite courses 6

Sophomore Year (30-35 credits)
Fall Semester (15-18 credits)
BIOL 2220 General Ecology (3 cr) or
BIOL 3060 (QI) Principles of Genetics (4 cr)..... 3 or 4
CHEM 2300 Principles of Organic Chemistry 3
CHEM 2315 Organic Chemistry Laboratory I 1
MATH 1210 (QL) Calculus I 4
University Studies or elective courses..... 4-6

Spring Semester (15-17 credits)
BIOL 2220 General Ecology (3 cr) or
BIOL 3060 (QI) Principles of Genetics (4 cr)..... 3 or 4
CHEM 3700 Introductory Biochemistry 3
CHEM 3710 Introductory Biochemistry Laboratory 1
STAT 3000 (QI) Statistics for Scientists 3
University Studies or elective courses..... 5-6

Junior Year (30-34 credits)
Fall Semester (15-17 credits)
BIOL 3300 General Microbiology (4 cr) or
Biology elective course (3-4 cr) 3 or 4
PHYS 2110 The Physics of Living Systems I (4 cr) or
PHYS 2210 (QI) General Physics—Science
and Engineering I (4 cr) 4
Biology elective field course (2-3 cr) or
Biology elective course (2-3 cr) 2 or 3
University Studies or elective courses..... 6

Spring Semester (15-17 credits)
BIOL 3300 (BLS) General Microbiology (4 cr) or
Biology elective course (3-4 cr) 3 or 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
Biology elective field course (2-3 cr) or
Biology elective course (2-3 cr) 2 or 3
University Studies or elective courses..... 6

Senior Year (30-34 credits)
Fall Semester (15-17 credits)
BIOL 5210 Cell Biology (3 cr) 3
Biology elective course (3 cr) 3
BIOL 5250 (CI) Evolutionary Biology (3 cr) or
Biology elective course (3 cr) 3
Upper-division Physiology elective course (3-5 cr) or
Biology elective course (3-5 cr) 3-5
University Studies or elective courses..... 6

Spring Semester (15-17 credits)
BIOL 5250 (CI) Evolutionary Biology (3 cr) or
Biology elective course (3 cr) 3
Upper-division Physiology elective course (3-5 cr) or
Biology elective course (3-5 cr) 3-5
University Studies or elective courses..... 9

¹If students need Math courses prerequisite to MATH 1210, Calculus I, credits in addition to those listed here will be required.

Cellular/Molecular Emphasis
Required Biology Courses (30 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 5190 Molecular Genetics (Sp) 3
BIOL 5210 Cell Biology (F) 3
BIOL 5230 Developmental Biology (Sp) 3
BIOL 5250 (CI) Evolutionary Biology (F,Sp)..... 3

Choose one of the following Biotechnology courses:
BIOL 5160 Methods in Biotechnology: Cell Culture (Sp) 3
BIOL 5240 Methods in Biotechnology: Protein Purification
Techniques (Sp) 3
BIOL 5260 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:
BIOL 4400 (QI) Plant Physiology (F)..... 4
BIOL 5300 (QI) Microbial Physiology (Sp) 4

**Courses with separate lecture and lab; both must be taken to
meet the requirement:**
BIOL 5600 Comparative Animal Physiology (F)..... 3
BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp)..... 2
Or
BIOL 5620 Medical Physiology (Sp) (Alt. Years)..... 3
BIOL 5610 (QI) 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 3300 (General Microbiology)
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 9 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

Department of Biology

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 5700 General Biochemistry I (F)	3
CHEM 5710 General Biochemistry II (Sp)	3
CHEM 5720 General Biochemistry Laboratory (Sp)	2

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

Suggested Four-year Course of Study for Biology Major, Cellular/Molecular Emphasis

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (30 credits)

Fall Semester (15 credits)

BIOL 1610 Biology I	4
CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
University Studies or MATH ² prerequisite courses	6

Spring Semester (15 credits)

BIOL 1620 (BLS) Biology II	4
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
University Studies or MATH ² prerequisite courses	6

Sophomore Year (30-37 credits)

Fall Semester (15-19 credits)

BIOL 2220 General Ecology (3 cr) or BIOL 3060 (QI) Principles of Genetics (4 cr)	3 or 4
CHEM 2310 Organic Chemistry I	4
CHEM 2315 Organic Chemistry Laboratory I	1
MATH 1210 (QL) Calculus I	4
University Studies or elective courses	3-6

Spring Semester (15-18 credits)

BIOL 2220 General Ecology (3 cr) or BIOL 3060 (QI) Principles of Genetics (4 cr)	3 or 4
CHEM 2320 Organic Chemistry II	4
CHEM 2325 Organic Chemistry Laboratory II	1
STAT 3000 (QI) Statistics for Scientists	3
University Studies or elective courses	4-6

Junior Year (30-35 credits)

Fall Semester (15-17 credits)

BIOL 5210 Cell Biology	3
CHEM 5700 General Biochemistry I	3
PHYS 2110 The Physics of Living Systems I (4 cr) or PHYS 2210 (QI) General Physics—Science and Engineering I (4 cr)	4

Biology elective course(s)	2-4
Biology Biotechnology elective course (3 cr) or Biology elective course (3 cr)	3

Spring Semester (15-18 credits)

BIOL 5230 Developmental Biology	3
CHEM 5710 General Biochemistry II	3
CHEM 5720 General Biochemistry Laboratory	2
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 or elective courses	3-6

Senior Year (30-34 credits)

Fall Semester (15-17 credits)

BIOL 5250 (CI) Evolutionary Biology (3 cr) or Biology elective course (3 cr)	3
Upper-division Physiology elective course (3-5 cr) or Biology elective course (3-5 cr)	3-5
Biology elective course	3
University Studies or elective courses	6

Spring Semester (15-17 credits)

BIOL 5190 Molecular Genetics	3
BIOL 5250 (CI) Evolutionary Biology (3 cr) or Biology elective course (3 cr)	3
Upper-division Physiology elective or Biology Biotechnology Elective course(s) (3-5 cr) or Biology elective course(s) (3-5 cr)	3-5
University Studies or elective courses	6

²If students need Math courses prerequisite to MATH 1210, Calculus I, credits in addition to those listed here will be required.

Ecology/Biodiversity 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

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:

BIOL 4400 (QI) Plant Physiology (F)	4
BIOL 5300 (QI) Microbial Physiology (Sp)	4

Courses with separate lecture and lab; both must be taken to meet the requirement:

BIOL 5600 Comparative Animal Physiology (F)	3
BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp)	2
Or BIOL 5620 Medical Physiology (Sp) (Alt. Years)	3
BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp)	2

Clusters (8-10 credits)

Students must take one course from each of the following three clusters.

Department of Biology

Plant Biology:

BIOL 2410 Plants and Fungi in the Field (Su).....	2
BIOL 4420 Plant Taxonomy (Sp).....	3

Animal Biology:

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
BIOL 5580 Mammalogy (F).....	3

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
FRWS 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

Suggested Four-year Course of Study for Biology Major, Ecology/Biodiversity Emphasis

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (30 credits)

Fall Semester (15 credits)

BIOL 1610 Biology I.....	4
CHEM 1210 Principles of Chemistry I.....	4
CHEM 1215 Chemical Principles Laboratory I.....	1
University Studies or MATH ³ prerequisite courses.....	6

Spring Semester (15 credits)

BIOL 1620 (BLS) Biology II.....	4
CHEM 1220 (BPS) Principles of Chemistry II.....	4
CHEM 1225 Chemical Principles Laboratory II.....	1
University Studies or MATH ³ prerequisite courses.....	6

Sophomore Year (30-35 credits)

Fall Semester (15-18 credits)

BIOL 2220 General Ecology (3 cr) or	
BIOL 3060 (QI) Principles of Genetics (4 cr).....	3 or 4
CHEM 2300 Principles of Organic Chemistry.....	3
CHEM 2315 Organic Chemistry Laboratory I.....	1
MATH 1210 (QL) Calculus I.....	4
University Studies or elective courses.....	4-6

Spring Semester (15-17 credits)

BIOL 2220 General Ecology (3 cr) or	
BIOL 3060 (QI) Principles of Genetics (4 cr).....	3 or 4
CHEM 3700 Introductory Biochemistry.....	3
CHEM 3710 Introductory Biochemistry Laboratory.....	1
STAT 3000 (QI) Statistics for Scientists.....	3
University Studies or elective courses.....	5-6

Junior Year (30-35 credits)

Fall Semester (15-17 credits)

BIOL 3300 General Microbiology (4 cr) or	
Biology elective course (3-4 cr).....	3 or 4
BIOL 3220 (QI) Field Ecology.....	2
GEO 1110 (BPS) The Dynamic Earth: Physical Geology.....	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 or elective course.....	2-3

Spring Semester (15-18 credits)

BIOL 3300 General Microbiology (4 cr) or	
Biology elective course (3-4 cr).....	3 or 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
Biology elective course.....	2-4
University Studies or elective courses.....	6

Senior Year (30-36 credits)

Fall Semester (15-18 credits)

BIOL 5250 (CI) Evolutionary Biology (3 cr) or	
Biology elective course (3 cr).....	3
SOIL 3000 Fundamentals of Soil Science.....	4
Upper-division Physiology elective course (3-5 cr) or	
Biology elective course (3-5 cr).....	3-5
University Studies or elective courses.....	5-6

Spring Semester (15-18 credits)

BIOL 5250 Evolutionary Biology (3 cr) or	
Biology elective course (3-4 cr).....	3 or 4
Upper-division Physiology elective course (3-5 cr) or	
Biology elective course (3-5 cr).....	3-5
University Studies or elective courses.....	9

³If students need Math courses prerequisite to MATH 1210, Calculus I, credits in addition to those listed here will be required.

Department of Biology

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; both must be taken to meet the requirement:

BIOL 5600 Comparative Animal Physiology (F)	3
BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp)	2
Or	
BIOL 5620 Medical Physiology (Sp) (Alt. Years)	3
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.

ADVS 5400 Environmental Toxicology (Sp)	3
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 5410 Introduction to Plant Pathology (Sp)	4
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

Suggested Four-year Course of Study for Biology Major, Environmental Emphasis

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (30 credits)

Fall Semester (15 credits)

BIOL 1610 Biology I	4
CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
University Studies or MATH ⁴ prerequisite courses	6

Spring Semester (15 credits)

BIOL 1620 (BLS) Biology II	4
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
University Studies or MATH ⁴ prerequisite courses	6

Sophomore Year (30-36 credits)

Fall Semester (15-18 credits)

BIOL 2220 General Ecology (3 cr) or	
BIOL 3060 (QI) Principles of Genetics (4 cr)	3 or 4
CHEM 2310 Organic Chemistry I	4
CHEM 2315 Organic Chemistry Laboratory I	1
MATH 1210 (QL) Calculus I	4
University Studies or elective course(s)	3-5

Spring Semester (15-18 credits)

BIOL 2220 General Ecology (3 cr) or	
BIOL 3060 (QI) Principles of Genetics (4 cr)	3 or 4
CHEM 2320 Organic Chemistry II	4
CHEM 2325 Organic Chemistry Laboratory II	1
STAT 3000 (QI) Statistics for Scientists	3
University Studies or elective course(s)	4-6

Junior Year (30-31 credits)

Fall Semester (15-16 credits)

BIOL 3220 (QI) Field Ecology	2
CHEM 3000 (QI) Quantitative Analysis	3
CHEM 3005 Quantitative Analysis Laboratory	1
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 or elective course(s)	5-6

Spring Semester (15 credits)

BIOL 3300 General Microbiology (4 cr) or	
Biology elective course (4 cr)	4
CHEM 3700 Introductory Biochemistry	3
CHEM 3710 Introductory Biochemistry Laboratory	1
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 or elective course(s)	3

Senior Year (30-35 credits)

Fall Semester (15-17 credits)

BIOL 3300 General Microbiology (4 cr) or	
Biology elective course (4 cr)	4
BIOL 5250 (CI) Evolutionary Biology (3 cr) or	
Biology elective course (3 cr)	3

Department of Biology

Upper-division Physiology elective course (3-5 cr) or Biology elective course (3-5 cr)	3-5
University Studies or elective course(s)	5

Spring Semester (15-18 credits)

BIOL 4420 Plant Taxonomy	3
BIOL 5250 (CI) Evolutionary Biology (3 cr) or Biology elective course(s) (3 cr)	3
Biology elective course(s)	2-3
Upper-division Physiology elective course (3-5 cr) or Biology elective course(s) (3-5 cr)	3-5
University Studies or elective course(s)	4

⁴If students need Math courses prerequisite to MATH 1210, Calculus I, credits in addition to those listed here will be required.

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:** Beginning in 2006, 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; both must be taken to meet the requirement:

BIOL 5600 Comparative Animal Physiology (F)	3
BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp)	2
Or	
BIOL 5620 Medical Physiology (Sp) (Alt. Years)	3
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 (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)	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

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 (F,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,Sp)	3

Level 3:

SCED 5500 Student Teaching Seminar (F,Sp)	2
SCED 5630 Student Teaching in Secondary Schools (F,Sp)	10

Suggested Four-year Course of Study for Composite Teaching-Biological Science Major

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (29 credits)

Fall Semester (14 credits)

BIOL 1610 Biology I	4
CHEM 1110 (BPS) General Chemistry I	4
University Studies or MATH ⁵ prerequisite courses	6

Spring Semester (15 credits)

BIOL 1620 (BLS) Biology II	4
CHEM 1115 General Chemistry Laboratory	1
CHEM 1120 (BPS) General Chemistry II	4
University Studies or MATH ⁵ prerequisite courses	6

Sophomore Year (31 credits)

Fall Semester (15 credits)

BIOL 2420 Human Physiology	4
BIOL 3060 (QI) Principles of Genetics	4
MATH 1210 (QL) Calculus I	4
University Studies courses	3

Spring Semester (16 credits)

BIOL 2220 General Ecology	3
STAT 3000 (QI) Statistics for Scientists	3
GEO 1110 (BPS) The Dynamic Earth: Physical Geology	4
University Studies courses	6

Department of Biology

Junior Year (31-32 credits)

Fall Semester (16-17 credits)

BIOL 3065 ⁶ Genetics Laboratory (2 cr) or	
SCI 4300 ⁶ Science in Society (2 cr)	2
BIOL 3220 (QI) Field Ecology	2
BIOL 3300 General Microbiology	4
PHYS 2110 The Physics of Living Systems I (4 cr) or	
PHYS 2210 (QI) General Physics—Science	
and Engineering I (4 cr)	4
Upper-division Physiology elective with lab ⁷	4-5

Spring Semester (15 credits)

INST 3500 Technology Tools for Secondary Teachers	1
SCED 3100 Motivation and Classroom Management	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
SCED 3300 Clinical Experience I	1
SCED 4400 ⁸ Teaching Science II	3
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

Senior Year (29 credits)

Fall Semester (17 credits)

SCED 3400 ⁸ Teaching Science I	3
SPED 4000 Education of Exceptional Individuals	2
SCED 4200 (CI) Reading, Writing, and Technology	3
SCED 4210 Cognition and Evaluation of Student Learning	3
SCED 4300 Clinical Experience II	1
BIOL 3065 ⁶ Genetics Laboratory (2 cr) or	
SCI 4300 ⁶ Science in Society (2 cr)	2
BIOL 5250 (CI) Evolutionary Biology	3

Spring Semester (12 credits)

SCED 5500 Student Teaching Seminar	2
SCED 5630 Student Teaching in Secondary Schools	10

⁵If students need Math courses prerequisite to MATH 1210, Calculus I, credits in addition to those listed here will be required.

⁶Both BIOL 3065 and SCI 4300 are required. BIOL 3065 is only offered during odd years.

⁷Courses that meet this requirement are also offered during spring semester.

⁸SCED 3400 is only offered during fall semester, and SCED 4400 is only offered during spring semester. Either may be taken first.

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 page 58 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 either environmental health, industrial hygiene, or public health education. Individuals completing the environmental health option are qualified to take the Registered Environmental Health Specialist/Sanitarian Examination. Those completing the industrial hygiene option are granted benefits toward both the Certified Industrial Hygienist and the Certified Safety Professional 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)

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

Required Program Courses (32 credits)

CEE 3870 Professional/Technical Writing in Civil and	
Environmental Engineering (F)	2
PUBH 3310 Occupational Health and Safety (F)	3
PUBH 3610 Environmental Management (F)	3
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
PUBH 4380 Industrial Hygiene Internship (F,Sp,Su)	3
PUBH 5330 (QI) Industrial Hygiene Chemical Hazard Control (F)	3
PUBH 5500 (CI) Public Health Management (F,Sp)	2
ADVS 5400 Environmental Toxicology (Sp)	3

Elective Options (select 5 credits)

BIOL 3060 (QI) Principles of Genetics (F,Sp,Su)	4
CEE 5610 Environmental Quality Analysis (F)	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 (Sp)	3
PUBH 5790 Accident and Emergency Management (Sp)	3

Suggested Four-year Course of Study for Public Health Major, Industrial Hygiene Emphasis

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (30 credits)

Fall Semester (15 credits)

BIOL 1610 Biology I	4
CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
University Studies or MATH ⁹ prerequisite courses	6

Department of Biology

Spring Semester (15 credits)

BIOL 1620 (BLS) Biology II	4
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
University Studies or MATH ⁹ prerequisite courses	6

Sophomore Year (30-36 credits)

Fall Semester (15-18 credits)

BIOL 2420 Human Physiology	4
CHEM 2300 Principles of Organic Chemistry	3
CHEM 2315 Organic Chemistry Laboratory I	1
MATH 1210 (QL) Calculus I	4
PUBH 3310 Occupational Health and Safety	3
University Studies or elective courses	0-3

Spring Semester (15-18 credits)

CHEM 3700 Introductory Biochemistry	3
CHEM 3710 Introductory Biochemistry Laboratory	1
STAT 3000 (QI) Statistics for Scientists	3
University Studies or elective courses	8-11

Junior Year (30-36 credits)

Fall Semester (13-16 credits)

PUBH 4300 Industrial Hygiene Seminar	1
PUBH 4310 Industrial Hygiene Recognition of Hazards	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 or elective courses	4-7

Spring Semester (14-17 credits)

BIOL 3300 General Microbiology	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
PUBH 4320 Industrial Hygiene Chemical Hazard Evaluation	3
PUBH 4330 Industrial Hygiene Physical Hazards	3
Public Health elective course, University Studies course, or other elective course(s)	0-3

Summer Semester (3 credits)

PUBH 4380 Industrial Hygiene Internship	3
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Senior Year (30-36 credits)

Fall Semester (15-18 credits)

CEE 3870 Professional/Technical Writing in Civil and Environmental Engineering	2
CHEM 3000 (QI) Quantitative Analysis	3
CHEM 3005 Quantitative Analysis Laboratory	1
PUBH 3610 Environmental Management	3
PUBH 5330 (QI) Industrial Hygiene Chemical Hazard Control	3
Public Health elective courses, University Studies courses, or other elective courses	3-6

Spring Semester (15-18 credits)

ADVS 5400 Environmental Toxicology	3
PUBH 4040 Fundamentals of Epidemiology	3
PUBH 5500 (CI) Public Health Management	2
Public Health elective courses, University Studies courses, or other elective courses	7-10

⁹If students need Math courses prerequisite to MATH 1210, Calculus I, credits in addition to those listed here will be required.

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 PHYS 2120 (BPS) The Physics of Living Systems II (4 cr)	8
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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
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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)

CEE 3870 Professional/Technical Writing in Civil and Environmental Engineering (F)	2
PUBH 3310 Occupational Health and Safety (F)	3
PUBH 3610 Environmental Management (F)	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 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 (Sp)	3
NFS 5110 (CI) Food Microbiology (Sp)	4

Required Electives (select 10 credits)

ADVS 5400 Environmental Toxicology (Sp)	3
BIOL 3220 (QI) Field Ecology (F)	2
BIOL 4420 Plant Taxonomy (Sp)	3
BIOL 5550 Freshwater Invertebrates (Sp)	3
CHEM 3700 Introductory Biochemistry (Sp)	3
CHEM 3710 Introductory Biochemistry Laboratory (Sp)	1
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4
SPCH 1020 (CI) Public Speaking (F,Sp)	3

Suggested Four-year Course of Study for Public Health Major, Environmental Health Emphasis

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (30 credits)

Fall Semester (15 credits)

BIOL 1610 Biology I	4
CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
University Studies or MATH ¹⁰ prerequisite courses	6

Department of Biology

Spring Semester (15 credits)

BIOL 1620 (BLS) Biology II	4
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
University Studies or MATH ¹⁰ prerequisite courses	6

Sophomore Year (30-36 credits)

Fall Semester (15-18 credits)

BIOL 2420 Human Physiology	4
CHEM 2300 Principles of Organic Chemistry	3
CHEM 2315 Organic Chemistry Laboratory I	1
MATH 1210 (QL) Calculus I	4
PUBH 3310 Occupational Health and Safety	3
University Studies or elective courses	0-3

Spring Semester (15-18 credits)

BIOL 2220 General Ecology	3
PUBH 5000 Public Health Seminar	1
STAT 3000 (QI) Statistics for Scientists	3
University Studies or elective courses	8-11

Junior Year (30-36 credits)

Fall Semester (13-16 credits)

PHYS 2110 The Physics of Living Systems I (4 cr) or PHYS 2210 (QI) General Physics—Science and Engineering I (4 cr)	4
PUBH 4310 Industrial Hygiene Recognition of Hazards	4
PUBH 5730 Analysis and Fate of Environmental Contaminants	3
University Studies or elective courses	2-5

Spring Semester (14-17 credits)

BIOL 3300 General Microbiology	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
Public Health elective courses, University Studies courses, or other elective courses	6-9

Summer Semester (3 credits)

PUBH 4000 Public Health Field Experience	3
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Senior Year (30-36 credits)

Fall Semester (15-18 credits)

CEE 3870 Professional/Technical Writing in Civil and Environmental Engineering	2
PUBH 3610 Environmental Management	3
PUBH 4030 Communicable Disease Control	3
Public Health elective courses, University Studies courses, or other elective courses	7-10

Spring Semester (15-18 credits)

PUBH 4040 Fundamentals of Epidemiology	3
PUBH 5500 (CI) Public Health Management	2
NFS 5110 (CI) Food Microbiology	4
Public Health elective courses, University Studies courses, or other elective courses	6-9

¹⁰If students need Math courses prerequisite to MATH 1210, Calculus I, credits in addition to those listed here will be required.

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 3800 Grant Proposal Writing (Sp)	3
HEP 3900 Social Marketing in Health Education (Sp)	3
HEP 4200 (QI) Planning and Evaluation for Health Education (F)	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

Suggested Four-year Course of Study for Public Health Major, Public Health Education Emphasis

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (29 credits)

Fall Semester (14 credits)

BIOL 1610 Biology I	4
CHEM 1110 (BPS) General Chemistry I	4
University Studies or MATH ¹¹ prerequisite courses	6

Spring Semester (15 credits)

BIOL 1620 (BLS) Biology II	4
CHEM 1115 General Chemistry Laboratory	1
CHEM 1120 (BPS) General Chemistry II	4
University Studies or MATH ¹¹ prerequisite courses	6

Sophomore Year (30-36 credits)

Fall Semester (15-18 credits)

BIOL 2420 Human Physiology	4
MATH 1210 (QL) Calculus I	4
NFS 1020 (BLS) Science and Application of Human Nutrition	3
University Studies or elective courses	4-7

Spring Semester (15-18 credits)

BIOL 3300 General Microbiology	4
HEP 2000 First Aid and Emergency Care	2
HEP 2500 Health and Wellness	2
PUBH 3120 Family and Community Health	3
University Studies or elective courses	4-7

Department of Biology

Junior Year (30-36 credits)

Fall Semester (13-16 credits)

HEP 3000 Drugs and Human Behavior.....	3
SOC 3330 Medical Sociology.....	3
STAT 3000 (QI) Statistics for Scientists.....	3
University Studies or elective courses.....	4-7

Spring Semester (14-17 credits)

HEP 3800 Grant Proposal Writing.....	3
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration (4 cr) or	
PHYS 1800 (BPS) Physics of Technology (4 cr).....	4
PUBH 5000 Public Health Seminar.....	1
SPCH 1020 (CI) Public Speaking.....	3
Public Health elective course(s), University Studies course(s), or other elective course(s).....	3-6

Summer Semester (3 credits)

PUBH 4000 Public Health Field Experience.....	3
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Senior Year (30-36 credits)

Fall Semester (15-18 credits)

HEP 4200 (QI) Planning and Evaluation for Health Education.....	3
PUBH 4030 Communicable Disease Control.....	3
SOC 3500 Social Psychology.....	3
Public Health elective courses, University Studies courses, or other elective courses.....	6-9

Spring Semester (15-18 credits)

HEP 3900 Social Marketing in Health Education.....	3
NFS 5210 Advanced Public Health Nutrition.....	2
PUBH 4040 Fundamentals of Epidemiology.....	3
PUBH 5500 (CI) Public Health Management.....	2
Public Health elective courses, University Studies courses, or other elective courses.....	5-8

††If students need Math courses prerequisite to MATH 1210, Calculus I, credits in addition to those listed here will be required.

Biology Minor

The Biology minor requires completion of the following courses. A minimum cumulative GPA of 2.25 is required for these courses.

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
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
(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:

BIOL 3060 (QI) Principles of Genetics (F,Sp,Su).....	4
BIOL 3220 (QI) Field Ecology (F).....	2
BIOL 4400 (QI) Plant Physiology (F).....	4
BIOL 5020 (QI) Modeling Biological Systems (F).....	3
BIOL 5300 (QI) Microbial Physiology (Sp).....	4
BIOL 5380 Evolutionary Genetics (F).....	4
BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp).....	2
BIOL 5800 Undergraduate Research (F,Sp,Su) (3 credits min.).....	3
BMET 5500 Land-Atmosphere Interactions (Sp).....	3
PUBH 5330 (QI) Industrial Hygiene Chemical Hazard Control (F).....	3

Mathematics and Statistics Electives

MATH 4630 Computer Aided Math for Scientists and Engineers (Sp).....	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 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
MATH 5910 Directed Reading and Conference (F,Sp,Su) (3 credits min.).....	3
STAT 5100 (CI/QI) Linear Regression and Time Series (F).....	3
STAT 5110 Theory of Linear Models (F).....	3
STAT 5120 Categorical Data Analysis (F).....	3
STAT 5200 Design of Experiments (Sp).....	3
STAT 5300 (QI) Statistical Process Control (Sp).....	3
STAT 5600 (CI) Applied Multivariate Statistics (Sp).....	3
STAT 5940 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:

BIOL 1610 Biology I (F).....	4
BIOL 1620 (BLS) 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.

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 (ESLC 245) and the Biology Advising Center (BNR 101) for details.

Department of Biology

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 5800H, and a research-based Bachelor's Thesis. For details, students should contact: Kimberly A. Sullivan, (435) 797-3713, yejunco@biology.usu.edu.

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/ats/majorsheets/>

Graduate Programs

Admission Requirements

See general admission requirements on pages 99-100. Complete details about graduate programs, admission requirements, 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 English is not the primary language must have scored at least 575 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, microbiology, genetics, ecology, physiology, cell biology, developmental biology, and evolution; general and organic chemistry; 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 238-239).

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, 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 220,000 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 BNR 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
E. W. "Ted" Evans, insect ecology
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
Peter C. Ruben, neurobiology
John M. Stark, microbial ecology and biogeochemistry
Jon Y. Takemoto, microbiology
Paul G. Wolf, systematics and molecular biology

Associate Professors

Brett A. Adams, cell signaling
Michelle A. Baker, aquatic ecology
Mary E. Barkworth, plant systematics
Daryll B. DeWald, cell biology
Timothy A. Gilbertson, neurobiology
Bradley R. Kropp, mycology
Richard J. Mueller, plant morphology
Gregory J. Podgorski, developmental biology
Kimberly A. Sullivan, behavioral ecology
Carol D. von Dohlen, insect biology
Dennis L. Welker, molecular biology

Assistant Professors

Paul F. Cliften, microbial functional genomics
S. K. Morgan Ernest, spatial ecology
C. Kent Evans, extension plant pathology
Michael E. Pfrender, evolutionary quantitative genetics
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
Reed S. Roberts, entomology
Richard J. Shaw, vascular plant taxonomy
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

Department of Biology

Research Professor

Donald W. Roberts, insect pathology

Research Associate Professor

Vijendra K. Singh, immunology

Research Assistant Professors

Thomas N. Buckley, plant physiology

Michelle A. Grilley, molecular biology

Dane R. Hansen, molecular biology, physiology, cell signaling

Joanne E. Hughes, molecular genetics

Charles D. Miller, plant pathology

Mark P. Miller, genetics

Ethan White, ecology

Adjunct Professors

James H. Cane, bee biology

Noelle E. Cockett, biotechnology

Robert Fogel, mycology

J. Russell Mason, predation, ecology, and behavior

Rex S. Spendlove, virology

Bart C. Weimer, food microbiology

Adjunct Associate Professors

Dale L. Barnard, chemotherapy of viruses

Vincent J. Tepedino, entomology

Adjunct Assistant Professors

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 574-578.

Public Health (PUBH), pages 703-704.

Department of Business Administration

Department Head: Alan A. Stephens
Location: Business 811
Phone: (435) 797-2362
FAX: (435) 797-2634
E-mail: alan.stephens@usu.edu
WWW: <http://www.usu.edu/cob/admin>

Undergraduate Advisor:
 Isobel Roskelley, Business 309, (435) 797-2272,
 isobel.roskelley@usu.edu

Degrees offered: Bachelor of Science (BS) and Bachelor of Arts (BA) in Business Administration, Finance, Marketing, and Operations Management. The Department of Business Administration participates in the College of Business MBA (Master of Business Administration) degree (see pages 197-198). The Business Administration Department is awaiting Utah State Board of Regents' approval for BS and BA degrees in International Business.

Undergraduate Programs

Objectives

The Department of Business Administration 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 four areas: (1) **Finance**, leading to careers in banking, brokerage activities and investment, and positions as financial analysts in industry; (2) **Marketing**, involving positions in sales, advertising, retailing, distribution, and other similar activities; (3) **Operations Management**, leading to careers related to supply chain management, operations planning and scheduling, project management, quality management, and consulting; and (4) **Business Administration**, providing broad cross-disciplinary experience in the core business areas of operations, finance, and marketing.

Departmental Honors

See *Honors in Business* description in the College of Business section of this catalog (page 112).

Learning Objectives and Assessment

Assessment information for the Business Administration Department can be found online at:
<http://www.usu.edu/cob/admin/dept/assess.htm>

College of Business Admission Requirements

All students desiring to major in the Business Administration Department must satisfy the College of Business admission requirements, provided on pages 112-113. Academic advising about these requirements is available in the College of Business Career and Education Opportunities 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 49-57 of this catalog.

Matriculation Requirement and Transfer Limitation

No more than 15 USU College of Business credits (ACCT, BA, BIS, BUS, MHR), numbered 2000 and above, earned as a nonbusiness major (before acceptance into the College of Business) can be applied to a College of Business degree. More than 15 business credits can be transferred from other accredited institutions. However, additional USU College 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 College of Business major, at least 50 percent of the required College of Business credits must be earned from coursework taken from the Utah State University College of Business.

USU Credits and Business Credits

At least 30 of the last 60 semester credits must be taken from Utah State University, 10 of which must be included within the last 40 credits presented for the degree. At least 50 percent of the College of Business credits required for a College of Business degree must be taken from the Utah State University College of Business or its departments, which include: School of Accountancy, Business Administration, Business Information Systems, Economics, and Management and Human Resources.

Business Core

All majors in the Department of Business Administration must complete the following prerequisite courses and business core courses in addition to the specific courses listed for the major.

Prerequisite Courses (13 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp)	3
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
PSY 1010 (BSS) General Psychology (F,Sp,Su) (3 cr) or	
SOC 1010 (BSS) 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 College of Business.

College 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
BA 3400 (QI) Corporate Finance (F,Sp,Su)	3
BA 3500 Fundamentals of Marketing (F,Sp,Su).....	3
BA 3700 Operations Management (F,Sp,Su).....	3
BIS 2100 Principles of Management Information Systems (F,Sp,Su) ...	3
BIS 2200 (CI) Business Communication (F,Sp,Su).....	3
BUS 3250 Discussions With Business Leaders (F,Sp)	1
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp).....	3
ECON 3400 International Economics for Business (F,Sp,Su).....	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su).....	3
MHR 3110 Managing Organizations and People (F,Sp,Su)	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (F,Sp) (3 cr) or	
MHR 4890 (CI) Business Strategy in a Global Context (F,Sp,Su) (3 cr)	3

All 3000-, 4000-, and 5000-level courses in the College of Business are restricted to students admitted to the College of Business or another USU major with an overall GPA of at least 2.67 and completion of at least 40 credits.

Department of Business Administration

Majors

The Department of Business Administration offers four majors. An overall GPA of at least 2.50 is required to graduate. Course requirements for each major are listed on the following pages.

Finance Major Requirements (21 credits)

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 BA 3400.

Required Courses (12 credits)

BA 4450 Financial Policy (F,Sp)	3
BA 4460 Investments (F,Sp)	3
ECON 4010 Managerial Economics (F,Sp)	3
ECON 4020 Macroeconomics for Managers (F,Sp)	3

Electives (9 credits)

Three electives are required, two of which must be selected from the following list:

BA 4300 International Finance (F,Sp)	3
BA 4410 Financial Institutions (F,Sp)	3
BA 4420 Insurance (F)	3
BA 4430 Real Estate Finance (Sp)	3

The remaining elective may be chosen from the following, or from the list above:

ACCT 3310 Strategic Cost Management (F,Sp,Su)	3
ACCT 3410 Income Taxation I (F,Sp,Su)	3
BA 3080 (QI) Operations Research (F)	3
ECON 4030 (CI) Agribusiness Finance (F)	3
ECON 5030 Agricultural Marketing and Price Analysis (F)	3
ECON 5330 (QI) Applied Econometrics (Sp)	3
ECON 5600 Financial Economics (Sp)	3
PFP 5060 Personal Financial Planning and Advising (F)	3
PFP 5070 Retirement Planning (Sp)	3
PFP 5080 Estate Planning (Sp)	3

For a suggested four-year plan, see page 194.

Marketing Major Requirements (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 BA 4590, students must complete the following courses: BA 3500, 4540, and 4550. Before continuing with the following courses, students must receive a grade of B- or better in BA 3500.

Required Courses (15 credits)

BA 4510 Buyer Behavior (F,Sp)	3
BA 4530 Marketing Research (F,Sp)	3
BA 4540 Marketing Institutions (F,Sp) (3 cr) or	
BA 4070 (CI) Retail Management (3 cr)	3
BA 4550 Promotion Management (F,Sp)	3
BA 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
MHR 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
BIS 4550 (CI) Principles of International Business Communications (Sp)	3

Track 2: 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 3750 Commercial Recreation and Tourism (Sp)	3
PRP 4400 Recreation Park and Facility Management (F)	3

Track 3: Research (Choose 2 courses)

ECON 4010 Managerial Economics (F,Sp)	3
ECON 4310 (QI) Mathematical Methods for Economics (F)	3
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3
BA 4790 Supply Chain Management (Sp)	3

For a suggested four-year plan, see pages 194-195.

Operations Management Major Requirements (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 BA 3700.

Required Courses (18 credits)

BA 3080 (QI) Operations Research (F,Sp)	3
BA 4720 Production Planning and Control (F)	3
BA 4750 Production Simulation (Sp)	3
BA 4790 Supply Chain Management (Sp)	3
BA 5730 Process Analysis and Improvement (F)	3
MAE 5600 Manufacturing Process Planning and Statistical Quality Control (F) (3 cr) or	
STAT 5200 Design of Experiments (Sp) (3 cr) or	
STAT 5300 (QI) Statistical Process Control (Sp) (3 cr)	3

Elective Course (3 credits)

Select one of the following two courses:

ACCT 3310 Strategic Cost Management (F,Sp,Su)	3
MHR 4630 Human Resource Management (F,Sp)	3

For a suggested four-year plan, see page 195.

Business Administration Major Requirements

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

Department of Business Administration

marketing. Before continuing with the following courses, students must receive a grade of B- or better in BA 3400, 3500, and 3700.

Required Courses (18 credits)

BA 4410 Financial Institutions (F,Sp)	3
BA 4450 Financial Policy (F,Sp)	3
BA 4530 Marketing Research (F,Sp)	3
BA 4590 Global Marketing Strategy (F,Sp)	3
BA 4790 Supply Chain Management (Sp)	3
BA 5730 Process Analysis and Improvement (F)	3

Capstone Course

MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (F,Sp) (3 cr) or	
Another approved course (3 cr)	3
Students choosing the MHR 4880 option must complete MHR 4890 to satisfy the business core requirement.	

For a suggested four-year plan, see pages 195-196.

Business Major

A general business major is administered by the College of Business (see pages 111-115). For further information, contact the College of Business Career and Education Opportunities Center, Business 309, (435) 797-2272.

Minor Requirements

The Department of Business Administration offers three minors: a marketing minor, a finance minor, and an operations management minor.

A student from outside the College of Business who desires to pursue any of these minors must recognize that there are several prerequisites to the required courses. Specifically, most of the courses require college algebra; some require accounting, economics, or statistics.

Marketing Minor (16 credits)

Required Courses (10 credits)

BA 3500 Fundamentals of Marketing (F,Sp,Su)	3
MHR 3110 (DSS) Managing Organizations and People (F,Sp,Su)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4

Electives (6 credits)

Select two of the following courses:

BA 4510 Buyer Behavior (F,Sp)	3
BA 4530 Marketing Research (F,Sp)	3
BA 4540 Marketing Institutions (F,Sp)	3
BA 4550 Promotion Management (F,Sp)	3

Finance Minor (15 credits)

Required Courses (12 credits)

BA 3400 (QI) Corporate Finance (F,Sp,Su)	3
BA 3500 Fundamentals of Marketing (F,Sp,Su)	3
BA 4450 Financial Policy (F,Sp)	3
BA 4460 Investments (F,Sp)	3

Elective Course (3 credits)

Select one of the following courses:

BA 4300 International Finance (F,Sp)	3
BA 4410 Financial Institutions (F,Sp)	3
BA 4420 Insurance (F)	3
BA 4430 Real Estate Finance (Sp)	3

Operations Management Minor (15 credits)

Required Courses (9 credits)

BA 3500 Fundamentals of Marketing (F,Sp,Su)	3
BA 3700 Operations Management (F,Sp,Su)	3
BA 4720 Production Planning and Control (F)	3

Electives (6 credits)

Select two of the following courses:

BA 3080 (QI) Operations Research (F,Sp)	3
BA 4750 Production Simulation (Sp)	3
BA 4790 Supply Chain Management (Sp)	3
BA 5730 Process Analysis and Improvement (F)	3

A grade point average of at least 2.50 over the minor courses is required.

A student may request a deviation from the preceding requirements by submitting a written justification for the changes to the department head for approval. If approved, it becomes the minor for that student only.

Business Minor (General)

A general Business Minor is administered by the College of Business. For further information, students should contact the College of Business Career and Education Opportunities Center, Business 309, (435) 797-2272.

Other Degree Options

Dual Majors

Dual majors are available in accounting, human resources, management, business information systems, and economics. See the applicable department for information.

Second Bachelor's Degrees

Second bachelor's degrees are available for all four majors. For information, contact the College of Business Career and Education Opportunities Center, Business 309.

Additional Information

Advising sheets for majors, minors, second bachelor's degrees, and the Business Administration major are available from the Department of Business Administration, Business 815, and from the College of Business Career and Education Opportunities Center, Business 309.

These sheets can also be found online at:

<http://www.usu.edu/cobssc/web/requirementsheets.htm>

A major requirement sheet, which includes further information about career opportunities and course requirements for the majors and minors within the Business Administration Department, can be obtained from the department, or accessed online at:

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

Four-Year Degree Plans (8 Semesters)

The following are suggested four-year plans for majors offered by the Department of Business Administration. These plans may also be found at:

<http://www.usu.edu/cobssc/web/fouryeardegreeplans.htm>

Department of Business Administration

Suggested Four-year Course of Study for Finance Major

Students enrolled in the finance major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (31 credits)

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1010 Intermediate Algebra	3
PSY 1010 (BSS) General Psychology (3 cr) or	
SOC 1010 (BSS) Introductory Sociology (3 cr)	3
Breadth Creative Arts (BCA) course ¹	3
Elective course(s)	3
Passing scores on Computer and Information Literacy (CIL) exams	0

Note: The CIL requirement is met *only* by passing all six exams.

Spring Semester (16 credits)

ECON 2010 (BSS) Introduction to Microeconomics	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) College Algebra	4
Breadth Humanities (BHU) course ¹	3
Breadth Life Sciences (BLS) course ¹	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I	3
BIS 2200 (CI) Business Communication	3
MHR 2050 Legal and Ethical Environment of Business	3
STAT 2300 (QL) Business Statistics	4
Breadth Physical Sciences (BPS) course ¹	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II	3
BIS 2100 Principles of Management Information Systems	3
MATH 1100 (QL) Calculus Techniques	3
Depth Life and Physical Sciences (DSC) course	3
Elective course(s)	3

Junior Year (30 credits)

Fall Semester (15 credits)

BA 3400 (QI) Corporate Finance	3
BA 3500 Fundamentals of Marketing	3
ECON 3400 International Economics for Business	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Depth Humanities and Creative Arts (DHA) course	3

Spring Semester (15 credits)

BA 3700 Operations Management	3
ECON 4010 Managerial Economics	3
MHR 3110 Managing Organizations and People	3
Finance Elective	3
Elective course(s)	3

Senior Year (28 credits)

Fall Semester (16 credits)

BA 4450 Financial Policy	3
BA 4300 International Finance (3 cr) or	
BA 4410 Financial Institutions (3 cr) or	
BA 4420 Insurance (3 cr)	3

BUS 3250 Discussions With Business Leaders	1
ECON 4020 Macroeconomics for Managers	3
Elective courses	6

Spring Semester (12 credits)

BA 4300 International Finance (3 cr) or	
BA 4410 Financial Institutions (3 cr) or	
BA 4430 Real Estate Finance (3 cr)	3
BA 4460 Investments	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (3 cr) or	
MHR 4890 (CI) Business Strategy in a Global Context (3 cr)	3
Elective course(s)	3

Suggested Four-year Course of Study for Marketing Major

Students enrolled in the marketing major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (31 credits)

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1010 Intermediate Algebra	3
PSY 1010 (BSS) General Psychology (3 cr) or	
SOC 1010 (BSS) Introductory Sociology (3 cr)	3
Breadth Creative Arts (BCA) course ¹	3
Elective course(s)	3
Passing scores on Computer and Information Literacy (CIL) exams	0

Note: The CIL requirement is met *only* by passing all six exams.

Spring Semester (16 credits)

ECON 2010 (BSS) Introduction to Microeconomics	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) College Algebra	4
Breadth Humanities (BHU) course ¹	3
Breadth Life Sciences (BLS) course ¹	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I	3
BIS 2200 (CI) Business Communication	3
MHR 2050 Legal and Ethical Environment of Business	3
STAT 2300 (QL) Business Statistics	4
Breadth Physical Sciences (BPS) course ¹	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II	3
BIS 2100 Principles of Management Information Systems	3
MATH 1100 (QL) Calculus Techniques	3
Depth Life and Physical Sciences (DSC) course	3
Elective course(s)	3

Junior Year (30 credits)

Fall Semester (15 credits)

BA 3500 Fundamentals of Marketing	3
BA 3700 Operations Management	3
ECON 3400 International Economics for Business	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Depth Humanities and Creative Arts (DHA) course	3

Department of Business Administration

Spring Semester (15 credits)

BA 3400 (QI) Corporate Finance	3
BA 4540 Marketing Institutions	3
BA 4550 Promotion Management	3
MHR 3110 Managing Organizations and People	3
Elective course(s)	3

Senior Year (28 credits)

Fall Semester (15 credits)

BA 4510 Buyer Behavior	3
BA 4530 Marketing Research	3
Marketing Track course	3
Elective courses	6

Spring Semester (13 credits)

BA 4590 Global Marketing Strategy	3
BUS 3250 Discussions With Business Leaders	1
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (3 cr) or	
MHR 4890 (CI) Business Strategy in a Global Context (3 cr)	3
Marketing Track course	3
Elective course(s)	3

**Suggested Four-year Course of Study
for Operations Management Major**

Students enrolled in the operations management major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (31 credits)

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1010 Intermediate Algebra	3
PSY 1010 (BSS) General Psychology (3 cr) or	
SOC 1010 (BSS) Introductory Sociology (3 cr)	3
Breadth Creative Arts (BCA) course ¹	3
Elective course(s)	3
Passing scores on Computer and Information Literacy (CIL) exams	0

Note: The CIL requirement is met *only* by passing all six exams.

Spring Semester (16 credits)

ECON 2010 (BSS) Introduction to Microeconomics	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) College Algebra	4
Breadth Humanities (BHU) course ¹	3
Breadth Life Sciences (BLS) course ¹	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I	3
BIS 2200 (CI) Business Communication	3
MHR 2050 Legal and Ethical Environment of Business	3
STAT 2300 (QL) Business Statistics	4
Breadth Physical Sciences (BPS) course ¹	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II	3
BIS 2100 Principles of Management Information Systems	3
MATH 1100 (QL) Calculus Techniques	3
Depth Life and Physical Sciences (DSC) course	3
Elective course(s)	3

Junior Year (30 credits)

Fall Semester (15 credits)

BA 3500 Fundamentals of Marketing	3
BA 3700 Operations Management	3
ECON 3400 International Economics for Business	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Depth Humanities and Creative Arts (DHA) course	3

Spring Semester (15 credits)

BA 3080 (QI) Operations Research	3
BA 3400 (QI) Corporate Finance	3
ACCT 3310 Strategic Cost Management (3 cr) or	
MHR 4630 Human Resource Management (3 cr)	3
MHR 3110 Managing Organizations and People	3
STAT 5200 Design of Experiments (3 cr) or	
STAT 5300 (QI) Statistical Process Control (3 cr) or	
Elective course(s) (3 cr)	3

Senior Year (28 credits)

Fall Semester (16 credits)

BA 4720 Production Planning and Control	3
BA 5730 Process Analysis and Improvement	3
BUS 3250 Discussions With Business Leaders	1
MAE 5600 Manufacturing Process Planning and Statistical Quality Control (3 cr) or	
Elective course(s) (3 cr)	3
Elective courses	6

Spring Semester (12 credits)

BA 4750 Production Simulation	3
BA 4790 Supply Chain Management	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (3 cr) or	
MHR 4890 (CI) Business Strategy in a Global Context (3 cr)	3
Elective course(s)	3

**Suggested Four-year Course of Study
for Business Administration Major**

Students enrolled in the business administration major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (31 credits)

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1010 Intermediate Algebra	3
PSY 1010 (BSS) General Psychology (3 cr) or	
SOC 1010 (BSS) Introductory Sociology (3 cr)	3
Breadth Creative Arts (BCA) course ¹	3
Elective course	3
Passing scores on Computer and Information Literacy (CIL) exams	0

Note: The CIL requirement is met *only* by passing all six exams.

Spring Semester (16 credits)

ECON 2010 (BSS) Introduction to Microeconomics	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) College Algebra	4
Breadth Humanities (BHU) course ¹	3
Breadth Life Sciences (BLS) course ¹	3

Department of Business Administration

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I	3
BIS 2200 (CI) Business Communication	3
MHR 2050 Legal and Ethical Environment of Business	3
STAT 2300 (QL) Business Statistics	4
Breadth Physical Sciences (BPS) course ¹	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II	3
BIS 2100 Principles of Management Information Systems	3
MATH 1100 (QL) Calculus Techniques	3
Depth Life and Physical Sciences (DSC) course	3
Elective courses	3

Junior Year (30 credits)

Fall Semester (15 credits)

BA 3500 Fundamentals of Marketing	3
BA 3700 Operations Management	3
ECON 3400 International Economics for Business	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Depth Humanities and Creative Arts (DHA) course	3

Spring Semester (15 credits)

BA 3400 (QI) Corporate Finance	3
BA 4410 Financial Institutions	3
BA 4790 Supply Chain Management	3
MHR 3110 Managing Organizations and People	3
Elective courses	3

Senior Year (28 credits)

Fall Semester (16 credits)

BA 4530 Marketing Research	3
BA 5730 Process Analysis and Improvement	3
BUS 3250 Discussion with Business Leaders	1
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (3 cr) or Another approved course (3 cr)	3
Note: Students choosing the MHR 4880 option must take MHR 4890 to satisfy the business core requirement.	
Elective courses	6

Spring Semester (12 credits)

BA 4450 Financial Policy	3
BA 4590 Global Marketing Strategy	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (3 cr) or MHR 4890 (CI) Business Strategy in a Global Context (3 cr)	3
Elective courses	3

¹At least two of the six required breadth courses *must* have a USU prefix.

Graduate Programs

For information about the **Interdepartmental Curriculum for the Master of Business Administration (MBA)**, see pages 197-198. Master's degrees are also offered by the following departments in the College of Business: Accountancy, Business Information Systems, and Economics. For further information, refer to the appropriate sections of this catalog.

Business Administration Faculty

Professors Emeritus

Allen D. Kartchner, production and operations research
Eugene C. Kartchner, production and operations research
Paul A. Randle, corporate finance and valuation analysis

Professors

Kenneth R. Bartkus, promotion management
Drew Dahl, financial institutions and international finance
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
J. Robert Malko, corporate and energy utility finance
C. R. Michael Parent, marketing research and strategy
Philip R. Swensen, corporate finance, investments, and managerial economics

Associate Professors

J. Brian Atwater, "theory of constraints," quality management, lean manufacturing
Edwin R. Stafford, marketing management, strategy, environmental sustainability
Alan A. Stephens, corporate finance and investments

Assistant Professors

Stacey B. Hills, marketing research, strategy, and product management
Haiyan Hu, retailing and consumer behavior, international retailing, visual merchandising and promotion
Seung-Woog Kwag, investments and corporate finance

Senior Lecturer/Executive in Residence

Randall L. Cook, operations management and finance

Lecturer

Janet P. Lyons, operations and marketing

Adjunct Lecturers

Shaun D. Barker, marketing
Scott F. Boyle, marketing
Steven R. Broadbent, finance
Kent B. Haueter, finance
Strat D. Roper, operations
Karl B. Ward, finance

Course Descriptions

Business Administration (BA), pages 569-571.

Master of Business Administration (MBA)

Director of Business Graduate Programs: Mary Jo Blahna

Location: Business 809

Phone: (435) 797-2360

FAX: (435) 797-2634

E-mail: maryjo.blahna@usu.edu

WWW: <http://mba.usu.edu/>

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 College of Business. The MBA program is designed to provide students with an understanding of analytical tools necessary for effective and efficient management in today's complex business world. The curriculum prepares students with a working knowledge of the fundamental business functions and a sensitivity to the legal, ethical, social, technological, and international forces in the business environment. The MBA program's focus is the development of the analytical, communication, interpersonal, and leadership skills needed for a successful career in a variety of organizations. The MBA program is accredited by AACSB International—The Association to Advance Collegiate Schools of Business.

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 candidates from abroad, with a minimum of 213 computerized or 550 paper/pencil deemed acceptable. International students with a prior degree from an English-speaking university 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 the 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 who wish to be considered for financial aid must submit applications by **February 15** for the coming academic year.

Students with or without an undergraduate degree in business may enter the MBA program. However, before taking advanced courses, basic competencies in business that have not been acquired through prior courses or experience must be met. Applicants not meeting minimum requirements may be allowed to correct deficiencies concurrently with graduate coursework. Before entering the program, each student must meet with an advisor to plan his or her course of study.

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 who have not completed a bachelor's degree accredited by AACSB International may choose to gain the necessary basic business competencies by attending the Accelerated Business Core (ABC). The ABC is a uniquely efficient and effective way of delivering the basic program curriculum in a compressed format during the summer semester. The ABC enables students from nonbusiness backgrounds to prepare quickly for the Advanced Program Courses. The classes offered include: ACCT 6010 (Financial and Managerial Accounting), BA 6410 (Corporate Finance Essentials), BA 6510 (Marketing Techniques), BA 6710 (Essentials of Operations Management), ECON 6050 (Fundamentals of Economics), MHR 6050 (Management Principles), and MHR 6070 (Fundamentals of Business Law). The ABC *does not* include MATH 1100 (Calculus) and STAT 2300 (Business Statistics); therefore, students who have not completed equivalent classes at the undergraduate level may be required to take these classes. Before enrolling for the ABC classes, students must be accepted into a College of Business graduate program.

Alternatively, students may acquire the necessary basic competencies by completing courses satisfying the following management-specific knowledge and skills requirement: ACCT 2010, 2020; BA 3400, 3500, 3700; ECON 1500, 2010; MHR 2050, 3110; MATH 1100; and STAT 2300. Students may not be required to take courses which duplicate prior academic or industrial training. Students must meet with the director of the MBA program to plan their course of study.

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.

Advanced Program Courses (33 credits)

Students must complete the following six courses: ACCT 6350; BA 6420, 6520, 6720; and MHR 6500, 6890. Additionally, students must complete one course each in information systems (e.g., ACCT 6500), research methods (e.g., BUS 6860), quantitative analysis (e.g., ECON 6330), and business ethics (e.g., MHR 6770). These courses must be selected in consultation with the MBA program director. Also, students are required to attend a professional development program (BUS 6310) that begins in August before the start of classes and continues throughout the MBA program.

Master of Business Administration (MBA)

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, 6200, 6510, and 6610.

Entrepreneurship

This specialization consists of MHR 6410, 6430, 6470, and an approved elective.

Human Resource Management

This specialization requires students to complete MHR 6690 and to select any three of the following courses: MHR 6550, 6620, 6630, 6640, 6670, and 6760.

Manufacturing Management

This specialization includes BA 5730, 6740; and MHR 6350, 6370.

Personal Financial Planning

This specialization consists of PFP 6060, 6070, and 6080. Students must have *either* already completed, *or* complete as part of their graduate work, the following courses: BA 3460 or 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. Graduate assistantships and scholarships generally range between \$1,000 and \$3,000 for nine months. Application for financial aid must be made by **February 15**. A recipient of a graduate assistantship is usually eligible for a waiver of the out-of-state portion of his or her tuition.

Master of Business Administration Faculty

Professors

Kenneth R. Bartkus, promotion management
Gaylen N. Chandler, human resources, management, and entrepreneurship
Keith R. Criddle, econometrics
L. Dwight Israelsen, comparative systems and economic history
Richard L. Jenson, information systems and managerial accounting
Vijay R. Kannan, supply chain and quality management, cellular manufacturing
J. Robert Malko, corporate and energy utility finance
Glenn M. McEvoy, organizational behavior, human resources, and management
C. R. Michael Parent, marketing research and strategy
Clifford R. Skousen, international and managerial accounting
David B. Stephens, business strategy and labor relations
Philip R. Swensen, finance

Associate Professors

J. Brian Atwater, "theory of constraints," quality manufacturing, lean manufacturing
Ronda R. Callister, organization behavior, management
David H. Olsen, database manager
Alan A. Stephens, corporate finance and investments

Adjunct Associate Professor

Steven H. Hanks, business strategy, entrepreneurship

Assistant Professors

Alison Cook, organizational behavior, human resource management
Dawn DeTienne, entrepreneurship
Konrad S. Lee, business ethics

Executive-in-Residence/Principal Lecturer

Alan P. Warnick, human resources

MBA Courses

Descriptions of MBA courses can be found in the *Course Descriptions* section of this catalog.

Department of Business Information Systems

Department Head: Karen A. Forcht

Location: Business 711

Phone: (435) 797-2342

FAX: (435) 797-2351

E-mail: karen.forcht@usu.edu

WWW: <http://www.usu.edu/cob/bis/>

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 Business Information Systems; participates in the Interdepartmental Doctor of Philosophy (PhD) in Education and Doctor of Education (EdD) with a specialization in Business Information Systems

Undergraduate emphases: *Business Information Systems BS, BA—Technical, Managerial, and Training and Development*

Graduate specializations: *Business Information Systems MS—Business Education, Electronic Commerce, Management Information Systems, Marketing Education, and Training and Development.*

Undergraduate Programs

Objectives

The Business Information Systems major is designed to prepare individuals for positions as managers in business information systems, including information managers, information supervisors, network managers, worldwide web designers, electronic commerce developers, systems analysts, applications programmers, and systems trainers. The training and development emphasis prepares students to become trainers within business and private industry.

Departmental Honors

See *Honors in Business* description in the College of Business section of this catalog (page 112).

Learning Objectives and Assessment

Assessment information for the Business Information Systems Department can be found online at:
<http://www.usu.edu/cob/bis/about/assessment.htm>

Requirements

College of Business Requirements

All bachelor's degree students majoring in Business Information Systems must satisfy the College of Business entrance requirements provided on pages 112-113. Academic advising about these requirements is provided by the College of Business Career and Education Opportunities Center, Business 309. Business Information Systems majors must also follow College of Business prebusiness course requirements for admission to a major, detailed on page 113.

Matriculation Requirement and Transfer Limitation

No more than 15 USU College of Business credits (ACCT, BA, BIS, BUS, MHR), numbered 2000 and above, earned as a nonbusiness

major (before acceptance into the College of Business) can be applied to a College of Business degree. More than 15 business credits can be transferred from other accredited institutions. However, additional USU College 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 College of Business major, at least 50 percent of the required College of Business credits must be earned from coursework taken from the Utah State University College of Business.

USU Credits and Business Credits

At least 30 of the last 60 semester credits must be taken from Utah State University, 10 of which must be included within the last 40 credits presented for the degree. At least 50 percent of the College of Business credits required for a College of Business degree must be taken from the Utah State University College of Business or its departments, which include: School of Accountancy, Business Administration, Business Information Systems, Economics, and Management and Human Resources.

Information Systems Programs

Programs in Information Systems are offered in both the departments of Business Information Systems and Computer Science. The curricula and objectives of the programs differ substantially. Each department's program is described below.

The **Business Information Systems major with technical or managerial emphasis**, is offered in the Business Information Systems Department, College of Business. The Bachelor of Science or Bachelor of Arts program is designed for students interested in business careers as information specialists, systems analysts, network managers, applications programmers, and information systems managers in business and industry. BIS majors take required courses in analysis and design, Internet management, telecommunications, decision support systems, spreadsheet and database applications, and information systems projects. All graduates are required to complete a common core of business subjects. The College of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. The department also offers a Master of Science in Business Information Systems with an area of emphasis in Management Information Systems.

The **Computer Science major with an Information Systems emphasis** is located in the College of Science and is designed for students interested in a career as a Computer Scientist with a background in Information Sciences and Systems. Majors in this emphasis are trained in all phases of the analysis, design, and implementation of Information Systems. As part of this emphasis, students also receive training in the theory and application of information. Students select an application area such as Business, Accounting, or Economics. Other application areas can be developed by working closely with an advisor. This program of study leads to a Bachelor of Science, Bachelor of Arts, or Master of Science degree in Computer Science. See pages 229-231 and 233 for additional details.

Requirements for Bachelor's Degree in Business Information Systems

To earn a bachelor's degree in Business Information Systems, a student must complete the University requirements for a bachelor's degree and the following categories of coursework in the College of Business: Pre-Business, College of Business Core, BIS Department Core, and one of three areas of emphasis: Technical, Managerial, or Training and Development.

Department of Business Information Systems

Pre-Business Course Requirements (13 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp)	3
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
PSY 1010 (BSS) General Psychology (F,Sp,Su) (3 cr) or	
SOC 1010 (BSS) Introductory Sociology (F,Sp) (3 cr)	3

College 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
BA 3400 (QI) Corporate Finance (F,Sp,Su)	3
BA 3500 Fundamentals of Marketing (F,Sp,Su)	3
BA 3700 Operations Management (F,Sp,Su)	3
BIS 2100 Principles of Management Information Systems (F,Sp,Su) ...	3
BIS 2200 (CI) Business Communication (F,Sp,Su)	3
BUS 3250 Discussions With Business Leaders (F,Sp)	1
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp)	3
ECON 3400 International Economics for Business (F,Sp,Su)	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su)	3
MHR 3110 Managing Organizations and People (F,Sp,Su)	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (F,Sp) (3 cr) or	
MHR 4890 (CI) Business Strategy in a Global Context (F,Sp,Su) (3 cr)	3

BIS Department Core Requirements (10 credits)

BIS 3330 Database Management (F,Sp)	3
BIS 5100 Systems Design and Implementation (F,Sp)	3
BIS 5110 Systems Design Laboratory (must be taken concurrently with BIS 5100) (F,Sp)	1
BUS 4250 Advanced Internship (F,Sp,Su)	3

Students must select one of the following emphases.

Technical Emphasis (19 credits)

Required Courses (16 credits)

CS 1400 Introduction to Computer Science—CS1 (F,Sp,Su)	3
CS 1405 Introduction to Computer Science—CS1 Lab (take with CS 1400) (F,Sp,Su)	1
CS 1410 (QI) Introduction to Computer Science—CS2 (F,Sp,Su)	3
BIS 4100 Information Technology and System Software (F,Sp)	3
BIS 4330 Database Implementation (F,Sp)	3
BIS 5650 Advanced Website Development (F,Sp)	3

Elective Course (3 credits)

Choose one course from the following:

BIS 5300 Advanced Data Communications (F,Sp)	3
BIS 5450 Designing Graphical User Interfaces for Electronic Commerce (F,Sp)	3
BIS 5700 Internet Management and Electronic Commerce (F,Sp)	3
BIS 5800 Security of Business Information Systems (F)	3
CS 2420 (QI) Algorithms and Data Structures—CS 3 (F,Sp,Su)	3

Managerial Emphasis (18 credits)

Required Courses (12 credits)

BIS 3500 Management Information Systems Development (F,Sp)	3
BIS 5700 Internet Management and Electronic Commerce (F,Sp)	3
BIS 5300 Advanced Data Communications (F,Sp)	3
BIS 5800 Security of Business Information Systems (F)	3

Elective Courses (6 credits)

Choose two courses from the following:

BIS 4100 Information Technology and System Software (F,Sp)	3
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BIS 4330 Database Implementation (F,Sp)	3
BIS 5450 Designing Graphical User Interfaces for Electronic Commerce (F,Sp)	3
BIS 5650 Advanced Website Development (F,Sp)	3

Training and Development Emphasis (18 credits)

Required Courses (9 credits)

BIS 4350 Introduction to Training and Development (Sp)	3
BIS 5450 Designing Graphical User Interfaces for Electronic Commerce (F,Sp)	3
Any 5000-level INST course	3

Elective Courses (9 credits)

Choose three courses from the following:

BIS 3500 Management Information Systems Development (F,Sp)	3
BIS 5700 Internet Management and Electronic Commerce (F,Sp)	3
BIS 5800 Security of Business Information Systems (F)	3
MHR 3710 Developing Team and Interpersonal Skills (F,Sp)	3
Any 5000-level INST course	3

Four-Year Degree Plans (8 Semesters)

Four-year degree plans for each of the Business Information Systems major emphases can be found on pages 201-203 and at: <http://www.usu.edu/cobssc/web/fouryeardegreeplans.htm>

Business Information Systems Minor (21-22 credits)

A minimum 2.50 GPA is required in all courses counted toward the minor.

Required Courses (15 credits)

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
BIS 2100 Principles of Management Information Systems (F,Sp,Su) ...	3
BIS 3330 Database Management (F,Sp)	3
BIS 3500 Management Information Systems Development (F,Sp)	3
CS 1400 Introduction to Computer Science—CS 1 (F,Sp,Su) (3 cr) or	
CS 3410 (CI/DSC) Algorithm Development: JAVA/Internet (F,Su) (3 cr)	3

Elective Courses (6-7 credits)

Choose two of the following courses:

ACCT 4500 Accounting Information Systems (F,Sp)	3
BIS 4330 Database Implementation (F,Sp)	3
BIS 5100 Systems Design and Implementation (F,Sp) (3 cr) and	
BIS 5110 Systems Design Laboratory (F,Sp) (1 cr)	4
BIS 5300 Advanced Data Communications (F,Sp)	3
BIS 5450 Designing Graphical User Interfaces for Electronic Commerce (F,Sp)	3
BIS 5700 Internet Management and Electronic Commerce (F,Sp)	3
CS 1400¹ Introduction to Computer Science—CS 1 (F,Sp,Su) (3 cr) or	
CS 3410 (CI/DSC)¹ Algorithm Development: JAVA/Internet (F,Su) (3 cr) or	
CS 3510 (QI/DSC) Algorithm Development: COBOL/Business (F) (3 cr)	3

¹CS 1400 or 3410 may be chosen as an elective, if not taken as a required course for the section above.

Student Organizations

The Department of Business Information Systems sponsors or co-sponsors three student organizations. Each group provides unique experiences that can complement and enrich formal coursework.

Department of Business Information Systems

Leadership development and human relations skills are among the personal attributes enhanced by involvement in the various organization 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 business 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 business information systems majors so that they will contribute to their field.

Delta Epsilon Chi (DEX)

Delta Epsilon Chi (DEX) is a cocurricular organization designed for marketing education and marketing majors. The major goal of DEX is to help students prepare for careers in marketing or marketing education. DEX provides students with opportunities to compete in marketing events at the state and national levels. Membership is open to all students interested in business and marketing.

Delta Pi Epsilon (DPE)

Delta Pi Epsilon (DPE) is a national honorary fraternity for graduate students. Purposes of the organization include enhancement of research, scholarship, service, and cooperation in the profession. Election to membership requires review by members and faculty of the Department of Business Information Systems.

Additional Information

For more information about requirements for the majors and minors within the Business Information Systems Department, see the major requirement sheets, available from the department, or online at: <http://www.usu.edu/ats/majorsheets/>

Four-year Degree Plans (8 semesters)

The following are suggested four-year plans for each emphasis of the Business Information Systems major.

Suggested Four-year Course of Study for Business Information Systems Major, Technical Emphasis

Students enrolled in the business information systems major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (28 credits)

Fall Semester (13 credits)

OSS 1400 Microcomputer Applications	3
MATH 1050 (QL) College Algebra.....	4
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
PSY 1010 (BSS) General Psychology (3 cr) or	
SOC 1010 (BSS) Introductory Sociology (3 cr).....	3

Spring Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ECON 2010 (BSS) Introduction to Microeconomics	3
MATH 1100 (QL) Calculus Techniques	3
University Studies Breadth courses	6

Sophomore Year (32 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I.....	3
BIS 2100 Principles of Management Information Systems	3
STAT 2300 (QL) Business Statistics	4
MHR 2050 Legal and Ethical Environment of Business	3
University Studies Breadth course	3

Spring Semester (16 credits)

ACCT 2020 Survey of Accounting II.....	3
BIS 2200 (CI) Business Communication	3
ENGL 2010 (CL2) Intermediate Writing:	
Research Writing in a Persuasive Mode.....	3
ECON 3400 International Economics for Business.....	3
CS 1400 Introduction to Computer Science—CS 1	3
CS 1405 Introduction to Computer Science—CS 1 Lab	1

Junior Year (31 credits)

Fall Semester (15 credits)

BA 3400 (QI) Corporate Finance	3
BA 3500 Fundamentals of Marketing.....	3
CS 1410 (QI) Introduction to Computer Science—CS 2	3
University Studies Breadth course	3
Elective course(s).....	3

Spring Semester (16 credits)

BUS 3250 Discussions With Business Leaders	1
BIS 3330 Database Management	3
BIS 4100 Information Technology Hardware and System Software	3
BA 3700 Operations Management.....	3
BIS elective course.....	3
University Studies Depth course	3

Senior Year (29 credits)

Fall Semester (15 credits)

BIS 4330 Database Implementation	3
BIS 5650 Advanced Website Development.....	3
MHR 3110 Managing Organizations and People	3
BUS 4250 Advanced Internship	3
University Studies Depth course	3

Spring Semester (14 credits)

BIS 5100 Systems Design and Implementation.....	3
BIS 5110 Systems Design Laboratory	1
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (3 cr) or	
MHR 4890 (CI) Business Strategy in a Global Context (3 cr)	3
Elective courses	7

Note: Students must pass MATH 1050 with a grade of C- or better. Students who do not take OSS 1400 must take an additional 3 credits of electives. Students should apply for College of Business admission during their third semester.

Suggested Four-year Course of Study for Business Information Systems Major, Managerial Emphasis

Students enrolled in the business information systems major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Department of Business Information Systems

Freshman Year (28 credits)

Fall Semester (13 credits)

OSS 1400 Microcomputer Applications	3
MATH 1050 (QL) College Algebra.....	4
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
PSY 1010 (BSS) General Psychology (3 cr) or SOC 1010 (BSS) Introductory Sociology (3 cr).....	3

Spring Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ECON 2010 (BSS) Introduction to Microeconomics	3
MATH 1100 (QL) Calculus Techniques	3
University Studies Breadth courses	6

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I.....	3
BIS 2100 Principles of Management Information Systems	3
STAT 2300 (QL) Business Statistics	4
MHR 2050 Legal and Ethical Environment of Business.....	3
University Studies Breadth course	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II.....	3
BIS 2200 (CI) Business Communication	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
BIS 3330 Database Management.....	3
Elective course(s)	3

Junior Year (31 credits)

Fall Semester (15 credits)

BIS 3500 Management Information Systems Development	3
BA 3400 (QI) Corporate Finance	3
ECON 3400 International Economics for Business	3
BIS elective course.....	3
Elective course(s).....	3

Spring Semester (16 credits)

BUS 3250 Discussions With Business Leaders	1
BIS 5700 Internet Management and Electronic Commerce	3
BA 3700 Operations Management.....	3
BIS elective course.....	3
University Studies Breadth course	3
University Studies Depth course	3

Senior Year (30 credits)

Fall Semester (15 credits)

BA 3500 Fundamentals of Marketing.....	3
BIS 5300 Advanced Data Communications	3
MHR 3110 Managing Organizations and People	3
BUS 4250 Advanced Internship	3
University Studies Depth course	3

Spring Semester (15 credits)

BIS 5100 Systems Design and Implementation	3
BIS 5110 Systems Design Laboratory	1
BIS 5800 Security of Business Information Systems	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (3 cr) or MHR 4890 (CI) Business Strategy in a Global Context (3 cr)	3
Elective courses	5

Note: Students must pass MATH 1050 with a grade of C- or better. Students who do not take OSS 1400 must take an additional 3 credits of electives. Students should apply for College of Business admission during their third semester.

Suggested Four-year Course of Study for Business Information Systems Major, Training and Development Emphasis

Students enrolled in the business information systems major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (28 credits)

Fall Semester (13 credits)

OSS 1400 Microcomputer Applications	3
MATH 1050 (QL) College Algebra.....	4
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
PSY 1010 (BSS) General Psychology (3 cr) or SOC 1010 (BSS) Introductory Sociology (3 cr).....	3

Spring Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ECON 2010 (BSS) Introduction to Microeconomics	3
MATH 1100 (QL) Calculus Techniques	3
University Studies Breadth courses	6

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I.....	3
BIS 2100 Principles of Management Information Systems	3
STAT 2300 (QL) Business Statistics	4
MHR 2050 Legal and Ethical Environment of Business.....	3
University Studies Breadth course	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II.....	3
BIS 2200 (CI) Business Communication	3
BIS 3330 Database Management	3
BIS 4350 Introduction to Training and Development.....	3
University Studies Breadth course	3

Junior Year (31 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
BA 3400 (QL) Corporate Finance	3
ECON 3400 International Economics for Business	3
BIS elective courses.....	6

Spring Semester (16 credits)

BUS 3250 Discussions With Business Leaders	1
BA 3700 Operations Management.....	3
INST course at 5000-level or higher.....	3
University Studies Depth course	3
Elective courses	6

Senior Year (30 credits)

Fall Semester (15 credits)

BA 3500 Fundamentals of Marketing.....	3
BIS 5450 Designing Graphical User Interfaces for Electronic Commerce	3

Department of Business Information Systems

MHR 3110 Managing Organizations and People	3
University Studies Depth course	3
BIS elective course	3

Spring Semester (15 credits)

BIS 5100 Systems Design and Implementation	3
BIS 5110 Systems Design Laboratory	1
BUS 4250 Advanced Internship	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (3 cr) or	
MHR 4890 (CI) Business Strategy in a Global Context (3 cr)	3
Elective courses	5

Note: Students must pass MATH 1050 with a grade of C- or better. Students who do not take OSS 1400 must take an additional 3 credits of electives. Students should apply for College of Business admission during their third semester.

Graduate Programs

Master of Science

Students applying for admission to the Master of Science program in Business Information Systems must take the GMAT test. A score at the 40th percentile or better on the GMAT is required for admission. Undergraduate GPA should be 3.0 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 BIS Department require the following core: BIS 6150, 6440, 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 business information systems.

Students are expected to have a background in business information systems. Required courses are BIS 6120, 6200, 6330, 6400 (or 6700), in addition to the departmental core. Students who choose the Plan A option must complete 6 credits of BIS 6970. Students may take credits in Business Information Systems, Computer Science, Instructional Technology, Business Administration, Accounting, Economics, or other approved electives to complete the 9 credits of electives required.

The specializations in **Business Education, Marketing Education, and Training and Development** are designed for those who are teaching in an area of business or who wish to work in training and development in business and industry. Required courses for the Business Education or Marketing Education specialization are BIS 6350, 6450, 6700, 6720, 6730, and 6770. Students must complete 15 credits of electives chosen from the following list (or select others with committee approval): BIS 6350, 6400, 6600, 6720, 6730, 6770; BUS 6250.

Required courses for the Training and Development specialization are BIS 6350, 6450; and BUS 6250. Students must complete 15 credits of electives chosen from the following list (or select others with committee approval): BIS 6120, 6330, 6410.

For a current checklist of requirements, students should contact their departmental graduate advisor.

The USU MS in Business Information Systems is the only master's program in Business Information Systems in the state of Utah. Graduates are placed in the West and throughout the nation.

Doctor of Philosophy and Doctor of Education

Applicants for admission to the College of Education and Human Services PhD or EdD programs with a specialization in Business Information Systems must take the GRE. Scores on the verbal and quantitative test must be at or above the 40th percentile. No minimum score is required on the analytical section (required by the Educational Testing Service).

The Department of Business Information Systems cooperates with other departments in offering the interdepartmental Doctor of Philosophy (PhD) and Doctor of Education (EdD). Within the Business Information Systems specialization, emphases can be pursued in business education, marketing education, business information systems, and business communications. Other subject-matter emphases are also available. The PhD is a research-based degree. The EdD degree is a practitioner's degree. Both degrees require dissertations. Graduates secure positions teaching business subjects or business-teacher education in colleges and universities or in business and industry. Former graduates are currently in various positions in higher education, including higher education administration; in teacher education instruction; and in business and industry.

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.

The business and marketing teacher education programs at the graduate level are ranked highly and respected throughout the nation, with faculty who are nationally and internationally recognized.

All students must meet admission requirements as specified by the School of Graduate Studies (see pages 99-100).

Research

Faculty in the Department of Business Information Systems are active in research and scholarly endeavors. Current and published research topics include business communications; international communications; improvement of instruction in teaching; business 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; issues in higher education; and other areas related to business information systems, marketing education, and business education.

Department of Business 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. These assistants generally teach classes in keyboarding, word processing, business communications, and microcomputer applications. 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

Business 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. Currently, there is also a great demand for business teachers in public education.

Business Information Systems Faculty

Professors

Karen A. Forcht, business information systems, business communication, data management, computer security
Dennis J. LaBonty, business information systems, business education

David H. Olsen, business information systems
David J. Paper, business information systems
John F. Vinsonhaler, business information systems

Professors Emeritus

H. Robert Stocker
William A. Stull

Associate Professors

Jeffrey J. Johnson, business information systems
Robert J. Mills, business information systems

Assistant Professors

Karina Hauser, lean manufacturing, artificial intelligence
Yong Seog Kim, data mining
Zsolt Ugray, business information systems, electrical commerce and optimization

Principal Lecturers

Susan M. Jones, business information systems, business communications
Marianna Larsen, business information systems, business communications
Craig J. Peterson, business information systems
Dana H. Swensen, business information systems, business communications

Senior Lecturer and Executive in Residence

Ralph B. "Bernie" Lantz, computer technology, networks security, business information systems, computer literacy

Course Descriptions

Business Information Systems (BIS), pages 578-580.

Department of Chemistry and Biochemistry

Department Head: Steve Scheiner
Location: Maeser Laboratory 140
Phone: (435) 797-1619
FAX: (435) 797-3390
E-mail: chemist@cc.usu.edu
WWW: http://www.chem.usu.edu

Undergraduate Advisors:

Faculty advisors in the Department of Chemistry and Biochemistry are as follows:

Biochemistry:

Scott A. Ensign, Widtsoe 239, (435) 797-3969,
ensigns@cc.usu.edu

Chemistry:

Stephen E. Bialkowski, Maeser Lab 359, (435) 797-1907,
stephen.bialkowski@usu.edu

Rick C. Holz, Widtsoe 237, (435) 797-2609, rholz@cc.usu.edu

Steve Scheiner, Maeser Lab 140, (435) 797-7419,
scheiner@cc.usu.edu

Vernon D. Parker, Widtsoe 345, (435) 797-1697,
vparker@cc.usu.edu

For faculty advisor assignment, contact Department of Chemistry and Biochemistry at (435) 797-1619 or chemist@cc.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 and metabolism, protein structure/function); and chemistry (e.g., intermediate and advanced inorganic, advanced organic).

Department of Chemistry and Biochemistry

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/index.php>

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 ² Organic Chemistry I	4
CHEM 2315 ² Organic Chemistry Laboratory I	1
CHEM 3000 (QI) Quantitative Analysis	3
CHEM 3005 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 ³ Organic Chemistry II	4
CHEM 2325 ³ Organic Chemistry Laboratory II	1
CHEM 3510 Intermediate Inorganic Chemistry	2
CHEM 3520 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) ² Physical Chemistry	3
CHEM 3080 (CI) ² Physical Chemistry Laboratory I	1
CHEM 5700 ² General Biochemistry I	3
MATH 2250 (QI) ¹ Linear Algebra and Differential Equations (4 cr) or	
STAT 3000 (QI) ¹ Statistics for Scientists (3 cr)	3 or 4
University Studies or elective courses	4-5

Spring Semester (15 credits)

CHEM 3070 (QI) ³ Physical Chemistry	3
CHEM 3090 (CI) ³ Physical Chemistry Laboratory II	1
CHEM 5640 ³ Instrumental Analysis	3
CHEM 5650 ³ 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

¹ 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 ² Advanced Inorganic Chemistry (F)	2
CHEM 5530 ³ 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:

CHEM 5710 ³ General Biochemistry II (Sp)	3
CHEM 5720 ³ General Biochemistry Laboratory (Sp)	2
BIOL 1610 ² 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:

CHEM 5670 ³ Intermediate Environmental Chemistry (Sp).....	3
CHEM 5680 ³ 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 208)	35
Teaching minor from outside the Department of Chemistry and Biochemistry	12-16

² Offered fall semester only
³ 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 as follows:

CHEM 4800H (CI) Research Problems (F, Sp, Su).....	3-6
CHEM 4990H (CI) 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:

CHEM 2320H Organic Chemistry II (Sp).....	4
CHEM 3070H (QI) Physical Chemistry (Sp).....	3
CHEM 5640H Instrumental Analysis (Sp)	3
CHEM 5700H 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:

BIOL 1610 Biology I (F).....	4
BIOL 1620 (BLS) Biology II (Sp) (4 cr) or	
BIOL 2420 Human Physiology (F,Sp,Su) (4 cr).....	4
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su) (4 cr) or	
BIOL 3300 (BLS) General Microbiology (F,Sp) (4 cr)	4
CHEM 5710 General Biochemistry II (Sp).....	3
CHEM 5720 General Biochemistry Laboratory (Sp)	2

BA in Chemistry

In addition to the chemistry core (with the exception of CHEM 5640, 5650), students must complete the following:

CHEM 5520 Advanced Inorganic Chemistry (F) (2 cr) or	
CHEM 5640 Instrumental Analysis (Sp) (3 cr).....	2 or 3
Completion of one foreign language (16 cr) or	
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:

SCI 4300 Science in Society (F,Sp)	2
Required courses for the Secondary Teacher Education Program (STEP) (see details on page 208)	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:

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

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 (QI/BPS) General Physics—Science and Engineering II (4 cr)	8

(PHYS 2210 and 2220 are preferred.)
This program does not include many aspects of the Chemistry Core.

Required Courses:

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 cr) or	
CHEM 2310 Organic Chemistry I (F) (4 cr)	3 or 4
CHEM 2315 Organic Chemistry Laboratory I (F)	1
PHYS 1040 (BPS) Introductory Astronomy	3
PHYS 1080 (BPS) ⁴ Intelligent Life in the Universe (3 cr) or	
PHYS 3030 (DSC/QI) The Universe (3 cr)	3

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 (QI/BPS) General Physics—Science and Engineering II (4 cr)	8

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3
SCI 4300 Science in Society (F,Sp)	2
BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su).....	3
GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp).....	4
BMET 2000 (BPS) The Atmosphere and Weather (F,Sp)	3

Teacher licensure courses from Secondary Education (35 cr) (see details on page 208).....	35
A teaching minor is optional for the Composite Teaching Major in the Physical Sciences.	

⁴PHYS 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 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.

Beginning in 2006, 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 (F,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,Sp)	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 courses in nonscience majors may differ from those listed here.

*The science methods courses (SCED 3400 and 4400) may only be taught once per year. Therefore, students should take whichever one is taught during the semester they are in Level 1 or Level 2.

Biochemistry Major (121-134 credits)

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 ⁵ Organic Chemistry I	4
CHEM 2315 ⁵ Organic Chemistry Laboratory I	1
BIOL 1610 ⁵ 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 ⁶ Organic Chemistry II	4
CHEM 2325 ⁶ Organic Chemistry Laboratory II	1
BIOL 1620 (BLS) ⁶ 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 (30-36 credits)

Fall Semester (15-18 credits)

CHEM 3000 (QI) Quantitative Analysis	3
CHEM 3005 Quantitative Analysis Laboratory	1
CHEM 5700 ⁵ General Biochemistry I	3
Advanced Biology Electives (2000 level or higher)	3-4
University Studies courses	5-7

Spring Semester (15-18 credits)

CHEM 5710 ⁶ General Biochemistry II	3
CHEM 5720 ⁶ General Biochemistry Laboratory	2
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) ⁵ Undergraduate Biochemistry Seminar I	1
CHEM 5070 Biophysical Chemistry	3
Advanced elective coursework	6-12
University Studies course(s)	0-3

Spring Semester (12-16 credits)

CHEM 4891 (CI) ⁶ Undergraduate Biochemistry Seminar II	1
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.

ADVS 3020 Biotechnology in Agriculture (F)	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)	4
BIOL 3065 Genetics Laboratory (F)	2
BIOL 3300 General Microbiology (F,Sp)	4
BIOL 4000 Human Dissection (F)	1
BIOL 5210 Cell Biology (F)	3

Department of Chemistry and Biochemistry

BIOL 5230 Developmental Biology (Sp)	3
BIOL 5330 Virology (Sp)	3
CHEM 4800 (CI) Research Problems (F,Sp,Su)	3
CHEM 6730 Principles of Enzymology (Sp).....	3
CHEM 6740 Cellular Communication by Small Molecules and Proteins (Sp)	3
CHEM 6750 Principles of Structural Biology (F)	3
CHEM 6760 Principles of Bioenergetics (F).....	3

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, as follows:

CHEM 4800H (CI) Research Problems (F,Sp,Su).....	3-6
CHEM 4890H (CI) ⁵ Undergraduate Biochemistry Seminar I	1
CHEM 4891H (CI) ⁶ Undergraduate Biochemistry Seminar II	1
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:

CHEM 2320H Organic Chemistry II (Sp).....	4
CHEM 5070H Biophysical Chemistry (F)	3
CHEM 5700H General Biochemistry I (F)	3
CHEM 5710H General Biochemistry II (Sp).....	3

⁵ Offered fall semester only

⁶ Offered spring semester only

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:

CHEM 2320 Organic Chemistry II (Sp) (if CHEM 2310 has been previously selected)	4
CHEM 3000 (QI) Quantitative Analysis (F).....	3
CHEM 3060 (QI) Physical Chemistry (F).....	3
CHEM 3510 Intermediate Inorganic Chemistry (Sp) (2 cr) and CHEM 3520 Inorganic Chemistry Laboratory (Sp) (1 cr)	3
CHEM 3650 (DSC) Environmental Chemistry (Sp) (3 cr) or CHEM 3700 Introductory Biochemistry (Sp) (3 cr)	3
Enrollment in the Secondary Teacher Education Program (STEP) (see details on page 208).....	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, jhevel@cc.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 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@cc.usu.edu. Additional information can be found online at: <http://www.usu.edu/honors/>

Department of Chemistry and Biochemistry

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/ats/majorsheets/>

Graduate Programs

Admissions Requirements

See the general admission requirements for the School of Graduate Studies (pages 99-100). 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 104-106), 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 6700, 6710, 6730, 6740, 6750, and 6760). In addition, all students must register for at least 2 credits of CHEM 6720 in the first semester of residence to participate in research training. 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.

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 \$18,000 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.

Department of Chemistry and Biochemistry

Chemistry and Biochemistry Faculty

Trustee Professor

Ann E. Aust, biochemistry

Professors

Steven D. Aust, biochemistry

Stephen E. Bialkowski, analytical chemistry

Alexander I. Boldyrev, physical chemistry

Scott A. Ensign, biochemistry

David Farrelly, physical chemistry

Alvan C. Hengge, organic chemistry

Richard C. Holz, bioinorganic chemistry

Vernon D. Parker, physical organic chemistry

Steve Scheiner, computational chemistry

Lance C. Seefeldt, biochemistry

Professors Emeritus

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

Bradley S. Davidson, organic chemistry

John L. Hubbard, inorganic chemistry

Assistant Professors

Cheng-Wei Tom Chang, organic chemistry

Joan M. Hevel, biochemistry

Sean J. Johnson, biochemistry

Philip J. Silva, analytical chemistry

Research Assistant Professor

Tapas Kar, physical chemistry

Lecturer

Douglas G. Harris

Course Descriptions

Chemistry and Biochemistry (CHEM), pages 589-592.

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@cc.usu.edu
WWW: <http://www.engineering.usu.edu/cee>

Undergraduate Advisors:

Civil Engineering:

Engineering Advising Center, Engineering 314A, (435) 797-2705
kathy@engineering.usu.edu
ronnie@engineering.usu.edu
joan.smith@usu.edu

Environmental Engineering:

Engineering Advising Center, Engineering 314A, (435) 797-2705
kathy@engineering.usu.edu
ronnie@engineering.usu.edu
joan.smith@usu.edu

Undergraduate Division Heads:

Civil Engineering:

Kevin C. Womack, Engineering Laboratory 276, (435) 797-1144,
kevin.womack@usu.edu

Environmental Engineering:

R. Ryan Dupont, Engineering 216 or Utah Water Research
Laboratory 319, (435) 797-3227, rdupo@cc.usu.edu

Graduate Program Division Heads:

Environmental Engineering:

R. Ryan Dupont, Engineering 216, (435) 797-3227,
rdupo@cc.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,
halling@cc.usu.edu

Water Engineering:

Jagath J. Kaluarachchi, Utah Water Research Laboratory 248,
(435) 797-3918, jkalu@cc.usu.edu

Transportation Systems Engineering:

Anthony Chen, Engineering 231, (435) 797-7109,
achen@cc.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 the Accreditation Board for Engineering and Technology (EAC/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

Graduates with a BS degree in Civil Engineering from Utah State University will have:

1. Proven themselves proficient in mathematics; the sciences; and the structures, geotechnical, hydraulics, and transportation areas of civil engineering.
2. Demonstrated the ability to solve engineering problems, utilizing fundamental engineering principles, as well as the latest technologies and engineering tools, in the process of engineering analysis and design. They will have done this as individuals and as members of multidisciplinary teams.
3. Shown a capacity for investigation and experimentation into physical (engineering) phenomena, along with the ability to analyze and interpret engineering data in at least two of the following areas of civil engineering: structures, geotechnical, hydraulics, and transportation.
4. Demonstrated the capability to communicate verbally, in writing, and through the use of engineering communication media. They will also have shown the capacity to present the outcomes of their problem solving and design projects for groups of engineers and lay persons.
5. Exhibited an understanding of the role civil engineering plays in our modern global society, that much is to be learned from the past and applied to the present, and that a responsible engineer is ethical and will continue to increase his or her knowledge throughout his or her lifetime.

Department of Civil and Environmental Engineering

Graduates with a BS degree in Environmental Engineering from Utah State University will have:

1. Knowledge of basic science and engineering principles fundamental to the practice of environmental engineering including: mathematics, biology, chemistry, soil science, physics, fluid and solid mechanics, hydrology, and engineering economics.
2. Knowledge of environmental engineering practice in the areas of water supply and treatment; environmental systems dynamics; environmental chemistry and analysis; wastewater, air quality and solid and hazardous waste management; and public health and industrial hygiene.
3. Advanced knowledge of science and engineering principles in two of the following program emphasis areas: water, solids, natural systems, air quality, and public health.
4. Integration of advanced science and engineering principles in a multidisciplinary team environment for the solution of a comprehensive design problem in one of the program emphasis areas incorporating: applicable design standards; state-of-the-practice design tools; real-life economic, social, regulatory, political, ethical, and business design constraints; and applicable considerations for contemporary issues, such as product manufacturability, process sustainability, health and safety concerns, and system constructability.
5. Experience in written and oral communication using state-of-the-practice presentation methods throughout the course of their Professional Program in Environmental Engineering which include: laboratory reports and presentations, research paper presentations, design proposal and progress reports and presentations, and final design project presentations to both technical and lay audiences.
6. Experience in one of the environmental engineering practice areas in the design and conduct of experiments; collection, analysis, and interpretation of data; and modeling and representation of experimental results and presentation of experimental findings.

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 16-20. 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 120-121.

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 119-122. 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 Engineering¹

Pre-engineering Program: Freshman and Sophomore

Freshman Year (29-31 credits)

Fall Semester (16 credits)

MATH 1210 (QL) ² Calculus I	4
CHEM 1210 ² Principles of Chemistry I	4
CHEM 1215 ² Chemical Principles Laboratory I	1
CEE 1880 ² Civil and Environmental Engineering Orientation and Computer Applications	1
CEE 2240 ² Engineering Surveying	3
University Studies Breadth course	3

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Spring Semester (13-15 credits)

MATH 1220 (QL) ² Calculus II	4
GEO 1110 (BPS) ² The Dynamic Earth: Physical Geology	4
ETE 2270 ² Computer Engineering Drafting.....	2
BIOL 1010 (BLS) Biology and the Citizen.....	3
PHYS 2200 Elements of Mechanics (prereq. to PHYS 2220).....	2

Sophomore Year (32 credits)

Fall Semester (16 credits)

PHYS 2220 (BPS/QI) ² General Physics—Science and Engineering II (prereq. AP Physics or PHYS 2200).....	4
MATH 2250 (QI) ² Linear Algebra and Differential Equations.....	4
ENGR 2010 ² Engineering Mechanics Statics.....	2
ENGR 2200 ² Engineering Numerical Methods I.....	3
University Studies Breadth course	3

Spring Semester (16 credits)

ENGL 2010 (CL2) ² Intermediate Writing: Research Writing in a Persuasive Mode.....	3
ENGR 2030 ² Engineering Mechanics Dynamics.....	3
ENGR 2140 ² Strength of Materials.....	2
ENGR 2450 ² Engineering Numerical Methods II.....	2
CEE 2870 ² Sophomore Seminar.....	1
CEE 3030 Uncertainty in Engineering Analysis.....	2
University Studies Breadth course	3

¹Passing 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.

²These courses are required for admission to the Professional Engineering Program (PEP).

Professional Engineering Program: Junior and Senior

Junior Year (30-32 credits)

Fall Semester (15 credits)

CEE 3010 Mechanics of Materials	2
CEE 3500 Civil and Environmental Engineering Fluid Mechanics	3
CEE 3610 ³ Environmental Management.....	3
CEE 3870 ³ Professional/Technical Writing in Civil and Environmental Engineering	2
CEE 4200 Engineering Economics	2
University Studies Breadth course	3

Spring Semester (15-17 credits)

CEE 3020 Structural Analysis	2
CEE 3510 Civil and Environmental Engineering Hydraulics	3
CEE 3880 Civil Engineering Design I.....	1
CEE Group A courses ⁴	9-11

³CEE 3610 and 3870 must be taken concurrently.

Senior Year (30-33 credits)

Fall Semester (16-17 credits)

CEE 4870 (CI) Civil Engineering Design II.....	2
CEE Senior Design elective course ⁵	3
CEE Technical Elective courses ⁵	6
University Studies Depth Humanities and Creative Arts (DHA) course.....	2-3
University Studies Depth Social Sciences (DSS) course	3

Spring Semester (14-16 credits)

CEE 4880 (CI) Civil Engineering Design III.....	2
CEE Group A courses ⁴	6-8
CEE Technical Elective course ⁵	3
CEE Technical Elective Group B course ⁵	3

⁴Students must complete all five Group A Courses, listed below. The order in which they are taken will dictate the choice of technical elective courses (as they are prerequisites for various technical elective courses).

Group A Courses

CEE 3080 Design of Reinforced Concrete Structures (Sp).....	3
CEE 3210 Introduction to Transportation Engineering (Sp)	3
CEE 3430 Engineering Hydrology (Sp).....	3
CEE 3640 Water and Wastewater Engineering (Sp) (4 cr) or	
CEE 3780 Solid and Hazardous Waste Management (F) (3 cr) or	
CEE 5860 Air Quality Management (F) (3 cr).....	3 or 4
CEE 4300 Engineering Soil Mechanics (Sp).....	4

⁵Civil Engineering students are required to complete a Senior Design elective course concurrent with CEE 4870. In addition, they must complete five Technical Elective Courses (one of which must be selected from Group B), for a total of 15 credits. Following is a list of Technical Elective Courses and Senior Design Elective Courses.

Technical Elective Courses (18 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; 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, 5470, or 6440.

The sum of the Group B class, the Senior Design Elective, and other technical electives from the approved list must be at least 18 credits.

CEE 3670 Transport Phenomena in Bio-Environmental Systems (Sp).....	3
CEE 3780 Solid and Hazardous Waste Management (F)	3
CEE 5010 Matrix Analysis/Finite Element (F)	3
CEE 5050 Design of Wood and Masonry Structures (Sp).....	3
CEE 5070 Structural Steel Design (F).....	3
CEE 5080 Numerical Methods in Elasticity (F)	3
CEE 5100 Infrastructure Evaluation and Renewal (Sp)	3
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 5430 Groundwater Engineering (F)	3
CEE 5450 Hydrologic Modeling (Sp).....	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
CEE 5550 Hydraulics of Closed Conduits (Sp).....	3
CEE 5690 Natural Systems Engineering (F).....	3
CEE 5700 Field Sampling Techniques for Natural Systems Engineering (F).....	2
CEE 5860 Air Quality Management (F)	3
CEE 5870 Hazardous Waste Incineration (Sp)	2
CEE 5880 Remediation Engineering (F)	3
CEE 5900 Cooperative Practice II (F,Sp,Su).....	3
MAE 2160 Material Science (F,Sp)	3
MAE 2300 Thermodynamics I (Sp,Su).....	3

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Senior Design Elective Courses

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 5540 Hydraulic Structures Design (F)	3

Group B Elective Courses

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

Pre-engineering Program: Freshman and Sophomore

Freshman Year (29-31 credits)

Fall Semester (15 credits)

MATH 1210 (QL) ⁷ Calculus I	4
BIOL 1610 (BLS) ^{6,7} Biology I	4
CEE 1880 ⁷ Civil and Environmental Engineering Orientation and Computer Applications	1
CEE 2240 ⁷ Engineering Surveying	3
University Studies Breadth course	3

Spring Semester (14-16 credits)

CHEM 1210 ⁷ Principles of Chemistry I	4
CHEM 1215 ⁷ Chemical Principles Laboratory I	1
MATH 1220 (QL) ⁷ Calculus II	4
ETE 2270 ⁷ Computer Engineering Drafting	2
PHYS 2200 Elements of Mechanics (prereq. to PHYS 2220)	(2)
University Studies Breadth course	3

Sophomore Year (32 credits)

Fall Semester (16 credits)

MATH 2250 (QI) ⁷ Linear Algebra and Differential Equations	4
ENGR 2010 ⁷ Engineering Mechanics Statics	2
ENGR 2200 ⁷ Engineering Numerical Methods I	3
CHEM 2300 ⁷ Principles of Organic Chemistry	3
PHYS 2220 (BPS/QI) ⁷ General Physics—Science and Engineering II (prereq: AP Physics or PHYS 2200)	4

Spring Semester (16 credits)

ENGR 2030 ⁷ Engineering Mechanics Dynamics	3
ENGR 2140 ⁷ Strength of Materials	2
ENGL 2010 (CL2) ⁷ Intermediate Writing: Research Writing in a Persuasive Mode	3
MAE 2300 ⁷ Thermodynamics I	3
CEE 2890 ⁷ Environmental Engineering Sophomore Seminar	1
BIOL 3300 (BLS) ⁶ General Microbiology	4

⁶The Breadth Life Science (BLS) area in the University Studies Program is satisfied by the combination of BIOL 1610 and 3300.

⁷These courses are required for admission to the Professional Engineering Program (PEP).

Professional Engineering Program: Junior and Senior

Junior Year (34 credits)

Fall Semester (17 credits)

CEE 3030 Uncertainty in Engineering Analysis	2
CEE 3500 Civil and Environmental Engineering Fluid Mechanics	3
CEE 3610 ⁸ Environmental Management	3
CEE 3780 Solid and Hazardous Waste Management	3
CEE 3870 ⁸ 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
University Studies Breadth course	3

Senior Year (30-31 credits)

Fall Semester (16 credits)

PUBH 3310 Occupational Health and Safety	3
CEE 4200 Engineering Economics	2
CEE 4790 (CI) ⁹ Environmental Engineering Design II	2
CEE 5610 Environmental Quality Analysis	3
CEE 5860 Air Quality Management	3
CEE Senior Design Elective course ⁹	3

Spring Semester (14-15 credits)

CEE 4890 (CI) Environmental Engineering Design III	2
Technical Elective course (Area 1, 2, or 3) ¹⁰	2
Technical Elective course (Area 4 or 5) ¹⁰	2
University Studies Breadth course	3
University Studies Depth Humanities and Creative Arts (DHA) and Depth Social Sciences (DSS) courses	5-6

⁸CEE 3610 and 3870 must be taken concurrently.

⁹Environmental Engineering students are required to complete a Senior Design elective course concurrent with CEE 4790. Available Senior Design elective courses are listed below.

¹⁰Environmental 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

Technical Elective Courses

Solids—Area 1

CEE 5670 Hazardous Chemicals Handling and Safety (Sp)	2
CEE 5680 Soil-based Waste Management (Sp)	2
CEE 5730 Analysis and Fate of Environmental Contaminants (Sp)	3
CEE 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 5620 Aquatic Chemistry (F)	3
CEE 5730 Analysis and Fate of Environmental Contaminants (Sp)	3
CEE 5810 Biochemical Engineering (F)	3

Air—Area 3

BMET 4300 General Meteorology (F)	3
CEE 5710 Pollution Prevention and Industrial Ecology (Sp, Alt Years)	2

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CEE 5750 Air Quality Measurements (Sp)	2
CEE 5790 Accident and Emergency Management (Sp)	3
CEE 5870 Hazardous Waste Incineration (Sp)	2

Natural Systems—Area 4

AWER 4500 Limnology: Ecology of Inland Waters (Sp).....	3
AWER 4530 Water Quality and Pollution (Sp)	3
CEE 5690 Natural Systems Engineering (F)	
CEE 5700 Field Sampling Techniques for Natural Systems Engineering (F).....	2

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 5670 Hazardous Chemicals Handling and Safety (Sp).....	2
CEE 5710 Pollution Prevention and Industrial Ecology (Sp).....	2
CEE 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@cc.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/ats/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 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 121-122.)

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 99-100. 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 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.

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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; Computer Science; Environment and Society; Watershed Sciences; Wildland Resources; Economics; Political Science; Geology; Biological and Irrigation Engineering; Mechanical and Aerospace Engineering; Plants, Soils, and Biometeorology; Biology; Chemistry and Biochemistry; and Physics. 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 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

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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, Economics, Business Administration, 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.

Civil and Environmental Engineering Faculty

Professors

Loren R. Anderson, geotechnical engineering
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
William J. Grenney, Advanced Center for Transportation Studies
Christine E. Hailey, Associate Dean of College of Engineering, fluid and thermal sciences, engineering education
Thomas B. Hardy, ecological system modeling, statistical analysis
Jagath J. Kaluarachchi, subsurface hydrology, contaminant transport
Mariusz W. Kemblowski, subsurface hydrology and transport processes
Mac McKee, water resources planning and analysis
William J. Rahmeyer, hydraulics, hydraulic structures, scour and erosion

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David K. Stevens, treatment process analysis
David G. Tarboton, hydrology and water resources
Kevin C. Womack, structural mechanics
Muzz Yener, structural engineering and mechanics

Research Professor

Darwin L. Sorensen, aquatic microbiology

Professors Emeritus

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
Daniel H. Hoggan, hydrologic and hydraulic modeling
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
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

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)
Gilberto E. Urroz-Aguire, hydraulics, hydraulic structures

Research Associate Professors

Joan E. McLean, fate and behavior of metals in the subsurfaces
Robert T. Pack, geomatics and engineering geology

Adjunct Associate Professors

Danny Marks, snow hydrology
Eva C. Nieminski, water quality
Anthony Turhollow, transportation

Associate Professor Emeritus

J. Derle Thorpe, engineering materials, measurements

Assistant Professors

Paul J. Barr, reinforced concrete, bridge design
Luis Bastidas, hydrology
Laurie S. McNeill, environmental engineering (drinking water)
Keri L. Ryan, structural dynamics, structural control
Blake P. Tullis, hydraulics, hydraulic structures, and hydromachinery

Research Assistant Professors

Sanjay Chauhan, dam safety, risk assessment, hydrologic modeling
Michael C. Johnson, hydraulics

Adjunct Assistant Professors

Steve Barfuss, hydraulics
Arnfinn J. Emdal, geotechnical
Charles H. Luce, forest hydrology

Affiliate Faculty

Robert W. Hill, professor, Biological and Irrigation Engineering
John E. Keith, professor, Economics
Jack Keller, professor emeritus, Biological and Irrigation Engineering
Judith L. Sims, fate and behavior of organic chemicals
Ronald C. Sims, hazardous waste management
Wynn R. Walker, professor, Biological and Irrigation Engineering

Course Descriptions

Civil and Environmental Engineering (CEE), pages 582-589.

Classics Minor

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: mdamen@hass.usu.edu

WWW: <http://www.usu.edu/history/classics/index.htm>

An academic minor is available in the field of **Classical Studies** with three areas of emphasis: **Classical Civilization**, **Latin Language**, and **Greek Language**. 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 three 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 3110 (CI/DHA) Ancient Near East.....	3
ANTH 2030 (BSS/CI) World Archeology (F,Sp).....	3

One of the following three ancient literature courses is required:

CLAS 1100 The Latin and Greek Element in English (F,Sp).....	3
CLAS 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 4210 Celtic Europe (F,Sp).....	3
ART 4710 Greek and Roman Art.....	3

One of the following three ancient thought courses is required:

HIST 3140 Greek Intellectual History: Tradition, Challenge, and Response.....	3
POLS 4310 (CI) History of Political Thought I (Sp).....	3
PHIL 3100 (CI) Ancient Philosophy (F).....	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:

ART 4710 Greek and Roman Art.....	3
CLAS 1100 The Latin and Greek Element in English (F,Sp).....	3
CLAS 3210 Classical Mythology (F,Sp).....	3
HIST 4210 Celtic Europe (F,Sp).....	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:

ART 4710 Greek and Roman Art.....	3
CLAS 1100 The Latin and Greek Element in English (F,Sp).....	3
CLAS 3210 Classical Mythology (F,Sp).....	3
HIST 3140 Greek Intellectual History: Tradition, Challenge, and Response.....	3
PHIL 3100 (CI) Ancient Philosophy (F).....	3
THEA 5290 Special Topics in Theatre History and Literature (F,Sp).....	3

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 592.

Greek (GRK), page 639.

Latin (LATN), page 658.

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: bethf@cc.usu.edu
WWW: http://www.cehs.usu.edu/comd

Assistant Department Head and Advisor for Speech-Language Pathology and Audiology:
Dee R. Child, Lillywhite 105, (435) 797-2318, deec@cc.usu.edu

Advisor for Deaf Education:
Jan Kelley-King, Lillywhite 40, (435) 797-5718, jankin@cc.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—Clinical and Educational Audiology, Education of the Deaf and Hard of Hearing, Speech-Language Pathology. The focus in Education of the Deaf and Hard of Hearing includes a composite degree in Deaf Education/Elementary Education.

Graduate specializations: MS, MA, MEd—Audiology, Early Childhood Communicative Disorders, Speech-Language Pathology; MEd—Education of the Deaf and Hard of Hearing; EdS—Audiology

Undergraduate Programs

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 programs in both Speech-Language Pathology and Clinical-Educational Audiology are fully accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association (ASHA). 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.

Requirements

Departmental Admissions Requirements (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 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 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 College of Education and Human Services teacher education program is necessary before the student may take licensure courses taught in the departments of Elementary Education, Special Education and Rehabilitation, and Secondary Education, 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.

Departmental Admissions Requirements (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 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.

Bachelor's Degree in Communicative Disorders and Deaf Education

There are two tracks available within the department: (1) **communicative disorders**, which includes emphases 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.

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. Students should meet with their advisor to tailor the following schedule to their specific needs.

Junior Year (28 credits)

Fall Semester (15 credits)

COMD 2400 Orientation and Observation	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
SPED 4000 Education of Exceptional Individuals	2
Electives	3

Department of Communicative Disorders and Deaf Education

Spring Semester (13 credits)

COMD 3120 Disorders of Articulation and Phonology	3
COMD 3400 Acoustics and Anatomy of the Ear.....	3
COMD 5100 Language Science.....	3
PSY 1400 Analysis of Behavior: Basic Principles.....	3
PSY 1410 Analysis of Behavior: Basic Principles Lab.....	1

Senior Year (28 credits)

Fall Semester (16 credits)

COMD 2910 (CI) Sign Language I (Majors).....	4
COMD 3700 Basic Audiology	3
COMD 5070 Speech Science	3
ENGL 3070 (DHA) Perspectives in Folklore.....	3
STAT 1040 (QL) Introduction to Statistics.....	3

Spring Semester (12 credits)

COMD 3650 (CI) Clinical Processes and Behavior.....	2
COMD 5200 Language Assessment and Intervention for Preschool Children.....	4
COMD 5330 Aural Rehabilitation	3
Electives	3

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.....	8
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 Teaching Reading I.....	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: 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
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) Teaching Reading II and Practicum Level III.....	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

The undergraduate major for communicative disorders and deaf education consists of 44 semester credits of courses specified by the department, plus 4-8 semester credits of extra departmental coursework. Current national board and state educational agency licensure requirements demand more coursework than the minimum numbers required for University graduation. Students desiring supportive courses for majors in special education, elementary or secondary education, family life, psychology, or other related departments are advised to seek counsel from the departmental advisor in determining an effective minor core.

Education of the Deaf and Hard of Hearing

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. For students in the Composite Deaf Education/Elementary Education major, these requirements are fulfilled within the program.

Department of Communicative Disorders and Deaf Education

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 (12-13 credits)

MATH 1010 Intermediate Algebra (F,Sp,Su) (3 cr) or	
MATH 1050 (QL) College Algebra (F,Sp,Su) (4 cr)	3-4
STAT 1040 (QL) Introduction to Statistics (F,Sp,Su)	3
CS 1030 (BPS) Foundations of Computer Science (F,Sp,Su) (3 cr) or	
OSS 1400 Microcomputer Applications (F,Sp,Su) (3 cr)	3
PSY 1010 (BSS) General Psychology (F,Sp,Su)	3

B. Extra-departmental Core Courses (14 credits)

BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su)	3
BIOL 2320 Human Anatomy (Sp,Su) (4 cr) or	
BIOL 2420 Human Physiology (F,Sp,Su) (4 cr)	4
PSY 1400 Analysis of Behavior: Basic Principles (F,Sp,Su)	3
PSY 1410 Analysis of Behavior: Basic Principles Lab (F,Sp,Su)	1
SPCH 2110 (CI) Interpersonal Communication (F,Sp)	3

C. Course Required for State Licensure (2 credits)

SPED 4000 Education of Exceptional Individuals (F,Sp,Su)	2
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D. Communicative Disorders Major Core Requirements (39-40 credits)

COMD 2400 Orientation and Observation (F,Sp)	1
COMD 2500 Language, Speech, and Hearing Development (F,Sp)	3
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 5070 Speech Science (F)	3
COMD 5100 Language Science (Sp)	3
COMD 5200 Language Assessment and Intervention for Preschool Children (Sp)	4
COMD 5330 Aural Rehabilitation (Sp)	3

E. Upper-division Electives, Preapproved by Department (12 credits)

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@cc.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/ats/majorsheets/>. Additional information may also be found at the departmental website: <http://www.coe.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.

Department of Communicative Disorders and Deaf Education

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.

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.

Education of the Deaf and Hard of Hearing

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 furnished.

The following courses or their equivalent are required for all students seeking the MEd in education of the deaf and hard of hearing:

COMD 2500 Language, Speech, and Hearing Development (F,Sp).....	3
COMD 2910 (CI) Sign Language I (Majors) (F,Sp,Su).....	4
COMD 3050 Practicum and Methods in Teaching Children who are Deaf and Hard of Hearing (F,Sp).....	1-3
COMD 3080 American Sign Language Practicum (F,Sp).....	1
COMD 3910 Sign Language II (F,Sp,Su).....	4
COMD 4630 Teaching Speech to Deaf and Hard of Hearing Children (Sp).....	3
COMD 4750 Teaching the English Language to Individuals who are Deaf and Hard of Hearing (F).....	3
COMD 4760 Early Intervention for Children who are Deaf and Hard of Hearing (F).....	3
COMD 4770 Audiology and Teachers of Children who are Deaf and Hard of Hearing (F).....	3

COMD 4780 Socio-Cultural Aspects of Deafness (F).....	3
COMD 4790 Psychological Principles and Individuals who are Deaf and Hard of Hearing (Sp).....	3
COMD 4910 (CI) Sign Language III (F,Sp).....	4
COMD 4920 Sign Language IV (Sp).....	4
COMD 5610 Introduction to Education of the Deaf and Hard of Hearing (F).....	3
COMD 5620 Teaching School Subjects to Students who are Deaf and Hard of Hearing (Sp).....	3
COMD 6430 Speech Communication and Hearing Loss (F).....	3
COMD 6640 Strategies for Teaching Children who are Deaf and Hard of Hearing (F).....	3
COMD 6650 Strategies for Teaching English Language to Children who are Deaf and Hard of Hearing (F).....	3
COMD 6700 Practicum in Education of Children who are Deaf and Hard of Hearing (F,Sp,Su).....	1-3
COMD 6800 Student Teaching—Day-School Program (F).....	6-12
COMD 6820 Principles of Intervention for Children who are Deaf and Hard of Hearing (Sp).....	3
COMD 6830 Student Teaching—Residential (Sp).....	6-12
COMD 6850 Seminar in Communicative Disorders and Deaf Education (F,Sp,Su).....	1-3

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 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.

Course Requirements

Graduate Courses in Speech-Language Pathology

Year One:

Fall Semester

COMD 6020 Language Assessment and Intervention for School-age Children and Adolescents.....	4
COMD 6030 Disorders of Fluency—Stuttering.....	3
COMD 6050 Professional Practice in Speech-Language Pathology....	1
COMD 6100 Advanced Clinical Practicum in Speech-Language Pathology.....	1-4
COMD 6130 Neuropathologies of Speech and Language.....	4

Spring Semester

COMD 6040 Communication Disorders Related to Orofacial Anomalies.....	3
COMD 6100 Advanced Clinical Practicum in Speech-Language Pathology.....	1-4
COMD 6120 Adult Disorders of Motor Speech and Swallowing.....	4
COMD 6220 Severe Communication Impairments.....	3
COMD 6810 Disorders of Phonation.....	3

Summer Semester

EDUC 6550 Research for Classroom Teachers (3 cr) or	
EDUC 6570 Introduction to Educational Psychological Research (3 cr).....	3

Department of Communicative Disorders and Deaf Education

Year Two:

Fall Semester

COMD 6050 Professional Practice in Speech-Language Pathology	1
COMD 6140 Pediatric Neurogenic Disorders	3
COMD 6200 Internship in Public Schools—Speech-Language Pathology	4-5
COMD 6210 Bilingual/Bicultural Services	2

Spring Semester

COMD 6300 Externship in Speech-Language Pathology	1-12
COMD 6970 Thesis	1-7

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 Research Seminar in Audiology	1

Spring Semester

COMD 5330 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 Research Seminar in Audiology	1

Summer Semester (Optional)

COMD 7300 Intermediate Clinical Practicum	2
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Graduate Courses in Education of the Deaf and Hard of Hearing

Students entering the program in Education of the Deaf and Hard of Hearing may choose one of three tracks. **Track 1** is followed by students who have obtained their bachelor's degree in Deaf Education/Elementary Education. **Track 2** is followed by students coming into the program without the required background in Deaf Education, but who have received a bachelor's degree in Elementary Education, Secondary Education, or Special Education. **Track 3** follows the program outlined for those students who do not want a teaching license, but who wish to work with families of deaf children in an early intervention program. This track provides students with an early intervention endorsement, for serving families who have deaf children, ages birth to three years.

Track 1 (one-year program)

For students who have obtained their bachelor's degree in Deaf Education/Elementary Education.

Fall Semester (18 credits)

COMD 6640 Strategies for Teaching Children who are Deaf and Hard of Hearing	3
COMD 6650 Strategies for Teaching English Language to Children who are Deaf and Hard of Hearing	3
COMD 6800 Student Teaching—Day-School Program (8 weeks at the Utah School for the Deaf)	10
COMD 6850 Seminar: Education of Children who are Deaf and Hard of Hearing	2

Spring Semester (18 credits)

COMD 6820 Principles of Intervention for Children who are Deaf and Hard of Hearing	3
COMD 6830 Student Teaching—Residential (6 weeks at one level and 6 weeks at a different level)	12
COMD 6850 Seminar in Communicative Disorders and Deaf Education	3

Track 2 (two-year program)

For students coming into the program without the required background in Deaf Education, but who have received a bachelor's degree in Elementary Education, Secondary Education, or Special Education.

Year One:

Fall Semester (19 credits)

COMD 5610 Introduction to Education of the Deaf and Hard of Hearing	3
COMD 6740 Teaching Reading to Deaf and Hard of Hearing Children	3
COMD 6750 Teaching the English Language to Individuals who are Deaf and Hard of Hearing	3
COMD 6770 Audiology and Teachers of Children who are Deaf and Hard of Hearing	3
COMD 6780 Socio-Cultural Aspects of Deafness	3
COMD 6910 Sign Language III	4

Spring Semester (19 credits)

COMD 2500 Language, Speech, and Hearing Development (must be taken sometime)	3
COMD 5600 Classroom Teaching Using American Sign Language	3
COMD 5620 Teaching School Subjects to Students who are Deaf and Hard of Hearing	3
COMD 6630 Teaching Speech to Deaf and Hard of Hearing Children	3
COMD 6790 Psychological Principles and Individuals who are Deaf and Hard of Hearing	3
COMD 6920 Sign Language IV	4

Year Two:

Fall Semester (14 credits)

COMD 6640 Strategies for Teaching Children who are Deaf and Hard of Hearing	3
COMD 6650 Strategies for Teaching English Language to Children who are Deaf and Hard of Hearing	3
COMD 6800 Student Teaching—Day-School Program (8 weeks at the Utah School for the Deaf)	8

Spring Semester (15 credits)

COMD 6830 Student Teaching—Residential	12
COMD 6850 Seminar in Communicative Disorders and Deaf Education	3

Department of Communicative Disorders and Deaf Education

Track 3

Early Childhood Focus (one-year program)

This early intervention program is for students wishing to work with families who have 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.

Fall Semester (16 credits)

COMD 3910 Sign Language II	4
COMD 5610 Introduction to Education of the Deaf and Hard of Hearing	3
COMD 6760 Early Intervention for Children who are Deaf and Hard of Hearing	3
COMD 6770 Audiology and Teachers of Children who are Deaf and Hard of Hearing (3 cr) or	
COMD 7340 Pediatric Audiology (instructor's permission required) (3 cr)	3
COMD 6780 Socio-Cultural Aspects of Deafness	3

Spring Semester (15 credits)

COMD 4910 (CI) Sign Language III	4
COMD 6630 Teaching Speech to Deaf and Hard of Hearing Children	3
COMD 6960 Master's Project	2
SPED 5060 Consulting with Parents and Teachers (instructor's permission required)	3
SPED 5730 Intervention Strategies for Young Children with Disabilities (instructor's permission required)	3

Summer Semester (8 credits)

COMD 6700 Practicum in Education of Children who are Deaf and Hard of Hearing	3
COMD 6960 Master's Project	2
SPED 5710 Young Children with Disabilities: Characteristics and Services (taught online; register through Extension)	3

In order to earn the MEd from the Education of the Deaf and Hard of Hearing program, the student must (a) pass a sign language competency examination, (b) complete a creative project, or (c) 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.

Clinical Doctorate Program in Audiology

The Doctorate of Audiology (AuD) program at Utah State University 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 ¹ Introduction to Clinical Practice (F,Sp,Su)	4
COMD 7300 ¹ Intermediate Clinical Practicum (F,Sp,Su)	4
COMD 7310 Psychoacoustics and Instrumentation (F)	3
COMD 7320 Amplification I (Sp)	3
COMD 7340 Pediatric Audiology (Sp)	3
COMD 7380 Advanced Audiology (F)	2
COMD 7400 Advanced Clinical Practicum (F,Sp,Su)	2
COMD 7410 Noise and Hearing Conservation (F)	3
COMD 7420 Amplification II (F)	3
COMD 7430 Electrophysiology (F)	3
COMD 7460 Adult Aural Rehabilitation (Sp)	3
COMD 7470 Educational Audiological Management (F)	3
COMD 7490 Medical Aspects of Audiology (Sp)	3
COMD 7530 Balance Evaluation and Management (Sp)	3
COMD 7800 ¹ Clinical Externship in Audiology (F,Sp,Su)	12
COMD 7820 ¹ Research Seminar in Audiology (F)	4
COMD 7850 ¹ Externship Seminar (F,Sp,Su)	6
COMD 7860 Practice Management in Audiology (Sp)	3
COMD 7870 ¹ Audiology Capstone Project (F,Sp,Su)	12
EDUC 6570 Introduction to Educational and Psychological Research (F,Sp,Su)	3
EDUC 6600 Measurement, 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

¹In order to earn the required number of credits, students must take this course, which is repeatable for credit, during more than one semester.

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.

Licensure

Each undergraduate and graduate 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 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,

Department of Communicative Disorders and Deaf Education

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 and school 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, 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

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

Bryan R. Larsen, MD, gastroenterologist
Gordon S. Wood, MD, otolaryngologist

Associate Professors

Kim Corbin-Lewis, diagnosis and management of voice disorders, laryngeal imaging, 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
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
Carmel Yarger, American Sign Language, curriculum for students who are deaf and hard of hearing, deaf education

Adjunct Associate Professor

Douglas W. Laws, clinical audiology

Assistant Professors

Jeffery Larsen, classroom acoustics, speech perception
Jaclyn Littledike, orofacial anomalies, professional practice issues, and clinical supervision
Susan Watkins, early intervention programs, sensory impaired infants and toddlers
Julie Wolter, school-age language, literacy

Assistant Clinical Professor

Vicki Simonsmeier, pediatric neurogenic disorders, oral-motor dysphagia, early intervention programs, audiology, auditory processing, clinical supervision

Clinical Instructors

Chad Bingham, pediatric brain injury, limited English proficiency, augmentative/assistive technology, clinical supervision
Dee R. Child, disorders of phonation, articulation, fluency
Anne Elweiler, 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

Course Descriptions

Communicative Disorders and Deaf Education (COMD), pages 592-596.

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

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

Associate Head and Coordinator for Graduate Programs in Computer Science:

Stephen J. Allan, Main 420, (435) 797-2587

Undergraduate Advisor:

Myra Cook, Main 424, (435) 797-8019, 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, Information Systems, Bioinformatics, Information Technology

Graduate specializations: MS—Artificial Intelligence, Information Systems, Parallel Systems, Software Engineering

Accreditation: The Computer Science undergraduate program (Science, Digital Systems, and Information Systems 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 which 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 which 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 which 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, Information Systems, 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 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.

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.

Information Systems Emphasis

The Information Systems program at Utah State University offers a common core of courses through two department majors: (1) **Computer Science** and (2) **Business Information Systems**. The curricula of the individual departments differ substantially in emphasis.

The Computer Science major with an Information

Systems emphasis is designed for students interested in a career as a Computer Scientist with a background in Information Sciences and Systems. Majors in this emphasis 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. This program of study, offered within the College of Science, leads to a Bachelor of Science, Bachelor of Arts, or Master of Science degree in Computer Science.

The Business Information Systems major, Management Information Systems emphasis,

is offered in the Business Information Systems Department, College of Business (see pages 199-202). The Bachelor of Science or Bachelor of Arts program is designed for students interested in business careers as information specialists, systems analysts, network managers, application programmers, and information systems managers in business and industry. BIS majors take required courses in analysis and design, Internet management, telecommunications, decision support systems, spreadsheet and database applications, and information systems projects. All graduates are required to complete a common core of business subjects. The College of Business is accredited by the American Assembly of Collegiate Schools of Business. The department also offers a Master of Science in Business Information Systems with a specialization in Management Information Systems. See page 203 for additional details.

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.

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.

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 watson@cs.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 12 science 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 16-20. Transfer students with a 2.5 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.

Department of Computer Science

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 2.5. 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.
3. Students may have *no more than six* repeats among courses fulfilling Computer Science major requirements. A grade of *WF* is considered as a repeat. If a course is repeated, the final grade achieved will be used in determining a student's advanced standing GPA.
4. 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 2.5 and a grade of C- or better in one of the following core emphasis course sequences, or their equivalent, as determined by the Computer Science Department:

Science Emphasis

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) Software Engineering (F,Sp)	3
CS 2550 Computer Organization (F,Sp)	3
CS 3000 Undergraduate Seminar (F,Sp)	1
MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 3310 Discrete Mathematics (F,Sp,Su)	3

Digital Systems Emphasis

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) Software Engineering (F,Sp)	3
CS 3000 Undergraduate Seminar (F,Sp)	1
ECE 2700 Digital Circuits (F,Sp)	4
MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 3310 Discrete Mathematics (F,Sp,Su)	3

Information Systems Emphasis

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) Software Engineering (F,Sp)	3
CS 2550 Computer Organization (F,Sp)	3
CS 3000 Undergraduate Seminar (F,Sp)	1
MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 3310 Discrete Mathematics (F,Sp,Su)	3

Bioinformatics Emphasis

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) Software Engineering (F,Sp)	3
CS 2550 Computer Organization (F,Sp)	3
CS 3000 Undergraduate Seminar (F,Sp)	1
MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 3310 Discrete Mathematics (F,Sp,Su)	3

Information Technology Emphasis

CS 1030 (BPS) Foundations of Computer Science, and the Application of Computer Science to the Investigation of Physical Systems and Phenomena (F,Sp,Su)	3
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) Software Engineering (F,Sp)	3
CS 2550 Computer Organization (F,Sp)	3
CS 3000 Undergraduate Seminar (F,Sp)	1
MATH 1100 (QL) 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, Information Systems, 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:

CS 1400 Introduction to Computer Science—CS 1	3
CS 1405 Introduction to Computer Science—CS 1 Lab	1
MATH 1210 (QL) Calculus I (<i>for Science, IS, DS, or BI Emphasis</i>) (4 cr) or	
MATH 1100 (QL) Calculus Techniques (<i>for IT Emphasis</i>) (3 cr)	3 or 4
University Studies courses	7-8

COMPUTER SCIENCE REQUIRED COURSES

Science Emphasis

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) Software Engineering (F,Sp)	3
CS 2550 Computer Organization (F,Sp)	3
CS 3000 Undergraduate Seminar (F,Sp)	1
CS 3100 Operating Systems and Concurrency (F,Sp)	3
CS 4700 Programming Languages (F,Sp)	3
CS 5050 Advanced Algorithms (F,Sp)	3
CS 5070 Computer Science Capstone (F,Sp,Su)	1
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 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su)	4
MATH 3310 Discrete Mathematics (F,Sp,Su)	3

Department of Computer Science

MATH 4630 Computer Aided Math for Scientists and Engineers (Sp) (3 cr) or	
MATH 5610 Computational Linear Algebra and Solution of Systems of Equations (F) (3 cr)	3
PHIL 1120 (BHU) Social Ethics (F) (3 cr) or	
PHIL 2400 (BHU) Ethics (Sp) (3 cr) or	
PHIL 3520 (DHA) Business Ethics (Sp) (3 cr) or	
PHIL 4530 (DSC) Ethics and Biotechnology (Sp) (3 cr) or	
PHIL 4540 (DHA) Human Values and Information Technology (Sp) (3 cr)	3
SPCH 1020 (CI) Public Speaking (F,Sp)	3
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	13
In addition, students must complete 6 credits at the 3000 level or higher, appropriate to the degree.	

Digital Systems Emphasis

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) Software Engineering (F,Sp)	3
CS 3000 Undergraduate Seminar (F,Sp)	1
CS 3100 Operating Systems and Concurrency (F,Sp)	3
CS 4700 Programming Languages (F,Sp)	3
CS 5050 Advanced Algorithms (F,Sp)	3
CS 5070 Computer Science Capstone (F,Sp,Su)	1
ECE 2270 Electrical Circuits (F,Sp)	4
ECE 2700 Digital Circuits (F,Sp)	4
ECE 3710 Microcomputer Hardware and Software (F,Sp)	4
ECE 3720 Microcomputer Systems Programming (Sp)	3
MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su) ..	4
MATH 3310 Discrete Mathematics (F,Sp,Su)	3
PHIL 1120 (BHU) Social Ethics (F) (3 cr) or	
PHIL 2400 (BHU) Ethics (Sp) (3 cr) or	
PHIL 3520 (DHA) Business Ethics (Sp) (3 cr) or	
PHIL 4530 (DSC) Ethics and Biotechnology (Sp) (3 cr) or	
PHIL 4540 (DHA) Human Values and Information Technology (Sp) (3 cr)	3
SPCH 1020 (CI) Public Speaking (F,Sp)	3
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3
Advisor-approved computer science classes numbered 5000 or above	13
In addition, students must complete 6 credits at the 3000 level or higher, appropriate to the degree.	

Information Systems Emphasis

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
ACCT 2020 Survey of Accounting II (F,Sp,Su)	3
BA 3080 (QI) Operations Research (F)	3
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) Software Engineering (F,Sp)	3
CS 2550 Computer Organization (F,Sp)	3
CS 2810 Computer Organization and Architecture (F,Sp)	3
CS 3000 Undergraduate Seminar (F,Sp)	1
CS 3100 Operating Systems and Concurrency (F,Sp)	3
CS 4700 Programming Languages (F,Sp)	3
CS 5050 Advanced Algorithms (F,Sp)	3
CS 5070 Computer Science Capstone (F,Sp,Su)	1

ECON 1500 (BAI)¹ Introduction to Economic Institutions, History, and Principles (F,Sp)	3
MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 3310 Discrete Mathematics (F,Sp,Su)	3
MHR 3110 (DSS)² Managing Organizations and People (F,Sp,Su)	3
PHIL 1120 (BHU) Social Ethics (F) (3 cr) or	
PHIL 2400 (BHU) Ethics (Sp) (3 cr) or	
PHIL 3520 (DHA) Business Ethics (Sp) (3 cr) or	
PHIL 4530 (DSC) Ethics and Biotechnology (Sp) (3 cr) or	
PHIL 4540 (DHA) Human Values and Information Technology (Sp) (3 cr)	3
SPCH 1020 (CI) Public Speaking (F,Sp)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
Advisor-approved computer science classes numbered 5000 or above	13

In addition, the IS Emphasis requires CS 5800 and one course selected from the following list. These courses will be counted among the CS 5000 or above elective courses.

CS 5370 Advanced Software Engineering (F)	3
CS 5700 Object-Oriented Software Development (F)	3
CS 5850 Systems Analysis (Sp)	3

¹ ECON 1500 fulfills the University Studies Breadth American Institutions (BAI) requirement.
² MHR 3110 fulfills the University Studies Depth Social Science (DSS) requirement.

Bioinformatics Emphasis

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) Software Engineering (F,Sp)	3
CS 2550 Computer Organization (F,Sp)	3
CS 2810 Computer Organization and Architecture (F,Sp)	3
CS 3000 Undergraduate Seminar (F,Sp)	1
CS 3100 Operating Systems and Concurrency (F,Sp)	3
CS 4700 Programming Languages (F,Sp)	3
CS 5050 Advanced Algorithms (F,Sp)	3
CS 5070 Computer Science Capstone (F,Sp,Su)	1
CS 5660 Bioinformatics Tools and Techniques (F)	3
CS 5670 Computer Science Applications in Bioinformatics II (Sp)	3
CS 5800 Introduction to Database Systems (F)	3
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3
MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su) (4 cr) or	
MATH 2270 (QI) Linear Algebra (F) (3 cr)	3 or 4
MATH 3310 Discrete Mathematics (F,Sp,Su)	3
BIOL 3100 (CI) Bioethics (Sp)	3
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su)	4
CHEM 1110 (BPS) General Chemistry I (F,Sp) (4 cr) or	
CHEM 1210 Principles of Chemistry (F,Sp) (4 cr)	4
SPCH 1020 (CI) Public Speaking (F,Sp)	3
Statistical Methods in Bioinformatics course (currently being developed)	
Advisor-approved computer science classes numbered 5000 or above	3
Advisor-approved electives	12-13
Students are strongly encouraged to take BIOL 5730 and its prerequisites to fill this elective requirement.	

Information Technology Emphasis

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
ACCT 2020 Survey of Accounting II (F,Sp,Su)	3
BA 3080 (QI) Operations Research (F)	3

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BA 3400 (QI) Corporate Finance (F,Sp,Su)	3
BA 3500 Fundamentals of Marketing (F,Sp,Su)	3
CS 1030 (BPS) Foundations of Computer Science, and the Application of Computer Science to the Investigation of Physical Systems and Phenomena (F,Sp,Su)	3
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) Software Engineering (F,Sp)	3
CS 2550 Computer Organization (F,Sp)	3
CS 2810 Computer Organization and Architecture (F,Sp)	3
CS 3000 Undergraduate Seminar (F,Sp)	1
CS 3010 (DSC/CI/QI) Information Acquisition, Analysis, and Presentation (F,Sp,Su)	3
CS 3100 Operating Systems and Concurrency (F,Sp)	3
CS 4700 Programming Languages (F,Sp)	3
CS 4720 Computer Networking I (F)	3
CS 5050 Advanced Algorithms (F,Sp)	3
CS 5070 Computer Science Capstone (F,Sp,Su)	1
CS 5800 Introduction to Database Systems (F)	3
CS 5850 Systems Analysis (Sp)	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp)	3
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
MHR 3110 (DSS) Managing Organizations and People (F,Sp,Su)	3
MHR 3710 Developing Team and Interpersonal Skills (F,Sp)	3
PHIL 1120 (BHU) Social Ethics (F) (3 cr) or PHIL 2400 (BHU) Ethics (Sp) (3 cr) or PHIL 3520 (DHA) Business Ethics (Sp) (3 cr) or PHIL 4530 (DSC) Ethics and Biotechnology (Sp) (3 cr) or PHIL 4540 (DHA) Human Values and Information Technology (Sp) (3 cr)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
Advisor-approved computer science classes numbered 5000 or above	10
Advisor-approved electives	1-2

Suggested Four-year Plan for Science Emphasis

Freshman Year (32 credits)

Fall Semester (16 credits)

CS 1400 Introduction to Computer Science—CS 1	3
CS 1405 Introduction to Computer Science—CS 1 Lab	1
MATH 1210 (QL) Calculus I	4
USU 1010 University Connections	2
Two University Studies breadth courses	6

Spring Semester (16 credits)

CS 1410 Introduction to Computer Science—CS 2	3
MATH 1220 (QL) Calculus II	4
SPCH 1020 (CI) Public Speaking	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
One University Studies breadth course	3

Sophomore Year (29-31 credits)

Fall Semester (16-17 credits)

CS 2420 (QI) Algorithms and Data Structures—CS 3	3
CS 2550 Computer Organization	3
MATH 2210 (QI) Multivariable Calculus	3
Science Sequence I course	4-5
One University Studies breadth course	3

Spring Semester (13-14 credits)

CS 2450 (CI) Software Engineering	3
CS 2810 Computer Organization and Architecture	3
CS 3000 Undergraduate Seminar	1
MATH 3310 Discrete Mathematics	3
Science Sequence II course, having BLS or BPS designation	3-4

Junior Year (30-32 credits)

Fall Semester (16 credits)

CS 3100 Operating Systems and Concurrency	3
CS 4700 Programming Languages	3
MATH 2250 (QI) Linear Algebra and Differential Equations	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
One University Studies breadth course	3

Spring Semester (14-16 credits)

CS 5050 Advanced Algorithms	3
CS 5000-level elective course	3-4
Upper-division MATH or STAT course	3
One University Studies depth course	3
One extra science course	2-3

Senior Year (28-31 credits)

Fall Semester (13-15 credits)

CS 5070 Computer Science Capstone	1
CS 3000-level elective course	3
CS 5000-level elective courses	6-8
One University Studies depth course	3

Spring Semester (15-16 credits)

CS 3000-level elective course	3
CS 5000-level elective course	3-4
Upper-division MATH or STAT course	3
Extra University Studies course	3
Advisor-approved elective course	3

Suggested Four-year Plan for Digital Systems Emphasis

Freshman Year (32 credits)

Fall Semester (16 credits)

CS 1400 Introduction to Computer Science—CS 1	3
CS 1405 Introduction to Computer Science—CS 1 Lab	1
MATH 1210 (QL) Calculus I	4
USU 1010 University Connections	2
Two University Studies breadth courses	6

Spring Semester (16 credits)

CS 1410 Introduction to Computer Science—CS 2	3
MATH 1220 (QL) Calculus II	4
SPCH 1020 (CI) Public Speaking	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
One University Studies breadth course	3

Sophomore Year (31 credits)

Fall Semester (17 credits)

CS 2420 (QI) Algorithms and Data Structures—CS 3	3
ECE 2700 Digital Circuits	4
MATH 3310 Discrete Mathematics	3
PHYS 2210 (QI) General Physics—Science and Engineering I	4
One University Studies breadth course	3

Department of Computer Science

Spring Semester (14 credits)

CS 2450 (CI) Software Engineering	3
CS 3000 Undergraduate Seminar	1
PHYS 2220 (QI/BPS) General Physics—Science and Engineering II ..	4
CS 3100 Operating Systems and Concurrency	3
One University Studies breadth course	3

Junior Year (31-34 credits)

Fall Semester (16-17 credits)

CS 4700 Programming Languages	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MATH 2250 (QI) Linear Algebra and Differential Equations	4
CS 3000-level elective course	3
CS 5000-level elective course	3-4

Spring Semester (15-17 credits)

CS 5050 Advanced Algorithms	3
ECE 2270 Electrical Circuits	4
CS 5000-level elective course	3-4
One University Studies depth course	3
One extra science course	2-3

Senior Year (26-28 credits)

Fall Semester (14-15 credits)

ECE 3710 Microcomputer Hardware and Software	4
CS 5070 Computer Science Capstone	1
STAT 3000 (QI) Statistics for Scientists	3
CS 5000-level elective course	3-4
Extra University Studies course	3

Spring Semester (12-13 credits)

CS 3000-level elective course	3
CS 5000-level elective course	3-4
One University Studies depth course	3
Advisor-approved elective course	3

Suggested Four-year Plan for Information Systems Emphasis

Freshman Year (32 credits)

Fall Semester (16 credits)

CS 1400 Introduction to Computer Science—CS 1	3
CS 1405 Introduction to Computer Science—CS 1 Lab	1
MATH 1210 (QL) Calculus I	4
USU 1010 University Connections	2
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
One University Studies breadth course	3

Spring Semester (16 credits)

CS 1410 Introduction to Computer Science—CS 2	3
MATH 1220 (QL) Calculus II	4
SPCH 1020 (CI) Public Speaking	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
One University Studies breadth course	3

Sophomore Year (29-31 credits)

Fall Semester (16-17 credits)

CS 2420 (QI) Algorithms and Data Structures—CS 3	3
CS 2550 Computer Organization	3
MATH 3310 Discrete Mathematics	3
Science Sequence I course	4-5
One University Studies breadth course	3

Spring Semester (13-14 credits)

CS 2450 (CI) Software Engineering	3
CS 2810 Computer Organization and Architecture	3
CS 3000 Undergraduate Seminar	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Science Sequence II course, having BLS or BPS designation	3-4

Junior Year (30-31 credits)

Fall Semester (15 credits)

CS 4700 Programming Languages	3
CS 5800 Introduction to Database Systems	3
ACCT 2010 Survey of Accounting I	3
MHR 3110 (DSS) Managing Organizations and People	3
One University Studies breadth course	3

Spring Semester (15-16 credits)

CS 5050 Advanced Algorithms	3
CS 3100 Operating Systems and Concurrency	3
ACCT 2020 Survey of Accounting II	3
STAT 2300 (QL) Business Statistics	4
One extra science course	2-3

Senior Year (28-31 credits)

Fall Semester (13-15 credits)

CS 5070 Computer Science Capstone	1
CS 3000-level elective course	3
CS 5000-level elective courses	6-8
One Depth Humanities and Creative Arts (DHA) course	3

Spring Semester (15-16 credits)

BA 3080 (QI) Operations Research	3
CS 3000-level elective course	3
CS 5000-level elective course	3-4
Extra University Studies course	3
Advisor-approved elective course	3

Suggested Four-year Plan for Bioinformatics Emphasis

Freshman Year (34 credits)

Fall Semester (17 credits)

CS 1400 Introduction to Computer Science—CS 1	3
CS 1405 Introduction to Computer Science—CS 1 Lab	1
MATH 1210 (QL) Calculus I	4
BIOL 1610 Biology I	4
USU 1010 University Connections	2
One University Studies breadth course	3

Spring Semester (17 credits)

CS 1410 Introduction to Computer Science—CS 2	3
MATH 1220 (QL) Calculus II	4
BIOL 1620 (BLS) Biology II	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
One University Studies breadth course	3

Sophomore Year (29 credits)

Fall Semester (14 credits)

CS 2420 (QI) Algorithms and Data Structures—CS 3	3
CS 2550 Computer Organization	3
MATH 3310 Discrete Mathematics	3
CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1

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Spring Semester (15 credits)

CS 2450 (CI) Software Engineering	3
CS 3000 Undergraduate Seminar	1
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
STAT 3000 (QI) Statistics for Scientists	3
One University Studies breadth course	3

Junior Year (31 credits)

Fall Semester (16 credits)

CS 3100 Operating Systems and Concurrency	3
CS 5800 Introduction to Database Systems	3
BIOL 3060 Principles of Genetics	4
CHEM 2300 Principles of Organic Chemistry	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3

Spring Semester (15 credits)

CS 2810 Computer Organization and Architecture	3
CS 4700 Programming Languages	3
CS 5660 Bioinformatics Tools and Techniques	3
CHEM 3700 Introductory Biochemistry	3
One University Studies breadth course	3

Senior Year (29-31 credits)

Fall Semester (13-15 credits)

CS 5070 Computer Science Capstone	1
CS 5670 Computer Science Applications in Bioinformatics II	3
MATH 2250 (QI) Linear Algebra and Differential Equations (4 cr) or MATH 2270 (QI) Linear Algebra (3 cr)	3 or 4
One University Studies depth course	3
CS 5000-level elective course	3-4

Spring Semester (16 credits)

CS 5050 Advanced Algorithms	3
CHEM 5730 Genomic Technologies	4
BIOL 3100 (CI) Bioethics	3
One University Studies Depth course	3
Extra University Studies course	3

Suggested Four-year Plan for Information Technology Emphasis

Freshman Year (30 credits)

Fall Semester (15 credits)

CS 1400 Introduction to Computer Science—CS 1	3
CS 1405 Introduction to Computer Science—CS 1 Lab	1
MATH 1100 (QL) Calculus Techniques	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
USU 1010 University Connections	2

Spring Semester (15 credits)

CS 1410 Introduction to Computer Science—CS 2	3
SPCH 1020 (CI) Public Speaking	3
Three University Studies breadth courses	9

Sophomore Year (29-31 credits)

Fall Semester (16-17 credits)

CS 2420 (QI) Algorithms and Data Structures—CS 3	3
CS 2550 Computer Organization	3
ACCT 2010 Survey of Accounting I	3
Science Sequence I course	4-5
One University Studies breadth course	3

Spring Semester (13-14 credits)

CS 2450 (CI) Software Engineering	3
CS 2810 Computer Organization and Architecture	3
CS 3000 Undergraduate Seminar	1
ACCT 2020 Survey of Accounting II	3
Science Sequence II course, having BLS or BPS designation	3-4

Junior Year (31 credits)

Fall Semester (16 credits)

CS 4700 Programming Languages	3
CS 5800 Introduction to Database Systems	3
MHR 3110 (DSS) Managing Organizations and People	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
STAT 2300 (QL) Business Statistics	4

Spring Semester (15 credits)

CS 3100 Operating Systems and Concurrency	3
CS 4720 Computer Networking I	3
CS 5850 Systems Analysis	3
BA 3080 Operations Research	3
MHR 3710 Developing Team and Interpersonal Skills	3

Senior Year (28-31 credits)

Fall Semester (13-15 credits)

CS 5070 Computer Science Capstone	1
BA 3500 Fundamentals of Marketing	3
CS 5000-level elective courses	6-8
One Depth Humanities and Creative Arts (DHA) course	3

Spring Semester (15-16 credits)

CS 5050 Advanced Algorithms	3
BA 3400 (QI) Corporate Finance	3
CS 5000-level elective course	3-4
Extra University Studies course	3
Advisor-approved elective course	3

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)

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

B. Computer Science Electives (6-8 credits)

Two additional CS classes must be selected from the following:

CS 2450 (CI) Software Engineering (F,Sp)	3
CS 2550 Computer Organization (F,Sp)	3
CS 2810 Computer Organization and Architecture (F,Sp)	3
CS 3100 Operating Systems and Concurrency (F,Sp)	3
CS 4700 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.

Departmental Honors

Students who would like to experience greater academic depth within their major are encouraged to enroll in departmental honors. Through

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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@cc.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/ats/majorsheets/>

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) 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 between 6000 and 6950. 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.

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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.
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, biomedical applications

Heng-Da Cheng, image processing, artificial intelligence, parallel processing, computer vision, fuzzy logic, VLSI algorithms and architectures, neural networks

Donald H. Cooley, fuzzy logic, 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, instruction-level parallelism, register allocation, software pipelining, program optimization

Stephen W. Clyde, software engineering, object orientation, distributed systems, database theory, multimedia systems

Nicholas S. Flann, machine learning, artificial intelligence

Daniel W. Watson, parallel and heterogeneous computing, interconnection networks

Department of Computer Science

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

Robert F. Erbacher, computer graphics, visualization, computer security, bioinformatics, GUIs, systems
Jerry James, concurrency, formal methods, distributed systems, operating systems
Minghui Jiang, bioinformatics and computer biology, design and analysis of algorithms, computational geometry
Vladimir Kulyukin, assistive technology, robotics

Seungjin Lim, data mining, semi-structured databases, bioinformatics
Xiaojun Qi, image processing, data mining
Changhui Yan, bioinformatics, data mining, machine learning, computational biology

Lecturers

Linda Duhadway, computer science education
Dean Mathias, computer graphics

Course Descriptions

Computer Science (CS), pages 597-600.

Interdepartmental Program in Ecology

Director: James A. MacMahon
Location: Natural Resources 314A
Phone: (435) 797-2555
FAX: (435) 797-3872
E-mail: jam@cc.usu.edu
WWW: <http://www.usu.edu/ecology/>

Assistant Director for Administrative Affairs:
Marvin C. Bennett, Natural Resources 314B, (435) 797-2090,
marvb@cc.usu.edu

Degrees offered: Master of Science (MS) and Doctor of Philosophy (PhD) in the following departments: Biology; Plants, Soils, and Biometeorology; 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 Biometeorology; 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, Chemistry, Physics, and Computer Science

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 (AWER/BIOL/ENVS/ FRWS 6870) is required each semester in residence, but students should only register each fall.
2. A one-semester course in Graduate General Ecology (AWER BIOL/ENVS/FRWS 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 (AWER/BIOL/ENVS/ FRWS 6870) is required each semester in residence, but students should only register each fall.
2. A one-semester course in Graduate General Ecology (AWER BIOL/ENVS/FRWS 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

Functional (Core) Blocks

1. Biophysical and Physiological Ecology
(AWER/GEO 6150, AWER/BMET/GEO 6680, BMET 6500, 6800, BIOL 6600, FRWS/SOIL 6350, FRWS 7200, SOIL 6130)
2. Organismic, Population, and Evolutionary Ecology
(AWER 6230/7230, BIOL 6260, 6380, FRWS 6400, 6720/7720, 7400)

3. Community, Ecosystem, and Landscape Ecology
(AWER 6820/7820, BIOL/FRWS/SOIL 6200, BIOL 6010, 6590, FRWS 6710/7710)

Department of Economics

Department Head: Christopher Fawson

Location: Business 615

Phone: (435) 797-2310

FAX: (435) 797-2701

E-mail: info@econ.usu.edu

WWW: http://www.econ.usu.edu

Undergraduate Advisor:

Sue Young, Business 615, (435) 797-2290, syoung@econ.usu.edu

Graduate Program Director:

Keith R. Criddle, Business 616, (435) 797-2296,

kcriddle@econ.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; BS, BA, MS, Master of Arts (MA), and Doctor of Philosophy (PhD) in Economics; participates in Master of Business Administration (MBA); participates in International MBA in Food and Agribusiness (offered through the Royal Agricultural College in Cirencester, England). The Agribusiness and Economics majors are structured to facilitate a dual major with companion majors within or outside the College of Business.

Undergraduate emphases: *BS, BA in Economics*—Economic Theory, Managerial Economics, Prelaw Economics

Graduate specializations: *MS in Applied Economics*—Agricultural Economics, Natural Resource Economics, and Regional Economic Development

The Department of Economics is jointly administered by the College of Agriculture and the College of Business. Programs in both the College of Agriculture and the College of Business are offered.

Undergraduate Programs

Objectives

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 College of Agriculture, the College of Business, and the Department of Economics. All transfer students, whether transferring from within Utah State University or from other colleges and universities, must have an overall minimum GPA of 2.2 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 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 College of Agriculture, the College of Business, or the Department of Economics.

Graduation Requirements

To receive a bachelor's degree in Agribusiness, Agricultural Economics, Economics, or International Agribusiness, students must complete all University requirements and the college and departmental requirements for their specific major as noted below. **Students may not obtain more than one major or minor in the Department of Economics.**

Agribusiness Major

The Agribusiness major provides a foundation for employment in the agricultural sectors and rural regions and in businesses 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 ECON 1500, MATH 1100, STAT 2300, and PSY 1010 or SOC 1010 and an overall GPA of 2.67 or higher is required for admission into some required BA and MHR 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. ECON 3900, 4950H, 4990, and 5950 cannot be used to meet economics elective requirements.

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:

ACCT 2010 Survey of Accounting I (F,Sp,Su).....	3
ACCT 2020 Survey of Accounting II (F,Sp,Su).....	3
ASTE 3090 Computer Applications in Agriculture (F) (3 cr) or	
BIS 2100 Principles of Management Information Systems	
(F,Sp,Su) (3 cr)	3
ASTE 3050 (CI) Technical and Professional Communication	
Principles in Agriculture (F,Sp) (3 cr) or	
BIS 2200 (CI) Business Communication (F,Sp,Su) (3 cr)	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and	
Principles (F,Sp,Su).....	3
ECON 1550 (BSS) Introduction to Environmental and Natural	
Resource Economics (F) (3 cr) or	
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp) (3 cr)	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing (F).....	3
ECON 3050 (DSS) Introduction to Agribusiness Management (Sp)	3
ECON 4010 (DSS) Managerial Economics (F,Sp)	3
ECON 4030 (CI) Agribusiness Finance (F)	3
ECON 5030 Agricultural Marketing and Price Analysis (F)	3
ECON 5050 Farm and Ranch Planning and Analysis (Sp)	3
ECON 5350 (CI) Agribusiness, Cooperatives, and Management (Sp).....	3
MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su).....	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
College of Agriculture electives ¹	12

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For a suggested four-year plan, see page 244.

¹These 12 credits must be selected from courses offered by departments within the College of Agriculture, excluding courses offered by the Department of Economics. Six of the 12 credits must be chosen from upper-division courses (i.e., courses numbered 3000 or above).

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:

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
ACCT 2020 Survey of Accounting II (F,Sp,Su)	3
BA 3400 (QI) Corporate Finance (F,Sp,Su)	3
BA 3500 Fundamentals of Marketing (F,Sp,Su)	3
BA 3700 Operations Management (F,Sp,Su)	3
BIS 2100 Principles of Management Information Systems (F,Sp,Su)	3
BIS 2200 (CI) Business Communication (F,Sp,Su)	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp)	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing (F)	3
ECON 3050 (DSS) Introduction to Agribusiness Management (Sp)	3
ECON 3400 (DSS) International Economics for Business (F,Sp,Su)	3
ECON 4010 (DSS) Managerial Economics (F,Sp)	3
ECON 4030 (CI) Agribusiness Finance (F)	3
ECON 5030 Agricultural Marketing and Price Analysis (F)	3
ECON 5050 Farm and Ranch Planning and Analysis (Sp)	3
ECON 5350 (CI) Agribusiness, Cooperatives, and Management (Sp)	3
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su)	3
MHR 3110 (DSS) Managing Organizations and People (F,Sp,Su)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4

For a suggested four-year plan, see pages 244-245.

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:

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
ACCT 2020 Survey of Accounting II (F,Sp,Su)	3
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 3080 Compact Power Units for Agricultural and Turfgrass Applications (Sp) (3 cr) or	
ASTE 3200 Irrigation Principles and Practices (Sp) (3 cr)	3
ASTE 3090 Computer Applications in Agriculture (F)	3
ASTE 3600 (QI) Management of Agricultural Machinery Systems (Sp)	3
ASTE 5260 (CI) Environmental Impacts of Agricultural Systems (F)	3

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
ECON 1550 (BSS) Introduction to Environmental and Natural Resource Economics (F) (3 cr) or	
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp) (3 cr)	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing (F)	3
ECON 3050 (DSS) Introduction to Agribusiness Management (Sp)	3
ECON 4010 (DSS) Managerial Economics (F,Sp)	3
ECON 4030 (CI) Agribusiness Finance (F)	3
ECON 5030 Agricultural Marketing and Price Analysis (F)	3
ECON 5050 Farm and Ranch Planning and Analysis (Sp)	3
ECON 5350 (CI) Agribusiness, Cooperatives, and Management (Sp)	3
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4

For a suggested four-year plan, see page 245.

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:

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
ACCT 2020 Survey of Accounting II (F,Sp,Su)	3
ASTE 3090 Computer Applications in Agriculture (F) (3 cr) or	
BIS 2100 Principles of Management Information Systems (F,Sp,Su) (3 cr)	3
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (F,Sp) (3 cr) or	
BIS 2200 (CI) Business Communication (F,Sp,Su) (3 cr)	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp)	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing (F)	3
ECON 3050 (DSS) Introduction to Agribusiness Management (Sp)	3
ECON 3400 (DSS) International Economics for Business (F,Sp,Su)	3
ECON 4030 (CI) Agribusiness Finance (F)	3
ECON 5000 Macroeconomics (F)	3
ECON 5010 Microeconomics (Sp)	3
ECON 5030 Agricultural Marketing and Price Analysis (F)	3
ECON 5310 (QI) Mathematical Methods for Economics (F)	3
ECON 5330 (QI) Applied Econometrics (Sp)	3
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
MATH 1100 (QL) ³ Calculus Techniques (F,Sp,Su)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4

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Select three of the following courses:

ECON 5020 (CI) Economics and Public Policy (Sp)	3
ECON 5050 Farm and Ranch Planning and Analysis (Sp)	3
ECON 5350 (CI) Agribusiness, Cooperatives, and Management (Sp)...	3
ECON 5560 Natural Resource and Environmental Economics (Sp).....	3
ECON 5950 (CI) Senior Project (Sp).....	3

For a suggested four-year plan, see page 246.

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. ECON 3900, 4950H, 4990, and 5950 cannot be used to meet economics elective requirements.

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:

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
ASTE 6140 Agricultural Development and Evaluation (Sp)	3
BIS 2100 Principles of Management Information Systems (F,Sp,Su) ...	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp).....	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing (F).....	3
ECON 3050 (DSS) Introduction to Agribusiness Management (Sp)	3
ECON 3400 (DSS) International Economics for Business (F,Sp,Su)....	3
ECON 4010 (DSS) Managerial Economics (F,Sp)	3
ECON 4020 Macroeconomics for Managers (F,Sp)	3
ECON 4030 (CI) Agribusiness Finance (F)	3
ECON 5030 Agricultural Marketing and Price Analysis (F)	3
ECON 5050 Farm and Ranch Planning and Analysis (Sp) (3 cr) or	
ECON 5950 (CI) Senior Project (Sp) (3 cr)	3
ECON 5120 Economics of Russia and Eastern Europe, 9th Century to 21st Century (F)	3
ECON 5350 (CI) Agribusiness, Cooperatives, and Management (Sp)...	3
ECON 5400 International and Development Economics (F)	3
MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
NFS 5510 Food Laws and Regulations (Sp).....	2
PLSC 4300 World Food Crops and Cropping Systems: The Plants That Feed Us (Sp)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4

For a suggested four-year plan, see pages 246-247.

Economics Major

Because 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 ECON 1500, MATH 1100, STAT 2300, and PSY 1010 or SOC 1010 and an overall GPA of 2.67 or higher is required for admission into some BA and MHR 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. For information regarding elective requirements, students should contact their academic advisor.

Economics Major:

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp).....	3
ECON 3400 (DSS) International Economics for Business (F,Sp,Su)....	3
ECON 4010 (DSS) Managerial Economics (F,Sp) (3 cr) or	
ECON 5010 Microeconomics (Sp) (3 cr)	3
ECON 4020 Macroeconomics for Managers (F,Sp) (3 cr) or	
ECON 5000 Macroeconomics (F) (3 cr)	3
MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
MATH 1100 (QL) ³ Calculus Techniques (F,Sp,Su)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
Upper-division ECON electives	6

For a suggested four-year plan, see page 247.

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):

ACCT 2010 Survey of Accounting I (F,Sp,Su).....	3
ACCT 2020 Survey of Accounting II (F,Sp,Su).....	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su).....	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp).....	3
ECON 3400 (DSS) International Economics for Business (F,Sp,Su)....	3
ECON 5000 Macroeconomics (F)	3
ECON 5010 Microeconomics (Sp)	3
ECON 5100 History of Economic Thought (Sp)	3

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ECON 5310 (QI) Mathematical Methods for Economics (F)	3
ECON 5330 (QI) Applied Econometrics (Sp)	3
ECON 5950 (CI) Senior Project (Sp)	3
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
MATH 1100 (QL) ³ Calculus Techniques (F,Sp,Su)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
ECON electives (3000-level or above) ²	12

For a suggested four-year plan, see pages 247-248.

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):

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
ACCT 2020 Survey of Accounting II (F,Sp,Su)	3
BA 3400 (QI) Corporate Finance (F,Sp,Su)	3
BA 3500 Fundamentals of Marketing (F,Sp,Su)	3
BA 3700 Operations Management (F,Sp,Su)	3
BIS 2100 Principles of Management Information Systems (F,Sp,Su) ...	3
BIS 2200 (CI) Business Communication (F,Sp,Su)	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp)	3
ECON 3400 (DSS) International Economics for Business (F,Sp,Su) ...	3
ECON 4010 (DSS) Managerial Economics (F,Sp)	3
ECON 4020 Macroeconomics for Managers (F,Sp)	3
ECON 5310 (QI) Mathematical Methods for Economics (F)	3
ECON 5330 (QI) Applied Econometrics (Sp)	3
ECON 5950 (CI) Senior Project (Sp)	3
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
MATH 1100 (QL) ³ Calculus Techniques (F,Sp,Su)	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su)	3
MHR 3110 (DSS) Managing Organizations and People (F,Sp,Su)	3
PSY 1010 (BSS) General Psychology (F,Sp,Su) (3 cr) or	
SOC 1010 (BSS) Introductory Sociology (F,Sp) (3 cr)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
ECON electives (3000-level and above) ²	6

For a suggested four-year plan, see page 248.

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):

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp)	3
ECON 3170 Law and Economics (F) (3 cr) or	
POLS 3170 Law and Economics (F) (3 cr)	3
ECON 3400 (DSS) International Economics for Business (F,Sp,Su) ...	3
ECON 4010 (DSS) Managerial Economics (F,Sp) (3 cr) or	
ECON 5010 Microeconomics (Sp) (3 cr)	3
ECON 4020 Macroeconomics for Managers (F,Sp) (3 cr) or	
ECON 5000 Macroeconomics (F) (3 cr)	3
ECON 5950 (CI) Senior Project (Sp)	3
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
MATH 1100 (QL) ³ Calculus Techniques (F,Sp,Su)	3

POLS 1100 (BAI) United States Government and Politics (F,Sp)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
ECON electives (3000-level or above) ²	6
POLS electives (3000-level or above)	3

For a suggested four-year plan, see pages 248-249.

Minor Requirements

Economics Minor:

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp) (3 cr) or	
ECON 1550 (BSS) Introduction to Environmental and Natural Resource Economics (F) (3 cr)	3
ECON 4010 (DSS) Managerial Economics (F,Sp) (3 cr) or	
ECON 5010 Microeconomics (Sp) (3 cr)	3
ECON electives (3000-level or above) ²	6

Economics Teaching Minor:

BIS 3000 Principles of Business and Marketing Education (F,Sp)	1
BIS 3300 Clinical Experience I (F,Sp) (1 cr) or	
BIS 4300 Clinical Experience II (F,Sp) (1 cr)	1
BIS 4400 Business Education and Marketing Education Methods (Sp)	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp) (3 cr) or	
ECON 1550 (BSS) Introduction to Environmental and Natural Resource Economics (F) (3 cr)	3
ECON 3400 (DSS) International Economics for Business (F,Sp,Su) (3 cr) or	
ECON 5400 International and Development Economics (F) (3 cr)	3
ECON 5100 History of Economic Thought (Sp)	3
ECON 5110 (DSS) Economic History of the United States (F)	3

Agribusiness Management Minor:

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
ECON 3030 (DSS) Introduction to Agribusiness Marketing (F)	3
ECON 3050 (DSS) Introduction to Agribusiness Management (Sp)	3
ECON 4030 (CI) Agribusiness Finance (F)	3

Agricultural Economics Minor:

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp,Su)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp,Su) (3 cr) or	
ECON 1550 (BSS) Introduction to Environmental and Natural Resource Economics (F) (3 cr)	3
ECON 4010 (DSS) Managerial Economics (F,Sp) (3 cr) or	
ECON 5010 Microeconomics (Sp) (3 cr)	3
ECON 4030 (CI) Agribusiness Finance (F)	3
ECON 5030 Agricultural Marketing and Price Analysis (F)	3

²ECON 3900, 4950H, 4990, and 5950 may not be used to meet this requirement.

³The regular calculus series (MATH 1210 and 1220) is recommended for students contemplating graduate studies in economics. MATH 1210 will fulfill the MATH 1100 requirement.

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

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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@cc.usu.edu. Additional information can be found online at: <http://www.usu.edu/honors/>

Financial Support

The Department of Economics, the College of Agriculture, and the College 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, see the major requirement sheets, available from the department, or accessed online at: <http://www.usu.edu/ats/majorsheets/>

Four-year Degree Plans (8 semesters)

The following are suggested four-year plans for majors offered by the Department of Economics. Students will need to meet with their advisor periodically to ensure all requirements are being met.

Suggested Four-year Course of Study for Agribusiness Major

The following curriculum is required for the BS degree in agribusiness. Students enrolled in the agribusiness major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)⁴

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1050 (QL) College Algebra	4
USU 1010 University Connections	2
Breadth Creative Arts (BCA) course ⁵	3
Elective course(s)	3

Spring Semester (15 credits)

ACCT 2010 Survey of Accounting I	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1100 (QL) Calculus Techniques	3
Breadth Humanities (BHU) course ⁵	3
Elective course(s)	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ASTE 3090 Computer Applications in Agriculture (3 cr) or	
BIS 2100 Principles of Management Information Systems (3 cr)	3
ECON 1550 (BSS) ⁷ Introduction to Environmental and Natural Resource Economics (3 cr) or	
ECON 2010 (BSS) Introduction to Microeconomics (3 cr)	3
MHR 2050 Legal and Ethical Environment of Business	3
STAT 2300 (QL) Business Statistics	4
Breadth Life Sciences (BLS) course ⁵	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Breadth Physical Sciences (BPS) course ⁵	3
Elective courses	6

Junior Year (29 credits)

Fall Semester (14 credits)

ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (3 cr) or	
BIS 2200 (CI) Business Communication (3 cr)	3
ECON 3030 Introduction to Agribusiness Marketing	3
Elective course from the College of Agriculture ⁶	3
Elective courses	5

Spring Semester (15 credits)

ECON 3050 Introduction to Agribusiness Management	3
ECON 4010 Managerial Economics	3
Quantitative Intensive (QI) course	3
Elective course from the College of Agriculture ⁶	3
Elective course(s)	3

Senior Year (30 credits)

Fall Semester (15 credits)

ECON 4030 (CI) Agribusiness Finance	3
ECON 5030 Agricultural Marketing and Price Analysis	3
Depth Humanities and Creative Arts (DHA) course	3
Elective course from the College of Agriculture ⁶	3
Elective course(s)	3

Spring Semester (15 credits)

ECON 5050 Farm and Ranch Planning and Analysis	3
ECON 5350 (CI) Agribusiness, Cooperatives, and Management	3
Depth Life and Physical Sciences (DSC) course	3
Elective course from the College of Agriculture ⁶	3
Elective course(s)	3

Suggested Four-year Course of Study for Agribusiness Major, Business Option⁸

The following curriculum is required for the BS degree in agribusiness with a business option. Students enrolled in the agribusiness major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)⁴

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1050 (QL) College Algebra	4

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USU 1010 University Connections	2
Breadth Creative Arts (BCA) course ⁵	3
Elective course(s)	3

Spring Semester (15 credits)

ECON 2010 (BSS) Introduction to Microeconomics	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1100 (QL) Calculus Techniques	3
Breadth Humanities (BHU) course ⁵	3
Elective course(s)	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I	3
BIS 2100 Principles of Management Information Systems	3
ECON 3400 (DSS) International Economics for Business	3
STAT 2300 (QL) Business Statistics	4
Breadth Life Sciences (BLS) course ⁵	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II	3
BA 3400 (QI) Corporate Finance	3
BIS 2200 (CI) Business Communication	3
Breadth Physical Sciences (BPS) course ⁵	3
Elective course(s)	3

Junior Year (29 credits)

Fall Semester (14 credits)

BA 3500 Fundamentals of Marketing	3
ECON 3030 Introduction to Agribusiness Marketing	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Elective courses	5

Spring Semester (15 credits)

BA 3700 Operations Management	3
ECON 3050 Introduction to Agribusiness Management	3
ECON 4010 Managerial Economics	3
MHR 2050 Legal and Ethical Environment of Business	3
Elective course(s)	3

Senior Year (30 credits)

Fall Semester (15 credits)

ECON 4030 (CI) Agribusiness Finance	3
ECON 5030 Agricultural Marketing and Price Analysis	3
MHR 3110 Managing Organizations and People	3
Depth Humanities and Creative Arts (DHA) course	3
Elective course(s)	3

Spring Semester (15 credits)

ECON 5050 Farm and Ranch Planning and Analysis	3
ECON 5350 (CI) Agribusiness, Cooperatives, and Management	3
Depth Life and Physical Sciences (DSC) course	3
Elective courses	6

Suggested Four-year Course of Study for Agribusiness Major, Agricultural Systems Option

The following curriculum is required for the BS degree in agribusiness with an agricultural systems option. Students enrolled in the agribusiness major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)⁴

Fall Semester (15 credits)

ASTE 1010 Introduction to Agricultural Systems Technology	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1050 (QL) College Algebra	4
USU 1010 University Connections	2
Elective course(s)	3

Spring Semester (15 credits)

ACCT 2010 Survey of Accounting I	3
ASTE 2200 Electricity in Agricultural Systems	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1100 (QL) Calculus Techniques	3
Breadth Humanities (BHU) course ⁵	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ASTE 3090 Computer Applications in Agriculture	3
ECON 1550 (BSS) ⁷ Introduction to Environmental and Natural Resource Economics (3 cr) or	
ECON 2010 (BSS) Introduction to Microeconomics (3 cr)	3
MHR 2050 Legal and Ethical Environment of Business	3
STAT 2300 (QL) Business Statistics	4
Breadth Life Sciences (BLS) course ⁵	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II	3
ECON 3050 Introduction to Agribusiness Management	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Breadth Creative Arts (BCA) course ⁵	3
Elective course(s)	3

Junior Year (29 credits)

Fall Semester (14 credits)

ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture	3
ECON 3030 Introduction to Agribusiness Marketing	3
Depth Humanities and Creative Arts (DHA) course	3
Elective courses	5

Spring Semester (15 credits)

ASTE 3600 (QI) Management of Agricultural Machinery Systems	3
ECON 4010 Managerial Economics	3
ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications (3 cr) or	
ASTE 3200 Irrigation Principles and Practices (3 cr)	3
Breadth Physical Sciences (BPS) course ⁵	3
Elective course(s)	3

Senior Year (30 credits)

Fall Semester (15 credits)

ASTE 3030 ⁹ Metal Welding Processes and Technology in Agriculture	3
ECON 4030 (CI) Agribusiness Finance	3
ECON 5030 Agricultural Marketing and Price Analysis	3
Elective courses	6

Spring Semester (15 credits)

ASTE 4100 ⁹ Agricultural Structures and Environment	3
ASTE 5260 (CI) Environmental Impacts of Agricultural Systems	3
ECON 5050 Farm and Ranch Planning and Analysis	3
ECON 5350 (CI) Agribusiness, Cooperatives, and Management	3
Depth Life and Physical Sciences (DSC) course	3

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Suggested Four-year Course of Study for Agricultural Economics Major

The following curriculum is required for the BS degree in agricultural economics. Students enrolled in the agricultural economics major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)⁴

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1050 (QL) College Algebra.....	4
USU 1010 University Connections.....	2
Breadth Creative Arts (BCA) course ⁵	3
Elective course(s).....	3

Spring Semester (15 credits)

ACCT 2010 Survey of Accounting I.....	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1100 (QL) ¹³ Calculus Techniques.....	3
Breadth Humanities (BHU) course ⁵	3
Elective course(s).....	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ASTE 3090 Computer Applications in Agriculture (3 cr) or	
BIS 2100 Principles of Management Information Systems (3 cr).....	3
ECON 2010 (BSS) Introduction to Microeconomics	3
STAT 2300 (QL) Business Statistics	4
Breadth Life Sciences (BLS) course ⁵	3
Elective course(s).....	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II.....	3
ECON 3400 International Economics for Business.....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Breadth Physical Sciences (BPS) course ⁵	3
Elective course(s).....	3

Junior Year (29 credits)

Fall Semester (14 credits)

ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (3 cr) or	
BIS 2200 (CI) Business Communication (3 cr)	3
ECON 3030 Introduction to Agribusiness Marketing.....	3
ECON 5000 Macroeconomics.....	3
Elective courses	5

Spring Semester (15 credits)

ECON 3050 Introduction to Agribusiness Management.....	3
ECON 4310 (QI) Mathematical Methods for Economics.....	3
ECON 5010 Microeconomics	3
Elective courses	6

Senior Year (30 credits)

Fall Semester (15 credits)

ECON 4030 (CI) Agribusiness Finance.....	3
ECON 5030 Agricultural Marketing and Price Analysis	3
Depth Humanities and Creative Arts (DHA) course	3
Elective courses	6

Spring Semester (15 credits)

ECON 5330 (QI) Applied Econometrics	3
Depth Life and Physical Sciences (DSC) course	3
Elective courses from Economics ¹⁰	9

Suggested Four-year Course of Study for International Agribusiness Major

The following curriculum is required for the BA degree in international agribusiness. Students enrolled in the international agribusiness major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)⁴

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1050 (QL) College Algebra.....	4
USU 1010 University Connections.....	2
Breadth Creative Arts (BCA) course ⁵	3
Elective course(s) ¹¹	3

Spring Semester (15 credits)

ACCT 2010 Survey of Accounting I.....	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1100 (QL) Calculus Techniques	3
Breadth Humanities (BHU) course ⁵	3
Elective course(s) ¹¹	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

BIS 2100 Principles of Management Information Systems	3
ECON 2010 (BSS) Introduction to Microeconomics	3
STAT 2300 (QL) Business Statistics	4
Breadth Life Sciences (BLS) course ⁵	3
Elective course(s) ¹¹	3

Spring Semester (15 credits)

ECON 3400 (DSS) International Economics for Business	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
PLSC 4300 World Food Crops and Cropping Systems: The Plants That Feed Us.....	3
Breadth Physical Sciences (BPS) course ⁵	3
Elective course(s) ¹¹	3

Junior Year (29 credits)

Fall Semester (15 credits)

ECON 3030 Introduction to Agribusiness Marketing.....	3
ECON 4010 Managerial Economics.....	3
ECON 4020 Macroeconomics for Managers.....	3
ECON 5120 Economics of Russia and Eastern Europe, 9th Century to 21st Century	3
Elective course(s) ¹¹	3

Spring Semester (14 credits)

ASTE 6140 Agricultural Development and Evaluation.....	3
ECON 3050 Introduction to Agribusiness Management.....	3
NFS 5510 Food Laws and Regulations.....	2
Quantitative Intensive (QI) course	3
Elective course(s) ¹¹	3

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Senior Year (30 credits)

Fall Semester (15 credits)

ECON 4030 (CI) Agribusiness Finance	3
ECON 5030 Agricultural Marketing and Price Analysis	3
ECON 5400 International and Development Economics	3
Depth Humanities and Creative Arts (DHA) course	3
Elective course(s) ¹¹	3

Spring Semester (15 credits)

ECON 5050 Farm and Ranch Planning and Analysis (3 cr) or	
ECON 5950 (CI) Senior Project (3 cr)	3
ECON 5350 (CI) Agribusiness, Cooperatives,	
and Management	3
Depth Life and Physical Sciences (DSC) course	3
Elective courses ¹¹	6

Suggested Four-year Course of Study for Economics Major

The following curriculum is required for the BS degree in economics. Students enrolled in the economics major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)⁴

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions,	
History, and Principles	3
MATH 1050 (QL) College Algebra	4
USU 1010 University Connections	2
Breadth Life Sciences (BLS) course ⁵	3
Elective course(s)	3

Spring Semester (15 credits)

ECON 2010 (BSS) Introduction to Microeconomics	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1100 (QL) ¹³ Calculus Techniques	3
Breadth Humanities (BHU) course ⁵	3
Elective course(s)	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a	
Persuasive Mode	3
STAT 2300 (QL) Business Statistics	4
Breadth Creative Arts (BCA) course ⁵	3
Elective courses	6

Spring Semester (15 credits)

ECON 3400 International Economics for Business	3
Breadth Physical Sciences (BPS) course ⁵	3
Communications Intensive (CI) course	3
Elective courses	6

Junior Year (29 credits)

Fall Semester (14 credits)

ECON 4020 Macroeconomics for Managers (3 cr) or	
ECON 5000 Macroeconomics (3 cr)	3
Communications Intensive (CI) course	3
Elective courses	8

Spring Semester (15 credits)

ECON 4010 (DSS) Managerial Economics (3 cr) or	
ECON 5010 Microeconomics (3 cr)	3
Quantitative Intensive (QI) course	3
Elective courses	9

Senior Year (30 credits)

Fall Semester (15 credits)

Depth Humanities and Creative Arts (DHA) course	3
Economics upper-division elective course ¹²	3
Elective courses	9

Spring Semester (15 credits)

Depth Life and Physical Sciences (DSC) course	3
Economics upper-division elective course ¹²	3
Elective courses	9

Suggested Four-year Course of Study for Economics Major, Economic Theory Emphasis

The following curriculum is required for the BS degree in economics with an economic theory emphasis. Students enrolled in the economics major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)⁴

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions,	
History, and Principles	3
MATH 1050 (QL) College Algebra	4
USU 1010 University Connections	2
Breadth Creative Arts (BCA) course ⁵	3
Elective course(s)	3

Spring Semester (15 credits)

ECON 2010 (BSS) Introduction to Microeconomics	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1100 (QL) ¹³ Calculus Techniques	3
Breadth Humanities (BHU) course ⁵	3
Elective course(s)	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I	3
ECON 3400 International Economics for Business	3
STAT 2300 (QL) Business Statistics	4
Breadth Life Sciences (BLS) course ⁵	3
Elective course(s)	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II	3
ECON 5010 Microeconomics	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a	
Persuasive Mode	3
Breadth Physical Sciences (BPS) course ⁵	3
Elective course(s)	3

Junior Year (29 credits)

Fall Semester (14 credits)

ECON 5000 Macroeconomics	3
Economics upper-division elective course ¹²	3
Communications Intensive (CI) course	3
Elective courses	5

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Spring Semester (15 credits)
ECON 5100 History of Economic Thought 3
ECON 5330 (QI) Applied Econometrics 3
 Economics upper-division elective course¹² 3
 Elective courses 6

Senior Year (30 credits)
Fall Semester (15 credits)
ECON 4310/5310 (QI) Mathematical Methods for Economics 3
 Economics upper-division elective course¹² 3
 Depth Humanities and Creative Arts (DHA) course 3
 Elective courses 6

Spring Semester (15 credits)
ECON 5950 (CI) Senior Project 3
 Economics upper-division elective course¹² 3
 Depth Life and Physical Sciences (DSC) course 3
 Elective courses 6

Suggested Four-year Course of Study for Economics Major, Managerial Economics Emphasis

The following curriculum is required for the BS degree in economics with a managerial economics emphasis. Students enrolled in the economics major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)⁴
Fall Semester (15 credits)
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles 3
MATH 1050 (QL) College Algebra 4
USU 1010 University Connections 2
 Breadth Creative Arts (BCA) course⁵ 3
 Elective course(s) 3

Spring Semester (15 credits)
ECON 2010 (BSS) Introduction to Microeconomics 3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3
MATH 1100 (QL)¹³ Calculus Techniques 3
PSY 1010 (BSS) General Psychology (3 cr) **or**
SOC 1010 (BSS) Introductory Sociology (3 cr) 3
 Breadth Humanities (BHU) course⁵ 3

Sophomore Year (31 credits)
Fall Semester (16 credits)
ACCT 2010 Survey of Accounting I 3
BIS 2100 Principles of Management Information Systems 3
MHR 2050 Legal and Ethical Environment of Business 3
STAT 2300 (QL) Business Statistics 4
 Breadth Life Sciences (BLS) course⁵ 3

Spring Semester (15 credits)
ACCT 2020 Survey of Accounting II 3
BA 3400 (QI) Corporate Finance 3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode 3
 Breadth Physical Sciences (BPS) course⁵ 3
 Elective course(s) 3

Junior Year (29 credits)
Fall Semester (14 credits)
BA 3500 Fundamentals of Marketing 3
BIS 2200 (CI) Business Communication 3
ECON 3400 International Economics for Business 3
 Elective courses 5

Spring Semester (15 credits)
BA 3700 Operations Management 3
ECON 4010 Managerial Economics 3
ECON 4020 Macroeconomics for Managers 3
 Elective courses 6

Senior Year (30 credits)
Fall Semester (15 credits)
ECON 4310/5310 (QI) Mathematical Methods for Economics 3
MHR 3110 Managing Organizations and People 3
 Economics upper-division elective course¹² 3
 Depth Humanities and Creative Arts (DHA) course 3
 Elective course(s) 3

Spring Semester (15 credits)
ECON 5330 (QI) Applied Econometrics 3
ECON 5950 (CI) Senior Project 3
 Economics upper-division elective course¹² 3
 Depth Life and Physical Sciences (DSC) course 3
 Elective course(s) 3

Suggested Four-year Course of Study for Economics Major, Prelaw Economics Emphasis

The following curriculum is required for the BS degree in economics with a prelaw economics emphasis. Students enrolled in the economics major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)⁴
Fall Semester (15 credits)
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles 3
MATH 1050 (QL) College Algebra 4
POLS 1100 (BAI) United States Government and Politics 3
USU 1010 University Connections 2
 Elective course(s) 3

Spring Semester (15 credits)
ECON 2010 (BSS) Introduction to Microeconomics 3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3
MATH 1100 (QL)¹³ Calculus Techniques 3
 Breadth Humanities (BHU) course⁵ 3
 Elective course(s) 3

Sophomore Year (31 credits)
Fall Semester (16 credits)
ECON 3400 International Economics for Business 3
ECON/POLS 3170 Law and Economics 3
STAT 2300 (QL) Business Statistics 4
 Breadth Life Sciences (BLS) course⁵ 3
 Elective course(s) 3

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Spring Semester (15 credits)

ECON 4010 Managerial Economics (3 cr) or ECON 5010 Microeconomics (3 cr).....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Breadth Physical Sciences (BPS) course ⁵	3
Elective courses	6

Junior Year (29 credits)

Fall Semester (14 credits)

ECON 4020 Macroeconomics for Managers (3 cr) or ECON 5000 Macroeconomics (3 cr)	3
Breadth Creative Arts (BCA) course ⁵	3
Communications Intensive (CI) course	3
Elective courses	5

Spring Semester (15 credits)

Quantitative Intensive (QI) course	3
Political Science upper-division elective course	3
Elective courses	9

Senior Year (30 credits)

Fall Semester (15 credits)

Depth Humanities and Creative Arts (DHA) course	3
Economics upper-division elective course ¹²	3
Elective courses	9

Spring Semester (15 credits)

ECON 5950 (CI) Senior Project	3
Depth Life and Physical Sciences (DSC) course	3
Economics upper-division elective course ¹²	3
Elective courses	6

⁴Students should complete the CIL exams during their freshman year.

⁵At least two of the required Breadth Courses *must* be University Studies courses having a USU prefix.

⁶These 12 credits must be chosen from courses offered by departments (*other than* the Department of Economics) within the College of Agriculture. Of these 12 credits, 6 credits must be completed in upper-division courses (i.e., courses numbered at the 3000-level or above).

⁷This course will be taught during the 2006-2007 academic year.

⁸Students who complete the business core requirements, along with MHR 4880 or 4890, with a minimum GPA of 2.67 may earn a dual major in Business, *in addition to* a major in Agribusiness. Agribusiness students interested in a dual major in Business must apply for admission to the major through the College of Business, as well as satisfy graduation requirements for *both* majors.

⁹Students are required to complete *either* ASTE 3030 or ASTE 4100. Three elective credits must be substituted for whichever course is not taken.

¹⁰Students must complete three of the following five courses: ECON 5020, 5050, 5350, 5560, and 5950. All of these courses (with the *exception* of ECON 5560) are offered during spring semester. Students selecting ECON 5560 should take ECON 5560 during the fall semester of their senior year, and take an elective course during spring semester of their senior year.

¹¹A language minor *must* be completed as part of the requirements for the International Agribusiness major. To fulfill this requirement, students may substitute language courses for some of the elective courses.

¹²Any upper-division economics course will meet this requirement, *except* for ECON 3900, 4250, 4950, 4990, and 5950.

¹³The regular calculus series (MATH 1210 and 1220) is recommended for students contemplating graduate studies in economics. MATH 1210 will fulfill the MATH 1100 requirement.

Graduate Programs

The MA, MS, and PhD in Economics, along with the MS in Applied Economics, are offered jointly through the College of Agriculture and College of Business. The MBA is offered through the College of Business. The International MBA in Food and Agribusiness is offered through the Royal Agricultural College (RAC), Cirencester, England.

Objectives

Economics graduate training 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 **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. 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

Doctor of Philosophy in Economics

PhD students are required to: (1) complete the first-year core (ECON 7060, 7130, 7140, 7230, 7240, 7310, 7350, 7360, 7950); (2) perform successfully on a written qualifying examination based on the first-year core; (3) complete the advanced core (ECON 7150, 7250, 7320, 7330); (4) complete the International Trade and Development and Natural Resource and Environmental Economics field sequences (ECON 7400, 7500, 7510, 7800); (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.

Master of Science in Applied Economics

To complete an MS degree in Applied Economics, students are required to: (1) complete the applied core (ECON 6000, 6060, 6100, 6300, 6330); (2) complete a specialization in: (a) agricultural economics (ECON 5300, 6030, 6040, 6250; ACCT 6350; BA 6520; MHR 5640), (b) natural resource economics (ECON 6500 and 6510), or (c) regional economic development (ECON 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

Department of Economics

more than 6 undergraduate credits may be used in meeting degree requirements.)

Master of Science and Master of Arts in Economics

Students are required to complete the first-year core (ECON 6000, 6060, 6100, 7140, 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 College 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 197-198) and 9 specialization credits. These specialization credits should be coordinated with the MBA Program director.

International MBA in Food and Agribusiness

The Department of 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; BA 3400, 3500, and 3080 or 3700; BIS 2100; ECON 1500, 2010; MATH 1100; STAT 2300; and MHR 2050 and 3110. Alternatively, students may choose to gain the necessary competencies by attending the 18-credit Accelerated Business Core (BUS 6160), which is offered during summer semester. Required courses to be completed at USU include: ACCT 6350; ECON 6030, 6040, 6330; and BA 6520 or 4590H. 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 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 colleges of Agriculture and 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 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.

Economics Faculty

Professors

DeeVon Bailey, agricultural economics
Basudeb Biswas, international trade and economic development
Keith R. Criddle, resource economics and quantitative methods
Christopher Fawson, public finance and econometrics
Terrence F. Glover, production economics and policy
E. Bruce Godfrey, agricultural and resource economics
L. Dwight Israelsen, comparative systems and economic history
Paul M. Jakus, natural resource and environmental economics, nonmarket valuation
John E. Keith, agricultural and resource economics
W. Cris Lewis, regional-urban and managerial economics
Kenneth S. Lyon, economic theory
H. Craig Petersen, regulation and antitrust and managerial economics; Director of Analysis, Assessment, and Accreditation
Donald L. Snyder, agricultural and resource economics; Associate Dean for Academic Programs

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
Morris D. Whitaker

Associate Professors

Tyler J. Bowles, econometrics and international economics
Arthur J. Caplan, environmental economics and applied microeconomic theory
John P. Gilbert, international trade theory and policy, applied general equilibrium modeling, development economics
Steven S. Vickner, agribusiness, food marketing
Ruby A. Ward, agribusiness management and operations research

Associate Professor Emeritus

Glenn F. Marston

Assistant Professors

Makoto Nirei, macroeconomics, econometrics
Gholamreza Oladi, international economics, econometrics
Rimma Shiptsova, international trade, food safety, econometrics

Human Resources Specialist

Marion T. Bentley, manpower economics

Course Descriptions

Economics (ECON), pages 604-607.

Interdepartmental Doctoral Program in Education (EdD, PhD)

Chairman:

Carol J. Strong, Dean of College of Education and Human Services

Location: Emma Eccles Jones Education 109

Phone: (435) 797-1437

FAX: (435) 797-3939

E-mail: idphelp@usu.edu

WWW: <http://www.cehs.usu.edu/idp/>

Faculty: Faculty are listed with participating departments.

Degrees offered: Doctorate of Education (EdD) and Doctorate of Philosophy (PhD)

Graduate specializations: PhD or EdD— Business Information Systems, Curriculum and Instruction, and Research and Evaluation

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; gradsch@cc.usu.edu.

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. Two official 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 as determined by the department of specialization.
6. A statement of specific reasons for wanting to enroll in the doctoral program in education, including the area of specialization student desires to pursue.

Applicants to the Curriculum and Instruction specialization of the PhD and EdD degrees must have appropriate teaching experience.

General Information

Students may select from one of three specializations within the Interdepartmental Doctoral Program: Business and Information Systems (BIS), Curriculum and Instruction (C & I), and Research and Evaluation (R & E).

Both the **Doctorate of Education (EdD)** and the **Doctorate of Philosophy (PhD)** degrees are offered through the Interdepartmental Doctoral Program (IDP) in the College of Education and Human Services (CEHS). The IDP is an interdepartmental faculty effort.

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. 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.

Specializations

Business Information Systems

The BIS specialization prepares graduates for careers as teachers or educational leaders in the public schools and/or faculty members in higher education. Areas of emphasis include business information systems, communication, business and/or marketing education, and training and development.

Curriculum and Instruction

The C & I specialization prepares graduates to serve as curriculum specialists and instructional leaders in school districts and state educational agencies, professors in colleges of education, and subject area instructors in four-year or community colleges. Areas of emphasis include early childhood; engineering and technology education; instructional leadership; reading/writing; schooling, culture, and society; and teaching and learning in higher education.

Research and Evaluation

The R & E specialization prepares graduates to evaluate the quality of educational programs, including the comparison of strengths and weaknesses of alternative programs; the revision, updating, and/or redirection of existing programs; and the analysis of related educational issues.

Planned Program

To complete a doctorate degree, 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 Program of Studies Core (6 semester credits) and a Research and Statistics Core (12 semester credits), required of all doctoral students.
2. Complete a planned program of supporting electives, as designated by the specialization or by a department and 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.

Interdepartmental Doctoral Program in Education (EdD, PhD)

7. Complete all final requirements, as specified by an area of specialization, the 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

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 into the new role of future colleague.

Each student's residency experience should be considered on an individual basis and should include many varied activities. Quality of participation is important, but so is variety. Experiences that meet the goals of the residency requirement may include such opportunities as:

1. Collaborative research or grants with faculty or peers
2. Working with faculty on scholarly publications
3. Participation in non course-related scholarly groups (e.g., book or writing groups)
4. College teaching internships or assistantships
5. Research assistantships
6. Attendance at local, regional, or national professional meetings
7. Involvement in graduate student organizations (e.g., Graduate Student Senate)
8. Committee and/or service work within the department, college, or university
9. Assisting faculty with course development and teaching

10. Advanced coursework beyond the minimum

11. Attendance at departmental colloquia

12. Considerable out-of-class interaction with faculty and/or students, especially on substantive issues

13. Organizing program events, such as brown bags, consortia, orientation programs, etc.

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 (page 99).

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.

College of Education and Human Services Courses

Education courses are listed under the EDUC prefix, pages 607-609.

Department of Electrical and Computer Engineering

Department Head: Tamal Bose
Location: Engineering Laboratory 149
Phone: (435) 797-2840
FAX: (435) 797-3054
E-mail: info@ece.usu.edu
WWW: http://www.ece.usu.edu

Undergraduate Advising:
Engineering Advising Center, Engineering 314A, (435) 797-2705,
kathy@engineering.usu.edu, ronnie@engineering.usu.edu

Graduate Program Coordinator:
Scott E. Budge, Engineering Laboratory 113, (435) 797-3433,
scott.budge@ece.usu.edu

Degrees offered: Bachelor of Science (BS), Master of Engineering (ME), Master of Science (MS), and Doctor of Philosophy (PhD) in Electrical Engineering; BS in 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 Descriptions

The ECE Department offers a balanced curriculum of classwork, laboratory work, and design experiences to prepare students for careers in engineering. The Bachelor of Science programs in Electrical Engineering and Computer Engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/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.

Electrical Engineering

The Electrical Engineering program is dedicated to producing engineers who: (1) contribute to engineering practice, advance engineering knowledge, and contribute to the good of society; (2) are advancing their education in engineering and other professions; and (3) take a leadership role in engineering and society.

Each 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

The Computer Engineering program is dedicated to producing engineers who: (1) apply fundamental principles to solve practical engineering problems; (2) are continually engaged in professional, personal, and community development; (3) are implementing well-planned, top-down designs of complex systems; and (4) function well as team members and interact well with other professionals and nonengineers.

Building on a solid curriculum in computing hardware and software, the 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 118-122). It is the responsibility of students to be aware of these rules and procedures; however, advisor assistance is available.

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 pages 119-120), *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.

Department of Electrical and Computer Engineering

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

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 (33 credits)

Fall Semester (16 credits)

MATH 2210 (QI) Multivariable Calculus	3
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II ..	4
University Studies Breadth courses	9

Spring Semester (17 credits)

MATH 2250 (QI) Linear Algebra and Differential Equations	4
ECE 2270 Electrical Circuits	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Technical Elective course	3
University Studies Depth Social Sciences (DSS) course	3

*All classes listed above with specific prefixes and course numbers 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 (31 credits)¹

Fall Semester (16 credits)

ECE 3410 Microelectronics I	4
ECE 3620 Circuits and Signals	3
ECE 3870 Electromagnetics I	3
ECE 5530 Digital System Design	3
MATH 5710 Introduction to Probability	3

Spring Semester (15 credits)

ECE 3640 Signals and Systems	3
ECE 3710 Microcomputer Hardware and Software	4
ECE 3820 (CI) Design I	2
Math/Science elective course	3
ECE elective course	3

Senior Year (31-32 credits)

Fall Semester (15 credits)

ECE 4840 (CI) Design II	3
PHYS 2710 Introductory Modern Physics	3
ECE elective courses	9

Spring Semester (16-17 credits)

ECE 4850 (CI) Design III	2
ECE Elective Courses	9
Technical elective course	3
University Studies Depth Humanities and Creative Arts (DHA) course	2-3

¹Some 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.

Technical Elective Courses (select 30 or more credits)

Electrical Engineering Electives (select 21-27 credits)

ECE 3720 Microcomputer Systems Programming (Sp)	3
ECE 4650 ⁴ Optics I (F)	3
ECE 4680 ⁴ 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 3-9 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 4630 Computer Aided Math for Scientists and Engineers (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 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 (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

Department of Electrical and Computer Engineering

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
FRWS 2200 (BLS) Ecology of Our Changing World (F,Sp).....	3
PHYS 3550 ² Intermediate Classical Mechanics.....	3
PHYS 3600 Intermediate Electromagnetism.....	3
PHYS 3700 ³ Thermal Physics.....	3
PHYS 3750 Foundations of Wave Phenomena.....	3
PHYS 4550 Advanced Classical Mechanics.....	3
PHYS 4600 Advanced Electromagnetism.....	3
PHYS 4650 Optics I.....	3
PHYS 4680 Optics II.....	3
PHYS 4700 Quantum Mechanics I.....	3
PHYS 4710 Quantum Mechanics II.....	3

Technical Electives (select 0-6 credits)

CS 2420 (QI) Algorithms and Data Structures—CS 3 (F,Sp,Su).....	3
CS 2450 (CI) Software Engineering (F,Sp).....	3
CS 2810 Computer Organization and Architecture (F,Sp).....	3
CS 3100 Operating Systems and Concurrency (F,Sp).....	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 (F).....	3
CS 5400 Computer Graphics I (F).....	4
CS 5450 Multimedia Systems (Sp).....	4
CS 5500 Parallel Algorithms (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 3260 (QI) Science of Sound (F).....	3
ECE 4250 Internship/Co-op (F,Sp,Su).....	3
ENGR 2010 ² Engineering Mechanics Statics (F,Sp).....	2
ENGR 2030 Engineering Mechanics Dynamics (F,Sp).....	3
ENGR 2140 Strength of Materials (F,Sp).....	2
ENGR 5500 High Performance Computing for Engineers (F).....	3
MAE 2160 Material Science (F,Sp).....	3
MAE 2300 ³ Thermodynamics I (Sp,Su).....	3

²Students cannot receive credit for both Engineering Mechanics *and* Analytical Mechanics.
³Students cannot receive credit for both Engineering Thermodynamics *and* Thermal Physics.
⁴Students 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 ⁵ 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 (34-35 credits)

Fall Semester (17 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
CS 2420 (QI) Algorithms and Data Structures—CS 3.....	3
MATH 2250 (QI) Linear Algebra and Differential Equations.....	4
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II.....	4
University Studies Breadth course.....	3

Spring Semester (17-18 credits)

MATH 3310 Discrete Mathematics.....	3
ECE 2270 Electrical Circuits.....	4
CS 2450 (CI) Software Engineering.....	3
Technical Elective course.....	4-5
University Studies Breadth course.....	3

⁵Students 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.

**All classes listed above with specific prefixes and course numbers (*except* for CS 1405 and CS 2450) are required for admission to the Professional Engineering Program (PEP). Courses are listed under the semesters in which they best fit.

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 (31 credits)⁶

Fall Semester (14 credits)

ECE 3410 Microelectronics I.....	4
ECE 3620 Circuits and Signals.....	3
ECE 3710 Microcomputer Hardware and Software.....	4
ECE 5530 Digital System Design.....	3

Spring Semester (17 credits)

CS 3100 Operating Systems and Concurrency.....	3
ECE 3640 Signals and Systems.....	3
ECE 3720 Microcomputer Systems Programming.....	3
ECE 3820 (CI) Design I.....	2
MATH 5710 Introduction to Probability.....	3
University Studies Breadth course.....	3

Senior Year (30-31 credits)

Fall Semester (15-16 credits)

ECE 4740 Computer and Data Communications.....	3
ECE 4840 (CI) Design II.....	3
Computer Science elective course.....	4
Computer Engineering elective course.....	3
University Studies Depth Humanities and Creative Arts (DHA) course.....	2-3

Spring Semester (15 credits)

ECE 4850 (CI) Design III.....	2
High-Level Technical Elective courses.....	7
Math/Science elective course.....	3
University Studies Depth Social Sciences (DSS) course.....	3

⁶Some 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.

Department of Electrical and Computer Engineering

High-Level Technical Elective Courses (select 14-19 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 23 or more credits)

Computer Engineering Electives (select 3-16 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 4-13 credits)

CS 5100	Graphical User Interfaces and Windows Programming (Sp)	4
CS 5200	Distributed and Network Programming (F)	4
CS 5400	Computer Graphics I (F)	4

Math and Science Electives (select 3-9 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 4630	Computer Aided Math for Scientists and Engineers (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 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 (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
FRWS 2200 (BLS)	Ecology of Our Changing World (F,Sp)	3
PHYS 2710	Introductory Modern Physics	3
PHYS 3550 ⁷	Intermediate Classical Mechanics	3
PHYS 3600	Intermediate Electromagnetism	3
PHYS 3700 ⁸	Thermal Physics	3
PHYS 3750	Foundations of Wave Phenomena	3
PHYS 4550	Advanced Classical Mechanics	3
PHYS 4600	Advanced Electromagnetism	3
PHYS 4650 ⁹	Optics I	3
PHYS 4680 ⁹	Optics II	3
PHYS 4700	Quantum Mechanics I	3
PHYS 4710	Quantum Mechanics II	3

Technical Electives (select 0-7 credits)

CS 2810	Computer Organization and Architecture (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
ECE 5310	Control Systems (F)	3
ENGR 2010	Engineering Mechanics Statics (F,Sp)	2
ENGR 2030	Engineering Mechanics Dynamics (F,Sp)	3
ENGR 2140	Strength of Materials (F,Sp)	2
MAE 2160	Material Science (F,Sp)	3
MAE 2300	Thermodynamics I (Sp,Su)	3
ENGR 5500	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.

⁷Students cannot receive credit for both Engineering Mechanics *and* Physics Mechanics.

⁸Students cannot receive credit for both Engineering Thermodynamics *and* Physics Thermodynamics.

⁹Students 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:

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

Two additional courses (6 credits) numbered above 4000, excluding MATH 4300, 4400, 4500, 4620, 5570, and 5580, are also required. MATH 2250 may substitute for MATH 2270 and 2280.

Physics Minor

PHYS 2210 (QI)	General Physics—Science and Engineering I	4
PHYS 2220 (BPS/QI)	General Physics—Science and Engineering II	4

Students must also select 10 credits from courses in Physics numbered 2710 or above.

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:

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

Students must also complete two additional computer science classes. 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.

Department of Electrical and Computer Engineering

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 258).

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@cc.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 118-122.)

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/ats/majorsheets/>

Graduate Programs

Admission Requirements

See general admission requirements on pages 99-100. 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 will 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. All graduate degree programs in the ECE Department require a grade of B- or better in all courses applied toward the requirements listed below.

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

1. At least 12 credits of ECE coursework must be completed at or above the 6000 level.
2. MS Plan A students must complete 6 credits of Thesis Research (ECE 6970).

Department of Electrical and Computer Engineering

3. MS Plan B students must complete 3 credits of Thesis Research (ECE 6970) and 3 credits of Design Project (ECE 6950).
4. 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 Engineering

1. At least 18 credits of ECE coursework must be completed at or above the 6000 level.
2. At least two ECE courses with substantial lab components must be completed at or above the 5000 level. This requirement may be waived for students who have taken two USU ECE lab intensive courses as undergraduates and who received a grade of *B-* or better in both of these classes.

All Master's Students

1. At least 3 credits of ECE coursework must be completed at the 7000 level.
2. One credit of ECE 6800 (Electrical Engineering Colloquium) must be completed as soon as possible.
3. Each master's student must form a committee and have a program of study approved by the end of his or her first semester.
4. No more than 3 courses of 5000-level coursework may be applied toward a master's degree.
5. 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 beyond the requirements for a BS degree; *or* to complete at least 21 credits 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 MS degree, with 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. National Center for the Design of Molecular Function (NCDMF)
3. Space Dynamics Laboratory (SDL)
4. Anderson Center for Wireless Teaching and Research
5. Center for High-Speed Information Processing (CHIP)
6. Center for Advanced Imaging LADAR (CAIL)

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
Tamal Bose, digital signal processing, communications
Joe R. Doupnik, communications, computers
H. Scott Hinton, photonic switching, Dean of College of Engineering
Todd K. Moon, communications and signal processing
Linda S. Powers, biophysics, molecular 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
Clair L. Wyatt, infrared, electro-optical systems

Associate Professors

Scott E. Budge, signal processing, image processing
Charles M. Swenson, space science and space engineering
Paul A. Wheeler, microprocessors, acoustics

Department of Electrical and Computer Engineering

Research Associate Professor

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

Annette Bunker, computer security, hardware verification

Yang Quan Chen, control systems

Aravind Dasu, computer engineering

Brandon K. Eames, computer engineering

Jacob H. Gunther, communications and signal processing

George K. Liang, electromagnetics

Wei Ren, controls

Chris Winstead, analog VLSI

Principal Lecturers

Paul D. Israelsen, integrative services, digital systems design

Randy J. Jost, electromagnetics, microwave engineering, solid state electronics

Research Assistant Professor

Hui Fang Dou, precision instruments, mechatronics

Adjunct Research Assistant Professor

Steven R. Wassom, controls

Course Descriptions

Electrical and Computer Engineering (ECE), pages 601-604.

Department of Elementary Education

Department Head: Bernard L. Hayes
Location: Emma Eccles Jones Education 385A
Phone: (435) 797-0385
FAX: (435) 797-0372
E-mail: elemeduc@cc.usu.edu
WWW: <http://www.cehs.usu.edu/eled/>

Student Teaching Director:
 Katy Johnson, Education 371, (435) 797-0371,
katy.johnson@usu.edu

Undergraduate Advisors:
 Dawn D. Black, Education 383, (435) 797-0383,
dawn.black@usu.edu
 Sylvia Robinson, Education 377, (435) 797-0377,
sylvia.robinson@usu.edu
 Denise E. Taylor, Education 375, (435) 797-0375,
denise.taylor@usu.edu

Degrees offered: Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), Master of Arts (MA), and Master of Education (MEd) in Elementary Education; BS and BA in Early Childhood Education; the Elementary Education Department participates in the Interdepartmental Doctoral Program in Education, including Doctor of Education (EdD) and Doctor of Philosophy (PhD) with 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 Department of Elementary Education 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 department 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 Department of Elementary Education at Utah State University offers eight 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) Dual Elementary and Early Childhood Education (preschool through grade 6); (4) Composite Elementary Education/Special Education—Mild/Moderate (grades 1 through 6 Special Education, and grades kindergarten through 12); (5) Composite Elementary Education/Special Education—Severe (grades 1 through 6 Special Education, and grades kindergarten through 12); (6) Composite Early Childhood Education/Special Education—Early Childhood (preschool through grade 3, and Special Education birth through age 5); (7) Composite Elementary Education/Deaf Education (grades 1-6, and master's in Deaf Education); (8) 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 College of Education and Human Services, (435) 797-2417, francine.johnson@usu.edu.

Assessment

To review Department of Elementary Education assessment information, visit <http://www.coe.usu.edu/eled/> and click on the assessment link.

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 BIS 1400 teach the required skills.

Quantitative Literacy (QL) (3 credits)

(A grade lower than a C- will not be accepted in this course.)

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 (22 credits)

Choose one course from the following to meet the BAI requirement:

ECON 1500, HIST 1700, 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

Choose one course from the following to meet the BLS requirement:

AWER 1200, BIOL 1010, FRWS 2200, NFS 1020, PLSC 2100,
 USU 1350 3

All students are required to complete PHYS 1200 (BPS) (4 cr). In

addition, students must choose *one* course from the following:

BMET 2000, GEOG 1000, GEO 1010, GEO 1150, CHEM 1010,
 PHYS 1040, SOIL 2000, USU 1360 7

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) 6-8

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)¹ Introduction to Logic and Geometry (F,Sp,Su) 3

Department of Elementary Education

Depth Course Requirements (2 courses)

Choose two approved University Studies depth courses designated DSC, DHA, or DSS (outside of area of Emphasis).

¹Prerequisite: MATH 1050 or Math ACT score of 25 or higher (also required to apply to the Teacher Education Program).

Requirements

Provisional Admission Process and Requirements

Since more students major in Elementary Education at USU than in any other major, 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 and Writing Diagnostic Test or PPST test results, (3) the number of credits a student has taken, (4) successful completion of a group assessment interview, and (5) a speech and hearing test. (Additional factors to be weighted may be gender and/or minority status consistent with applicable law.) 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 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 j 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 who work in conjunction with the Department of Elementary Education. 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 is the first-level course (ELED 1010) introducing the field of education and emphasizing the student's self-assessment in relation to ability and desire to teach. A minimum of 15 hours are spent observing in an elementary or middle school classroom, completing volunteer service in other community settings, and viewing a variety of selected professional videos. In addition, a human growth and development course 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. In this bloc, each student receives 15 credits and is assigned as a teacher assistant in one of the public schools. The remainder of the time is spent in seminars and classwork offered on the USU campus. The classwork is interdisciplinary and interrelated, including courses in elementary education, psychology, special education, and technology. Entrance to Level II requires prior admission to the Teacher Education Program.

Level III, Disciplines, is represented by the "D" in the acronym SODIA. Students in this bloc complete 15 credits of methods coursework and practica at the Edith Bowen Laboratory School or public schools. The "methods" courses in reading, social studies, language arts, mathematics, and science are included in this bloc. A preliminary course in reading is required as a transition from Level II to Level III.

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.

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 College of Education and Human Services. An advisor will be assigned from the Department of Elementary Education. Programs of professional education courses, as well as teaching support courses and an area of emphasis, have been developed by the Department of Elementary Education 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 Department website: <http://www.coe.usu.edu/eled/>

Prior to applying for Level III of the program, students are *required* to submit a background check. Prior to applying for student teaching, students are also *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.

Department of Elementary Education

Students who carefully select their elective courses may also qualify for a special endorsement to the basic professional teaching license. 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 Department of Elementary Education.

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 Department of Elementary Education.

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)

ELED 1010 Orientation to Elementary Education (F,Sp,Su)	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)	3

Level II (18 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)	8
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,Su)	3
ELED 3100 ² Teaching Reading I (F,Sp,Su)	3

²ELED 3100 may be taken after Level II, but before Level III.

Level III (15 credits; must follow Level II) (courses taken concurrently)

ELED 4000 Teaching Science and Practicum Level III (F,Sp,Su)	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III (F,Sp,Su)	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III (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 (F,Sp)	3

Teaching Support Courses (Elementary Education Major, 12-14 credits; Early Childhood and Elementary Education Dual Major, 9-11 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)	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)	3
ELED 4420 Multiple Talent Approach to Thinking (Su)	2
ELED 4480 Early Childhood Education Kindergarten through Grade 3 (F,Sp)	3
ELED 4710 Diversity in Education (F,Sp,Su)	3
ENGL 3530 Children's Literature (Sp)	3
ENVS 5110 Environmental Education (Sp)	3
FCHD 2610 Child Guidance (F,Sp)	3
LING 4100 The Study of Language (F,Sp)	3
LING 4900 Analysis of Cross-Cultural Difference (Sp)	3
THEA 4030 Storytelling (F,Sp,Su)	3
THEA 4330 Drama and Theatre for Youth: Grades K-6 (F,Sp,Su)	3

Emphasis (12 credits) (C- or better required)

Refer to page 263 for a listing of available Emphasis areas. For a listing of required and recommended courses, students should contact their advisor.

Suggested Four-year Course of Study for Elementary Education Major

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (31 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) ³ College Algebra	4
Breadth American Institutions (BAI) course ⁴	3
Breadth Humanities (BHU) course ⁴	3
Breadth Life Sciences (BLS) course ⁴	3

Spring Semester (15 credits)

STAT 1040 (QL) Introduction to Statistics	3
Breadth Creative Arts (BCA) course ⁴	3
Breadth Physical Sciences (BPS) course ⁴	3

Level I courses:

FCHD 1500 (BSS) Human Development Across the Lifespan	3
ELED 1010 Orientation to Elementary Education	3

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Sophomore Year (32 credits)

Fall Semester (15 credits)

MATH 2020 (QI) Introduction to Logic and Geometry.....	3
Breadth Physical Sciences (BPS) course ⁴	3
Breadth Social Sciences (BSS) course ⁴	3
Emphasis courses.....	6

Spring Semester (17 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
Emphasis courses.....	6
HEP elective course.....	2
Teaching Support elective course.....	3
University Studies Depth course.....	3

Note: Apply to the program by the July 1 deadline.

Junior Year (29 credits)

Fall Semester (15 credits)

Level II courses:

Students must be admitted to the Teacher Education Program prior to enrolling in Level II courses.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II.....	8
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

Spring Semester (14 credits)

ELED 3100 Teaching Reading I.....	3
PEP 3050 Physical Education in the Elementary School.....	3
MUSC 3260 Elementary School Music.....	2
University Studies Depth course.....	3
Teaching Support elective.....	3

Senior Year (30 credits)

Fall Semester (15 credits)

Level III courses:

ELED 4000 Teaching Science and Practicum Level III.....	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III.....	3
ELED 4050 Teaching Social Studies and Practicum Level III.....	3
ELED 4060 Teaching Mathematics and Practicum Level III.....	3

Spring Semester (15 credits)

Level IV courses:

ELED 5250 Student Teaching—Seminar.....	3
ELED 5100 Student Teaching—Primary Grades (1-3).....	6
ELED 5150 Student Teaching—Elementary (Grades 4-6).....	6

³The MATH 1050 requirement (or its equivalent) must be completed prior to application to the Teacher Education Program.

⁴At least two of the seven breadth courses must have a USU prefix.

Early Childhood Education Major (80 credits) or Early Childhood and Elementary Education Dual Major (89-91 credits)

(includes Teaching Support Courses and Emphasis)

Note: Grades lower than a C will not be accepted toward major requirements.

Level I (6 credits)

ELED 1010 Orientation to Elementary Education (F,Sp,Su).....	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)....	3

Level II (15 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
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 Teaching Reading I (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 4550⁵ Preschool Methods and Curriculum (F,Sp).....	3
ELED 4480⁵ Early Childhood Education Kindergarten through Grade 3 (F,Sp).....	3

Level III (15 credits; must follow Level II) (courses taken concurrently during fall, spring, or summer semester)

ELED 4000 Teaching Science and Practicum Level III.....	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III.....	3
ELED 4050 Teaching Social Studies and Practicum Level II.....	3
ELED 4060 Teaching Mathematics and Practicum Level III.....	3

Level IV (21 credits) (taken during two semesters)

ELED 5050⁶ Student Teaching—Kindergarten (F,Sp).....	6
ELED 5100⁶ Student Teaching—Primary Grades (1-3) (F,Sp).....	6
ELED 5250⁶ Student Teaching—Seminar (F,Sp).....	3
FCHD 4960⁷ Practice Teaching in Child Development Laboratories (F,Sp,Su).....	6

⁵Level II must be completed prior to taking this course.

⁶Level III and ELED 4480 must be completed prior to taking this course.

⁷FCHD 4550 must be completed prior to taking this course.

Emphasis (12 credits) (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, Early Childhood Education, or Dual Elementary Education and Early Childhood Education must complete an area of Emphasis consisting of 12 credits. 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.

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Suggested Four-year Course of Study for Early Childhood Education Major or Early Childhood and Elementary Education Dual Major

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (31 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) ⁸ College Algebra	4
Breadth American Institutions (BAI) course ⁹	3
Breadth Humanities (BHU) course ⁹	3
Breadth Life Sciences (BLS) course ⁹	3

Spring Semester (15 credits)

STAT 1040 (QL) Introduction to Statistics	3
Breadth Creative Arts (BCA) course ⁹	3
Breadth Physical Sciences (BPS) course ⁹	3

Level I courses:

FCHD 1500 (BSS) Human Development Across the Lifespan	3
ELED 1010 Orientation to Elementary Education	3

Sophomore Year (32 credits)

Fall Semester (15 credits)

MATH 2020 (QI) Introduction to Logic and Geometry	3
Breadth Physical Sciences (BPS) course ⁹	3
Breadth Social Sciences (BSS) course ⁹	3
Emphasis courses	6

Spring Semester (17 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Emphasis courses	6
HEP elective ³	2
Teaching Support elective ¹⁰	3
University Studies Depth course	3

Note: Apply to the program by the July 1 deadline.

Junior Year (31 credits)

Fall Semester (15 credits)

Level II courses:

Students must be admitted to the Teacher Education Program prior to enrolling in Level II courses.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II	6
FCHD 2600 Seminar in Early Childhood Education	2
FCHD 2630 Practicum in Early Childhood Education	2
PSY 3660 Educational Psychology for Teachers	2
ELED 3100 Teaching Reading I	3

Spring Semester (16 credits)

PEP 3050 ¹⁰ Physical Education in the Elementary School	3
MUSC 3260 ¹⁰ Elementary School Music	2
SPED 4000 Education of Exceptional Individuals	2
INST 4010 Principles and Practices of Technology for Elementary Teachers	3
ELED 4480 Early Childhood Education Kindergarten through Grade 3	3
FCHD 4550 Preschool Methods and Curriculum	3

Senior Year (30 credits)

Fall Semester (15 credits)

Level III courses:

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III	3
ELED 4050 Teaching Social Studies and Practicum Level III	3
ELED 4060 Teaching Mathematics and Practicum Level III	3

Spring Semester (15 credits)

Level IV courses:

ELED 5250 Student Teaching—Seminar	3
ELED 5050 Student Teaching—Kindergarten	6
ELED 5100 ¹¹ Student Teaching—Primary Grades (1-3) (6 cr) or	
ELED 5150 ¹¹ Student Teaching—Elementary (Grades 4-6) (6 cr)	6

Additional Semester (9 credits)

FCHD 4960 Practice Teaching in Child Development Laboratories	6
University Studies Depth course	3

⁸The MATH 1050 requirement (or its equivalent) must be completed prior to application to the Teacher Education Program.

⁹At least two of the seven breadth courses must have a USU prefix.

¹⁰This requirement applies only to those completing the dual major.

¹¹Early Childhood Education students should take ELED 5100. Dual Early Childhood/Elementary Education students should take ELED 5150.

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)

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) (18 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)	8
SPED 4000 Education of Exceptional Individuals	2
PSY 3660 Educational Psychology for Teachers	2
SPED 5530 Technology for Teaching Exceptional Learners	3
ELED 3100 Teaching Reading I	3

Level III (courses taken concurrently during fall, spring, or summer semester) (15 credits)

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III	3
ELED 4050 Teaching Social Studies and Practicum Level III	3
ELED 4060 Teaching Mathematics and Practicum Level III	3

Level IV (15 credits) (taken during fall or spring semester)

ELED 5150 Student Teaching—Elementary (Grades 4-6)	6
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SPED 5210 (CI) ¹² Student Teaching in Special Education: Dual Majors	6
ELED 5250 Student Teaching—Seminar	3

¹²Students 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) ¹³ Sign Language I (F,Sp,Su)	4
HEP 2000 ¹³ First Aid and Emergency Care (F,Sp,Su)	2

¹³Required 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

Suggested Four-year Course of Study for Elementary Education/Special Education Mild/Moderate Specialization

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (31 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) ¹⁴ College Algebra	4
Breadth American Institutions (BAI) course ¹⁵	3
Breadth Humanities (BHU) course ¹⁵	3
Breadth Life Sciences (BLS) course ¹⁵	3

Spring Semester (15 credits)

STAT 1040 (QL) Introduction to Statistics	3
Breadth Creative Arts (BCA) course ¹⁵	3
Breadth Physical Sciences (BPS) course ¹⁵	3

Level I courses:

FCHD 1500 (BSS) Human Development Across the Lifespan	3
ELED 1010 Orientation to Elementary Education	3

Sophomore Year (35 credits)

Fall Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 3260 Elementary School Music	2
PEP 3050 Physical Education in the Elementary School	3
SPED 4000 Education of Exceptional Individuals	2
Breadth Physical Sciences (BPS) course ¹⁵	3
Breadth Social Sciences (BSS) course ¹⁵	3

Spring Semester (19 credits)

Level II courses:

Students must be admitted to the Teacher Education Program prior to enrolling in Level II courses.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management	8
SPED 5530 Technology for Teaching Exceptional Learners	3
PSY 3660 Educational Psychology for Teachers	2
ELED 3100 Teaching Reading I	3
University Studies Depth course	3

Junior Year (33 credits)

Fall Semester (17 credits)

SPED 5010 (QI) Applied Behavioral Analysis I: 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 Semester (16 credits)

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

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SPED 5340 Teaching Math to Students with Mild/Moderate Disabilities	3
SPED 5420 Practicum: Teaching Mathematics to Students with Mild/Moderate Disabilities	4

Senior Year (30 credits)

Fall Semester (15 credits)

Level III courses:

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III	3
ELED 4050 Teaching Social Studies and Practicum Level III	3
ELED 4060 Teaching Mathematics and Practicum Level III	3

Spring Semester (15 credits)

Level IV courses:

ELED 5250 Student Teaching—Seminar	3
ELED 5150 Student Teaching—Elementary (Grades 4-6)	6
SPED 5210 (CI) Student Teaching in Special Education: Dual Majors	6

Additional Semester (6 credits)

MATH 2020 (QI) Introduction to Logic and Geometry	3
University Studies Depth course	3

Suggested Four-year Course of Study for Elementary Education/Special Education Severe Specialization

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (31 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL)¹⁴ College Algebra	4
Breadth American Institutions (BAI) course ¹⁵	3
Breadth Humanities (BHU) course ¹⁵	3
Breadth Life Sciences (BLS) course ¹⁵	3

Spring Semester (15 credits)

STAT 1040 (QL) Introduction to Statistics	3
Breadth Creative Arts (BCA) course ¹⁵	3
Breadth Physical Sciences (BPS) course ¹⁵	3

Level I courses:

FCHD 1500 (BSS) Human Development Across the Lifespan	3
ELED 1010 Orientation to Elementary Education	3

Sophomore Year (35 credits)

Fall Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 3260 Elementary School Music	2
PEP 3050 Physical Education in the Elementary School	3
SPED 4000 Education of Exceptional Individuals	2
Breadth Physical Sciences (BPS) course ¹⁵	3
Breadth Social Sciences (BSS) course ¹⁵	3

Spring Semester (19 credits)

Level II courses:

Students must be admitted to the Teacher Education Program prior to enrolling in Level II courses.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management	8
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SPED 5530 Technology for Teaching Exceptional Learners	3
PSY 3660 Educational Psychology for Teachers	2
ELED 3100 Teaching Reading I	3
University Studies Depth course	3

Junior Year (30 credits)

Fall Semester (16 credits)

SPED 5010 (QI) Applied Behavioral Analysis I: 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 Semester (14 credits)

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 5540 Assessment of Persons with Severe Disabilities	1
SPED 5610 Practicum: Advanced Systematic Instruction of Students with Severe Disabilities	4

Senior Year (30 credits)

Fall Semester (15 credits)

Level III courses:

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III	3
ELED 4050 Teaching Social Studies and Practicum Level III	3
ELED 4060 Teaching Mathematics and Practicum Level III	3

Spring Semester (15 credits)

Level IV courses:

ELED 5250 Student Teaching—Seminar	3
ELED 5150 Student Teaching—Elementary (Grades 4-6)	6
SPED 5210 (CI) Student Teaching in Special Education: Dual Majors	6

Additional Semester (12 credits)

MATH 2020 (QI) Introduction to Logic and Geometry	3
HEP 2000 First Aid and Emergency Care	2
COMD 2910 (CI) Sign Language I	4
University Studies Depth course	3

¹⁴The MATH 1050 requirement (or its equivalent) must be completed prior to application to the Teacher Education Program.

¹⁵At least two of the seven breadth courses must have a USU prefix.

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)

ELED 1010 Orientation to Elementary Education (F,Sp,Su)	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)	3

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Level II (courses taken concurrently during fall or spring semester) (15 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
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	2
ELED 3100 Teaching Reading I	3

Transition (11 credits)

SPED 5530 Technology for Teaching Exceptional Learners (Sp <i>only</i>)..	3
SPED 4000 Education of Exceptional Individuals (F,Sp,Su)	2
FCHD 4550¹⁶ Preschool Methods and Curriculum (F,Sp)	3
ELED 4480¹⁶ Early Childhood Education Kindergarten through Grade 3 (F,Sp).....	3

Level III (courses taken concurrently during fall, spring, or summer semester) (15 credits)

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III	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 5250¹⁷ Student Teaching—Seminar.....	3
ELED 5050¹⁷ Student Teaching—Kindergarten	3
ELED 5100¹⁷ Student Teaching Primary Grades (1-3).....	6
SPED 5210 (CI)¹⁷ Student Teaching in Special Education: Dual Majors	6
FCHD 4960¹⁸ Practice Teaching in Child Development Laboratories (Su also).....	3

¹⁶Level II must be completed prior to taking this course.

¹⁷Level III, Special Education major, and ELED 4480 must be completed prior to taking this course.

¹⁸FCHD 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
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

Spring:

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

Suggested Four-year Course of Study for Composite Early Childhood Education and Special Education—Early Childhood Major

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (31 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL)¹⁹ College Algebra	4
Breadth American Institutions (BAI) course ²⁰	3
Breadth Humanities (BHU) course ²⁰	3
Breadth Life Sciences (BLS) course ²⁰	3

Spring Semester (15 credits)

STAT 1040 (QL) Introduction to Statistics	3
Breadth Creative Arts (BCA) course ²⁰	3
Breadth Physical Sciences (BPS) course ²⁰	3

Level I courses:

FCHD 1500 (BSS) Human Development Across the Lifespan	3
ELED 1010 Orientation to Elementary Education	3

Sophomore Year (29 credits)

Fall Semester (14 credits)

MATH 2020 (QI) Introduction to Logic and Geometry	3
SPED 4000 Education of Exceptional Individuals	2
University Studies Depth course	3
Breadth Physical Sciences (BPS) course ²⁰	3
Breadth Social Sciences (BSS) course ²⁰	3

Spring Semester (15 credits)

Level II courses:

Students must be admitted to the Teacher Education Program prior to enrolling in Level II courses.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management.....	6
FCHD 2600 Seminar in Early Childhood Education	2
FCHD 2630 Practicum in Early Childhood Education	2
PSY 3660 Educational Psychology for Teachers	2
SPED 5530 Technology for Teaching Exceptional Learners	3

Junior Year (30 credits)

Fall Semester (15 credits)

ELED 3100 Teaching Reading I	3
ELED 4480 Early Childhood Education Kindergarten through Grade 3	3
FCHD 4550 Preschool Methods and Curriculum	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Depth course	3

Spring Semester (15 credits)

Level III courses:

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III.....	3
ELED 4050 Teaching Social Studies and Practicum Level III	3
ELED 4060 Teaching Mathematics and Practicum Level III.....	3

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Senior Year (34 credits)

Fall Semester (18 credits)

SPED 5010 (QI) Applied Behavioral Analysis I: 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 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

Spring Semester (16 credits)

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
FCHD 4960 Practice Teaching in Child Development Laboratories	3

Additional Semester (18 credits)

ELED 5250 Student Teaching—Seminar	3
ELED 5050 Student Teaching—Kindergarten	3
ELED 5100 Student Teaching—Primary Grades (1-3).....	6
SPED 5210 Student Teaching in Special Education: Dual Majors	6

¹⁹The MATH 1050 requirement (or its equivalent) must be completed prior to application to the Teacher Education Program.

²⁰At least two of the seven breadth courses must have a USU prefix.

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)

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) (18 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.....	8
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 Teaching Reading I	3

Level III (courses taken concurrently during fall, spring, or summer semester) (15 credits)

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3

ELED 4040 (CI) Teaching Reading II and Practicum Level III.....	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 (56 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)

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) (15 credits)

Students must be admitted to the Teacher Education Program prior to taking these classes.

ELED 3000 (CI) Foundation Studies, Practicum in Teaching and Classroom Management Level II.....	6
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Department of Elementary Education

ELED 3100 Teaching Reading I	3
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	2

Transition (11 credits)

SPED 4000 Education of Exceptional Individuals	2
INST 4010 Principles and Practices of Technology for Elementary Teachers	3
FCHD 4550 ²¹ Preschool Methods and Curriculum.....	3
ELED 4480 ²¹ Early Childhood Education Kindergarten through Grade 3	3

Level III (courses taken concurrently during fall, spring, or summer semester) (15 credits)

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III.....	3
ELED 4050 Teaching Social Studies and Practicum Level III	3
ELED 4060 Teaching Mathematics and Practicum Level III.....	3

Additional Course for Early Childhood (3 credits)

FCHD 4960 ²² Practice Teaching in Child Development Laboratories (Su also).....	3
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²¹Level II must be completed prior to taking this course.
²²Level II and FCHD 4550 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

Suggested Four-year Course of Study for Elementary Education/Deaf Education Composite Major

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (34 credits)

Fall Semester (18 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) ²³ College Algebra	4
HEP 2000 First Aid and Emergency Care (2 cr) or	
HEP 3500 Elementary School Health Education (2 cr)	2
Breadth American Institutions (BAI) course ²⁴	3
Breadth Humanities (BHU) course ²⁴	3
Breadth Life Sciences (BLS) course ²⁴	3

Spring Semester (16 credits)

COMD 2910 (CI) Sign Language I	4
Breadth Creative Arts (BCA) course ²⁴	3
Breadth Physical Sciences (BPS) course ²⁴	3

Level I courses:

FCHD 1500 (BSS) Human Development Across the Lifespan	3
ELED 1010 Orientation to Elementary Education	3

Note: Apply to the program by the July 1 deadline.

Sophomore Year (33 credits)

Fall Semester (15 credits)

Level II courses:

Students must be admitted to the Teacher Education Program prior to enrolling in Level II courses.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management.....	8
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

Spring Semester (18 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MATH 2020 (QI) Introduction to Logic and Geometry	3
MUSC 3260 Elementary School Music	2
COMD 3910 Sign Language II	4
Breadth Physical Sciences (BPS) course ²⁴	3
Breadth Social Sciences (BSS) course ²⁴	3

Junior Year (33 credits)

Fall Semester (18 credits)

STAT 1040 (QL) Introduction to Statistics	3
PEP 3050 Physical Education in the Elementary School	3
COMD 2500 Language, Speech, and Hearing Development	3
COMD 5610 Introduction to Education of the Deaf and Hard of Hearing	3
University Studies Depth courses	6

Spring Semester (15 credits)

Level III courses:

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III.....	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
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Department of Elementary Education

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

Student Teaching is completed during the MEd Graduate Program.

²³The MATH 1050 requirement (or its equivalent) must be completed prior to application to the Teacher Education Program.

²⁴At least two of the seven breadth courses must have a USU prefix.

Endorsements

The USU Elementary Education Department and Secondary Education Department jointly offer a K-12 English as a Second Language (ESL) Endorsement, as well as a Middle-Level Endorsement. Graduate endorsements are also available in Early Childhood Education, ESL, Reading, Gifted and Talented, and Middle-Level Education.

Departmental Honors

Students having majors within the Department of Elementary Education 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 Department of Elementary Education, contact Deborah Byrnes, (435) 797-0396, 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 Department Advisement Center, Emma Eccles Jones Education Building, Room 373. Major requirement sheets can also be found online at: <http://www.usu.edu/ats/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 Department 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 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 doctoral program. Students with deficient oral or written English skills will be required to complete additional coursework to improve their skills.

Admission to graduate programs is contingent upon (1) completion of an application to graduate school and (2) recommendation by the department screening committee for the master's program or the management admissions committee for the doctoral program. In addition to the requirements of the School of Graduate Studies (see pages 99-100), 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 Department of Elementary Education 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 department 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 department 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 ELED 6960, Master's Creative

Department of Elementary Education

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 Department of Elementary Education 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 department 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 Department of Elementary Education at Utah State University primarily through offerings at USU Continuing 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 ELED 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 Department of Elementary Education 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 department 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.

Doctoral Programs (PhD and EdD)

The department participates in the Interdepartmental Doctoral Program in Education, which includes the Doctor of Philosophy (PhD) and the Doctor of Education (EdD). For information about areas of specialization, emphasis of study, research sponsored, admission requirements, procedures to follow, and other information, see pages 251-252 of this catalog.

Additional Information

All students completing master's degrees in Elementary Education must enroll for a minimum of 10 credits *on the USU campus*, except for students completing their degrees at the following USU continuing 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 Department of Elementary Education. 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 department by March 15. To be eligible for financial assistance, a student must attend USU full-time. No financial assistance is available for summer semester.

Department of Elementary Education

Assistantships

Teaching assistantships are available through the department. 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 department to cover specific teaching assignments and by the faculty to provide for research.

Doctoral students desiring information about financial assistance should write to: Coordinator, Doctoral Degrees, 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 Faculty

Emma Eccles Jones Distinguished Professor

D. Ray Reutzel, reading

Professors

Deborah A. Byrnes, social studies education, early childhood education

Martha T. Dever, foundations, early childhood education

James T. Dorward, mathematics, program evaluation, middle level education

Bernard L. Hayes, reading education

John A. Smith, reading education

Associate Professors

James J. Barta, mathematics, early childhood education

Gary L. Carlston, instructional leadership

Parker C. Fawson, reading

Scott L. Hunsaker, gifted/talented education, foundations

Francine Fukui Johnson, foundations, gifted/talented education, supervision

Rebecca M. Monhardt, science education

Martha L. Whitaker, foundations

Assistant Professors

Tricia M. Gallagher-Geurtsen, social studies, multicultural/multilingual education

Leigh C. Monhardt, science education

Lisa Pray, bilingual/English-as-a-second-language education

Sylvia Read, language arts education

Temporary Lecturer

Judy Greene, language arts/foundations

Course Descriptions

Elementary Education (ELED), pages 609-613.

Department of Engineering and Technology Education

Department Head: Kurt Becker
Location: Industrial Science 112E
Phone: (435) 797-1795
FAX: (435) 797-2567
E-mail: kbecker@cc.usu.edu
WWW: <http://www.engineering.usu.edu/ete/>

Graduate Program Coordinator:
Edward M. Reeve, Industrial Science 108, (435) 797-3642,
ed.reeve@usu.edu

Undergraduate Advisor:
Ronnie Green, Engineering 312, (435) 797-2790,
ronnie@engineering.usu.edu

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

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** curriculum 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 are commensurate with those outlined for the University. See pages 16-20 in this catalog.

Professional Technology Program (PTP)

The Professional Technology Program (PTP) applies to the Aviation Technology—Maintenance Management major, as well as to the Aviation Technology—Professional Pilot major. The purpose of the program is to provide a quality education for students by requiring that they be fully prepared for upper-division coursework by having satisfactorily completed all required pre-professional courses.

Enrollment in upper-division AV and ETE courses (3000-level and above) is available only to students who have been accepted into the PTP or into an appropriate graduate program or to students with a non-ETE major requiring a specific class. (Non-ETE majors may take a *maximum of two* upper-division AV or ETE classes.)

To be eligible to apply for admission to a professional program, a student must be in good academic standing in the University and college, must achieve a grade of C- or better in every required preprofessional course, and must have an overall grade point average of 2.5 in required preprofessional coursework completed at USU.

A student can repeat no more than three of the required preprofessional courses in order to satisfy the PTP 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.

Although transfer credit accepted by the department and the college may be applied toward PTP admission requirements, the grades received will not be used in the USU GPA calculation. A final decision on admission of a transfer student into the PTP will not be made until after the applicant has completed at least 15 credits of acceptable coursework at USU.

Eligible students must apply for admission to the PTP during the semester in which they are completing the required preprofessional courses.

For all technology majors in the Professional Program, the following academic regulations apply in addition to University regulations:

1. A minimum GPA of 2.2 must be maintained in technology/math/science/business 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 6 hours 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 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-F grading option may not be used in required or elective courses completed as part of a Professional Program. (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 be placed on probation.

Department of Engineering and Technology Education

- a. Students will be placed on probation if they (i) earn an *F* in a technology/math/science/business course which could be used to satisfy graduation requirements for the chosen degree (see item 5 above); (ii) have more than 6 hours of *D* credit (see item 2 above); or (iii) have a GPA of less than 2.0 (see item 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 6 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 technology/math/science/business 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 per semester with the college academic advisor to work out a schedule having the primary goal of correcting the existing academic problems.

Requirements

Bachelor of Science in Engineering and Technology Education

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 (College of Education and Human Services). The suggested semester schedule is as follows:

Freshman Year (33 credits)

Fall Semester (17 credits)

ETE 1000 ² 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) ⁴ College Algebra	..... 4

Spring Semester (16 credits)

ETE 1020 Energy, Power, Transportation Systems Control Technology	..... 3
ETE 1040 Construction and Estimating	..... 3
MATH 1060 Trigonometry	..... 2
University Studies Breadth courses	..... 6
Elective course(s)	..... 2

Sophomore Year (30 credits)

Fall Semester (16 credits)

Note: Students should apply to the Secondary Teacher Education Program (STEP) *early* (see advisor).

ETE 2030 Wood-Based Manufacturing Systems	..... 3
ETE 2300 (QI) ⁶ Electronic Fundamentals	..... 4
ETE 3220 Architecture and Construction Systems	..... 3
University Studies Breadth course	..... 3
Elective course(s)	..... 3

Spring Semester (14 credits)

ETE 3440 (DSC) Science, Technology, and Modern Society	..... 3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	..... 3
PHYS 1800 (BPS) ^{5,7} Physics of Technology	..... 4
SPED 4000 ^{2,3} Education of Exceptional Individuals	..... 2
Elective course(s)	..... 2

Junior Year (31 credits)

Fall Semester (16 credits)

ETE 3200 ^{2,3} Methods of Teaching Engineering and Technology Education I	..... 3
ETE 3300 ^{2,3} Clinical Experience I	..... 1
SCED 3100 ^{2,3} Motivation and Classroom Management	..... 3
SCED 3210 (CI/DSS) ^{2,3,5} Educational and Multicultural Foundations	..... 3
University Studies Breadth courses	..... 6

Spring Semester (15 credits)

ETE 2660 Principles of Engineering Education	..... 3
ETE 4300 ^{2,3} Clinical Experience II	..... 1
ETE 4400 ^{2,3} Methods of Teaching Engineering and Technology Education II	..... 3
SCED 4200 (CI) ^{2,3} Reading, Writing and Technology	..... 3
SCED 4210 ² Cognition and Evaluation of Student Learning	..... 3
ADVS 2040 Introduction to Biotechnology	..... 1
INST 3500 ¹ Technology Tools for Secondary Teachers	..... 1

Senior Year (27 credits)

Fall Semester (12 credits)

ETE 5500 ^{2,3} Student Teaching Seminar	..... 2
ETE 5630 ^{2,3} Student Teaching in Secondary Schools	..... 10

Spring Semester (15 credits)

ETE 3040 Engineering Systems	..... 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)	..... 3

¹ The INST 3500 requirement has been waived. However, INST 4500 is recommended.

² This course is included in the Secondary Education Licensure Requirements. Prior to enrolling in this course, students must be admitted to the STEP.

³ Students must maintain a cumulative 2.75 GPA for admission to the College of Education and Human Services, for student teaching, and to receive secondary education licensure.

⁴ 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.

⁵ PHYS 1800 fulfills the University Studies Breadth Physical Sciences (BPS) requirement. SCED 3210 fulfills the University Studies Depth Social Sciences (DSS) requirement.

⁶ MATH 1050 is a prerequisite for ETE 2300.

⁷ MATH 1050 and 1060 are prerequisites for PHYS 1800 (which needs to be completed during the sophomore year).

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 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
ETE 4300 Clinical Experience II (Sp)	..... 1
ETE 4400 Methods of Teaching Engineering and Technology Education II (Sp)	..... 3

Department of Engineering and Technology Education

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	9

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.

Bachelor of Science in Aviation Technology— Maintenance Management

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 (34 credits)

Fall Semester (17 credits)	
AV 1130⁸ Flight Principles	2
AV 1140⁸ 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)^{8,9} College Algebra	4
University Studies Breadth course ^{11,12}	3

Spring Semester (17 credits)

AV 1240 Aircraft Maintenance	3
AV 2170⁸ Aircraft Systems.....	2
AV 2190 Aircraft Systems Lab.....	1
ETE 1030¹¹ Material Processing Systems.....	3
ETE 1200¹¹ Computer-Aided Drafting and Design	3
MATH 1060^{8,15} Trigonometry	2
University Studies Breadth course ^{11,12}	3

Sophomore Year (33 credits)

Fall Semester (16 credits)	
AV 2100 Aircraft Reciprocating Powerplants and Accessories.....	3
AV 2110 Aircraft Reciprocating Powerplants and Accessories Lab.....	3
ETE 2300 (QI)^{8,9} Electronic Fundamentals.....	4
ENGL 1010 (CL1)^{8,11,12} Introduction to Writing: Academic Prose	3
Elective course(s).....	3

Spring Semester (17 credits)

AV 1100¹¹ The Aviation Profession	1
AV 2140⁸ Aircraft Turbine Powerplants and Maintenance Operations ..3	
AV 2150⁸ 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)^{8,11,12} Intermediate Writing: Research Writing in a Persuasive Mode.....	3
University Studies Breadth course ^{11,12}	3

Junior Year (30 credits)

Fall Semester (14 credits)	
AV 3010¹¹ National Airspace, Air Traffic Control, and Airport Administration.....	3
AV 3280 Advanced Turbine Engines	2
MATH 1100 (QL)^{11,12} Calculus Techniques.....	3
Technical Elective course ¹³	3
University Studies Breadth course ^{11,12}	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
MHR 3110 (DSS)^{10,11,12,14} Managing Organizations and People.....	3
PHYS 1800 (BPS)^{9,14,15} Physics of Technology.....	4
University Studies Depth Humanities and Creative Arts (DHA) course ^{11,12}	3

Senior Year (29 credits)

Fall Semester (16 credits)	
AV 3120 Aviation Law.....	3
AV 4610 (CI) AeroTechnology Design II.....	3
MHR 3710^{10,11,12} Developing Team and Interpersonal Skills.....	3
STAT 2300 (QL)^{9,12} Business Statistics.....	4
University Studies Breadth course ^{11,12}	3

Spring Semester (13 credits)

AV 4620 (CI) AeroTechnology Design III.....	3
AV 4200 Composite Manufacturing Processes and Repair	3
Technical Elective courses ¹³	7

Students must complete a total of 40 credits of stipulated upper-division coursework.

⁸ This course is required for entrance to the Professional Technology Program (PTP). Completion of the Computer and Information Literacy (CIL) exam with a passing grade is also required.

⁹ 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, ETE 2300, and PHYS 1800.

¹⁰ Students must have a cumulative GPA of at least 2.67 and have professional status to be admitted to these College of Business courses.

¹¹ 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.

¹² These courses may be taken during summer semester to allow for more reasonable course loads during the academic year.

¹³ Students must take 10 credits of technical electives which must be in upper-division courses (3000-level and above).

¹⁴ PHYS 1800 fulfills the University Studies Breadth Physical Sciences (BPS) requirement. MHR 3110 fulfills the University Studies Depth Social Sciences (DSS) requirement.

¹⁵ MATH 1060 is a prerequisite for PHYS 1800.

Department of Engineering and Technology Education

Bachelor of Science in Aviation Technology— Professional Pilot

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 (31 credits)

Fall Semester (15 credits)

AV 1100 The Aviation Profession	1
AV 1130 Flight Principles.....	2
AV 2330 ¹⁶ Private Pilot Ground School.....	4
AV 2350 ^{16,19} Private Pilot Certification.....	1
MATH 1050 (QL) ^{16,21} College Algebra.....	4
University Studies Breadth course	3

Spring Semester (16 credits)

AV 2170 Aircraft Systems.....	2
AV 2510 ^{16,19} Intermediate Flight.....	1
BMET 2000 (BPS) ¹⁶ The Atmosphere and Weather.....	3
ENGL 1010 (CL1) ¹⁶ Introduction to Writing: Academic Prose.....	3
MATH 1060 ¹⁶ Trigonometry.....	2
Elective courses	5

Sophomore Year (34 credits)

Fall Semester (17 credits)

AV 2180 Aircraft Hydraulic and Pneumatic Systems.....	2
AV 2520 ^{16,22} Instrument Pilot Ground School.....	4
AV 2540 ¹⁹ Instrument Pilot Certification I.....	1
ETE 2300 (QI) ^{16,20} Electronic Fundamentals.....	4
Any Communications Intensive (CI) approved course.....	3
University Studies Breadth course	3

Spring Semester (17 credits)

AV 2430 Aircraft Electrical Systems and Components.....	2
AV 2550 ¹⁹ Instrument Pilot Certification II.....	1
AV 2620 Commercial Pilot Ground School.....	2
BMET 3250 ²² Aviation Weather.....	3
ENGL 2010 (CL2) ¹⁶ Intermediate Writing: Research Writing in a Persuasive Mode.....	3
MATH 1100 (QL) ²⁰ Calculus Techniques.....	3
University Studies Breadth course	3

Junior Year (30 credits)

Fall Semester (16 credits)

AV 2660 ¹⁹ 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 Operations.....	3
University Studies Breadth course	3

Spring Semester (14 credits)

AV 2720 CFI and CFII Ground School.....	3
AV 2880 ¹⁹ Multi-Engine Certification.....	1
AV 4490 Human Factors in Aviation Safety.....	3
AV 5400 Regional Jet Ground School I.....	4
MHR 3110 (DSS) ^{17,18,24} Managing Operations and People.....	3

Senior Year (31 credits)

Fall Semester (15 credits)

AV 2740 ¹⁹ CFI Certification.....	1
AV 2860 ¹⁹ CFII Certification.....	1
AV 4660 (CI) Flight Senior Project.....	3
AV 5410 Regional Jet Ground School II.....	4
Upper-division elective course ¹⁷	3
University Studies Breadth course	3

Spring Semester (16 credits)

ETE 5910 Special Problems: Regional Jet Simulator.....	3
PHYS 1800 (BPS) ^{18,23} Physics of Technology.....	4
Upper-division elective courses ¹⁷	6
University Studies Depth Humanities and Creative Arts (DHA) course.....	3

¹⁶This course is required for entrance to the Professional Technology Program (PTP). Completion of the Computer and Information Literacy (CIL) exams with passing grades is also required for PTP admission.

¹⁷Students should contact their advisor for a list of approved upper-division electives.

¹⁸MHR 3110 fulfills the University Studies Depth Social Sciences (DSS) requirement. PHYS 1800 fulfills the University Studies Breadth Physical Sciences (BPS) requirement.

¹⁹Depending 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.

²⁰MATH 1050 is a prerequisite for ETE 2300 and MATH 1100.

²¹A 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.

²²Students should take BMET 2000 prior to taking AV 2520 and BMET 3250.

²³MATH 1050 and 1060 are prerequisites for PHYS 1800.

²⁴All students must have a cumulative GPA of at least 2.67 and have professional status in order to be admitted to College 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,Su).....	3
ETE 2300 (QI) Electronic Fundamentals (F,Su).....	4
MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
MATH 1060 Trigonometry (F,Sp,Su).....	2
PHYS 1800 (BPS) Physics of Technology.....	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@cc.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/ats/majorsheets/>

Graduate Programs

The Master of Science (MS) degree in Engineering and Technology Education is offered by the department. Candidates may choose either the Plan A thesis option or the Plan B nonthesis program.

Admission Requirements

See the general admission requirements for graduate study in this catalog (pages 99-100). 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.

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
Maurice G. Thomas, technology education

Professor Emeritus

Jay C. Hicken, technology education, wood technology, power/energy transportation

Associate Professors

Ward P. Belliston, computer electronics technology
Richard A. Charles, director of Aviation Program
Gary A. Stewardson, technology education, manufacturing technology

Assistant Professor

Paul D. Schreuders, engineering education

Senior Lecturer

James L. Garrett, aviation maintenance

Lecturers

Randall W. Chesley, aviation maintenance
Gary R. Green, aviation technology, professional pilot

Chief Flight Instructor

Sean E. Heiner

Course Descriptions

Aviation Technology (AV), pages 565-566.
Engineering and Technology Education (ETE), pages 621-624.

Department of English

Department Head: Jeffrey Smitten

Location: Ray B. West 201

Phone: (435) 797-2733

FAX: (435) 797-3797

E-mail: info@english.usu.edu

WWW: <http://english.usu.edu/>

Associate Department Head:

Kristine A. Miller, Ray B. West 205, (435) 797-3646,

kmiller@english.usu.edu

Director, Graduate Studies:

Keith A. Grant-Davie, Ray B. West 310, (435) 797-3547,

kgrant-davie@english.usu.edu

Director, Undergraduate Studies:

Kathryn R. Fitzgerald, Ray B. West 204F, (435) 797-0235,

kfitzgerald@english.usu.edu

Advisor, Undergraduate Studies:

Lisa R. Hamblin, Student Center 302, (435) 797-3883,

lisa.hamblin@usu.edu

Director, American Studies Program

and American Studies Graduate Advisor:

Jan E. Roush, Ray B. West 312G, (435) 797-2729,

jroush@english.usu.edu

Director, Folklore Program:

Jeannie B. Thomas, Ray B. West 302B, (435) 797-2736,

jthomas@english.usu.edu

Director, Writing Program and Director, Utah Writing Project:

Lynn L. Meeks, Family Life 201, (435) 797-2723,

lmeeks@english.usu.edu

Director, Writing Center:

Charlene A. Hirschi, Ray B. West 104B, (435) 797-3853,

chirschi@english.usu.edu

Associate Director, Writing Center:

Star Coulbrooke, Ray B. West 103B, (435) 797-2726,

scoulbrooke@english.usu.edu

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.

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 16-20 and 58-61 of this catalog. To remain in good standing and to obtain approval for graduation as English majors or minors, students must 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 page 495 for procedures and requirements pertaining to teacher licensure and admission requirements, or go online to:

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

Department of English

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 *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

This 49-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 and a linguistics course in which they study the structure and history of the English language.

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. Students also select one elective course in authors or genres from ENGL courses numbered 4300 through 4370.

The final course, a senior capstone seminar (ENGL 5350), encourages graduating students to both synthesize and critique their differing educational experiences within the program.

A. Core Requirements (4 credits)

ENGL 1110 English Orientation (F,Sp)	1
ENGL 2600 ¹ 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 ² Period Studies in American Literature (F,Sp)	3
ENGL 3310 ² Period Studies in British Literature (F,Sp)	3
ENGL 3320 ² Period Studies in World Literature (F,Sp)	3
ENGL 3330 Literary Theory (F,Sp)	3

D. Linguistics (3 credits)

Select one of the following courses:

ENGL 4200 Linguistic Structures (F,Sp,Su)	3
ENGL 4210 History of the English Language (Sp)	3

E. Authors (6 credits)

Complete ENGL 4300 and one other course.

ENGL 4300 ² Shakespeare (F,Sp)	3
ENGL 4310 ² American Writers (F,Sp)	3
ENGL 4320 ² British Writers (F,Sp)	3
ENGL 4330 ² World Writers (F)	3

F. Genre (6 credits)

Select two courses from the following:

ENGL 4340 ² Studies in Prose Fiction (Sp)	3
ENGL 4350 ² Studies in Poetry (F)	3
ENGL 4360 ² Studies in Drama/Film (Sp)	3
ENGL 4370 ² Studies in Nonfiction Prose (F)	3

G. Literature and Culture (6 credits)

Select two courses from the following:

ENGL 5300 (CI) ² Literature and Gender (F,Sp)	3
ENGL 5320 (CI) ² Literature and Cultural Difference (Sp)	3
ENGL 5340 (CI) ² Studies in Literary and Cultural Theory (F)	3

H. Capstone Seminar (3 credits)

ENGL 5350 (CI) ³ Literary Studies Capstone (Sp)	3
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I. Electives (3 credits)

Select one additional course from category E or F.

Sample Four-year Plan for English Major, 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 is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ENGL 1110 English Orientation	1
University Studies Breadth courses	6
University Studies Quantitative Literacy (QL) course	3
Elective course(s)	2

Spring Semester (15 credits)

ENGL 2600 Literary Analysis	3
ENGL Literary History course	3
University Studies Breadth courses	9

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
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ENGL Period Studies Literature course	3
ENGL Literary History course	3
University Studies Breadth course	3
Depth Life and Physical Sciences (DSC) course	3

Spring Semester (15 credits)

ENGL 3330 Literary Theory	3
ENGL Literary History course	3
ENGL Linguistics course	3
Quantitative Intensive (QI) course (PHIL 2200 suggested)	3
Elective course(s)	3

Junior Year (30 credits)

Fall Semester (15 credits)

ENGL 4300 Shakespeare	3
ENGL Authors course	3
ENGL Genre course	3
Elective courses	6

Spring Semester (15 credits)

ENGL Authors course	3
ENGL Genre course	3
ENGL Period Studies Literature course	3
Depth Social Sciences (DSS) course	3
Elective course(s)	3

Senior Year (30 credits)

Fall Semester (15 credits)

ENGL Communications Intensive (CI) Literature and Culture course	3
ENGL Authors course or Genre course	3
Elective courses	9

Spring Semester (15 credits)

ENGL 5350 (CI) Literary Studies Capstone	3
ENGL Literature and Culture course	3
Elective courses	9

Note: All courses from the following categories are upper-division courses: American, British, and World Literature; Linguistics; Authors; Genre; and Literature and Culture.

Professional and Technical Writing Emphasis

This 49-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 Requirements (4 credits)

ENGL 1110 English Orientation (F,Sp)	1
ENGL 1120⁴ 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)

Select two courses from the following:

ENGL 3450 Reading Theory for Writers (F,Sp)	3
ENGL 3460 Modern Rhetorical Theory (F,Sp)	3
ENGL 5490⁷ Usability Studies: Theory and Practice (F,Sp)	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 (6 credits)

Complete 6 credits from the following:

ENGL 3040 Perspectives in Writing and Rhetoric (F,Sp)	3
ENGL 3420 Fiction Writing (F)	3
ENGL 3430 Poetry Writing (F,Sp)	3
ENGL 3440 Creative Nonfiction Writing (F,Sp)	3
ENGL 4250 Playwriting (F)	3
ENGL 4420 Advanced Fiction Writing (Sp)	3
ENGL 4430 Advanced Poetry Writing (Sp)	3
ENGL 4440 Advanced Nonfiction Writing (Sp)	3
ENGL 4900 Internship/Cooperative Work Experience (F,Sp,Su)	1-6

G. Major Courses (15 credits)

ENGL 4400 (CI)⁶ Professional Editing (F)	3
ENGL 4410⁶ Document Design and Graphics (F,Sp)	3
ENGL 5400^{5,6} Specialized Documents (F,Sp)	3
ENGL 5410^{6,8} Interactive Media (F,Sp)	3
ENGL 5420⁶ Publications Production (Sp)	3

Department of English

H. Capstone Seminar (3 credits)

ENGL 5430 (CI) ³ Professional Writing Capstone (Workplace Culture and Communication) (F,Sp)	3
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Sample Four-year Plan for English Major, 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 is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ENGL 1110 English Orientation	1
University Studies Breadth courses	6
University Studies Quantitative Literacy (QL) course	3
Elective course(s)	2

Spring Semester (15 credits)

ENGL 1120 Elements of Grammar (or exam)	3
University Studies Breadth courses	9
Elective course(s)	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
ENGL Literary History course	3
University Studies Breadth course	3
Depth Life and Physical Sciences (DSC) course	3
Elective course(s)	3

Spring Semester (15 credits)

ENGL 3400 (CI) Professional Writing	3
ENGL 3410 Professional Writing Technology	3
Quantitative Intensive (QI) course (PHIL 2200 suggested)	3
Elective courses	6

Junior Year (30 credits)

Fall Semester (15 credits)

ENGL 4400 (CI) Professional Editing	3
ENGL Theoretical Foundation course	3
ENGL Applied and Creative Writing course	3
Depth Social Sciences (DSS) course (SPCH 3050 suggested)	3
Elective course(s)	3

Spring Semester (15 credits)

ENGL 4410 Document Design and Graphics	3
ENGL Theoretical Foundation course	3
ENGL Applied and Creative Writing course	3
ENGL Linguistics course	3
Elective course(s)	3

Senior Year (30 credits)

Fall Semester (15 credits)

ENGL 5400 Specialized Documents	3
ENGL 5410 Interactive Media	3
ENGL Linguistics course	3
Elective courses	6

Spring Semester (15 credits)

ENGL 5420 Publications Production	3
ENGL 5430 (CI) Professional Writing Capstone (Workplace Culture and Communication)	3
Elective courses	9

Note: All courses from the following categories are upper-division courses: Theoretical Foundation; Linguistics; and Applied and Creative Writing.

English Teaching Emphasis

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 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 Department of Secondary Education.

A. Core Requirements (4 credits)

ENGL 1110 English Orientation (F,Sp)	1
ENGL 2600 Introduction to Literary Theory (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 3400 (CI) Professional Writing (F,Sp)	3
ENGL 3420 Fiction Writing (F)	3
ENGL 3430 Poetry Writing (F,Sp)	3
ENGL 3440 Creative Nonfiction Writing (F,Sp)	3
ENGL 4420 Advanced Fiction Writing (Sp)	3
ENGL 4430 Advanced Poetry Writing (Sp)	3
ENGL 4440 Advanced Nonfiction Writing (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)	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 3210 Classical Mythology (Honors only) (Sp)	3

d. Group 4 (3 credits)

ENGL 4340 Studies in Prose Fiction (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

G. Capstone Seminar (3 credits)

ENGL 5550 English Teaching Capstone (Sp)	3
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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 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.

H. Teaching Minor

Students in the English Teaching emphasis are also required to complete a teaching minor selected from among the following: Business Computer and Information Systems, Business Information Technology and Education, Chemistry, Geography, Health Education, History, Marketing Education, Mathematics, Modern Languages (French, German, Spanish), Physical Education Coaching, Physics,

Political Science, Psychology, School Library Media, Sociology, Speech Communication, English as a Second Language, and Theatre Arts.

I. 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 Department of Secondary Education. 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 Department of Secondary Education for further information regarding this program.

Sample Four-year Plan for English Major, 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 is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ENGL 1110 English Orientation	1
University Studies Breadth courses	6
University Studies Quantitative Literacy (QL) course	3
Elective course(s)	2

Spring Semester (15 credits)

ENGL 1120 Elements of Grammar (or exam)	3
ENGL Literary History course	3
University Studies Breadth courses	9

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (36 credits)

Fall Semester (18 credits)

ENGL 2600 Literary Analysis	3
ENGL 4200 Linguistic Structures	3
ENGL Literary History course	3
University Studies Breadth course	3
Depth Life and Physical Sciences (DSC) course	3
Teaching Minor course	3

Spring Semester (18 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
ENGL 3310 Period Studies in British Literature (3 cr) or	
ENGL 4320 British Writers (3 cr)	3
ENGL 3510 Young Adult Literature	3
ENGL Literary History course	3
Quantitative Intensive (QI) course	3
Teaching Minor course	3

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Junior Year (33 credits)

Fall Semester (18 credits)

ENGL 3400 Professional Writing (3 cr) or	
ENGL 3420 Fiction Writing (3 cr) or	
ENGL 3430 Poetry Writing (3 cr) or	
ENGL 3440 Creative Nonfiction Writing (3 cr)	3
ENGL 3520 Multicultural American Literature	3
ENGL 4300 Shakespeare	3
ENGL 4500 (CI) Teaching Writing	3
Teaching Minor courses	6

Spring Semester (15 credits)

ENGL 4220 Ethnic Literacy	3
ENGL 3300 Period Studies in American Literature (3 cr) or	
ENGL 4310 American Writers (3 cr) or	
ENGL 4610 Western American Literature (3 cr) or	
ENGL 4630 American Nature Writers (3 cr)	3
ENGL 4340 Studies in Prose Fiction (3 cr) or	
ENGL 4350 Studies in Poetry (3 cr) or	
ENGL 4360 Studies in Drama/Film (3 cr) or	
ENGL 4370 Studies in Nonfiction Prose (3 cr) or	
Folklore Classes: ENGL 3700 (Regional Folklore), ENGL 3710 (Folklore Colloquium), ENGL 4700 (Folk Material Culture), ENGL 4750 (Folklore Summer Workshop), ENGL 5700 (Folk Narrative) (3 cr)	3
Teaching Minor courses	6

Senior Year (35 credits)

Fall Semester (17 credits)

ENGL 3320 Period Studies in World Literature (3 cr) or	
ENGL 4330 World Writers (3 cr)	3
ENGL 4510 (CI) Teaching Literature	3
INST 3500 Technology Tools for Secondary Teachers	1
SCED 3100 Motivation and Classroom Management	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
SCED 3300 Clinical Experience I	1
SCED 3600 Teaching English	3

Spring Semester (18 credits)

ENGL 5550 English Teaching Capstone	3
SCED 4200 (CI) Reading, Writing, and Technology	3
SCED 4210 Cognition and Evaluation of Student Learning	3
SPED 4000 Education of Exceptional Individuals	2
Teaching Minor Methods course	3
Minor Clinical Experience course	1
Teaching Minor course	3

Certification Year (12 credits)

SCED 5500 Student Teaching Seminar	2
SCED 5630 Student Teaching in Secondary Schools	10

Creative Writing Emphasis

This 52-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 in the study of the English language, a course focused on the study of a single author, and a course in the study of one's chosen genre. Students also select two courses (for 6 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 Introduction to Literary Theory (F,Sp)	3

B. Literary History (12 credits)

Select all four of the following courses:

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 (15 credits)

Select all three of the following courses:

ENGL 3420 Fiction Writing (F)	3
ENGL 3430 Poetry Writing (F,Sp)	3
ENGL 3440 Creative Nonfiction Writing (F,Sp)	3

Select two of the following courses:

ENGL 4250 Playwriting (F)	3
ENGL 4420 Advanced Fiction Writing (prereq. ENGL 3420) (Sp)	3
ENGL 4430 Advanced Poetry Writing (prereq. ENGL 3430) (Sp)	3
ENGL 4440 Advanced Nonfiction Writing (Sp)	3

D. American, British, and World Literature (3 credits)

Select one of the following courses:

ENGL 3300 ² Period Studies in American Literature (F,Sp)	3
ENGL 3310 ² Period Studies in British Literature (F,Sp)	3
ENGL 3320 ² Period Studies in World Literature (F,Sp)	3

Note: The Period Studies courses vary according to the specialty of the faculty member teaching the course.

E. Linguistics (3 credits)

Select one course:

ENGL 4200 Linguistic Structures (F,Sp,Su)	3
ENGL 4210 History of the English Language (Sp)	3

F. Authors (3 credits)

Select one of the following courses:

ENGL 4300 ² Shakespeare (F,Sp)	3
ENGL 4310 ² American Writers (F,Sp)	3
ENGL 4320 ² British Writers (F,Sp)	3
ENGL 4330 ² World Writers (F)	3

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Note: The Writers courses vary according to the specialty of the faculty member teaching the course.

G. Genres (3 credits)

Select one of the following courses:

ENGL 4340² Studies in Prose Fiction (Sp).....	3
ENGL 4350² Studies in Poetry (F).....	3
ENGL 4360² Studies in Drama/Film (Sp).....	3
ENGL 4370² Studies in Nonfiction Prose (F).....	3

Note: The Genre courses vary according to the specialty of the faculty member teaching the course.

H. Capstone Seminar (3 credits)

ENGL 5450³ Creative Writing Capstone (Sp).....	3
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I. Electives (6 credits)

¹ENGL 2600 should be taken before registering for 3000 or above literature courses.

²These courses are repeatable for credit.

³This capstone course should be completed during the senior year.

⁴ENGL1120 is waived if students pass the grammar challenge exam. For further information, contact the undergraduate advisor.

⁵ENGL 5400 includes proposals, brochures, environmental impact statements, newsletters, computer documentation, etc. This course is repeatable for credit.

⁶Prerequisite: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better.

⁷Prior to enrolling in ENGL 5490, students must have completed either ENGL 3450 or 3460 with a grade of B- or better.

⁸ENGL 5410 includes multimedia, interactive and electronic texts, etc. This course is repeatable for credit.

Sample Four-year Plan for English Major, 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 is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ENGL 1110 English Orientation.....	1
University Studies Breadth courses	6
University Studies Quantitative Literacy (QL) course.....	3
Elective course(s).....	2

Spring Semester (15 credits)

ENGL Literary History course	3
University Studies Breadth courses	9
Elective course(s).....	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
ENGL Literary History course.....	3

University Studies Breadth course	3
Depth Life and Physical Sciences (DSC) course	3
Elective course(s).....	3

Spring Semester (15 credits)

ENGL 2600 Literary Analysis	3
ENGL 3430 Poetry Writing	3
ENGL 3440 Creative Nonfiction Writing	3
ENGL Literary History course.....	3
Elective course(s).....	3

Junior Year (30 credits)

Fall Semester (15 credits)

ENGL 3420 Fiction Writing.....	3
ENGL 4250 Playwriting (optional) (3 cr) or Elective course(s) (3 cr).....	3
ENGL American, British, and World Literature course	3
ENGL Literary History course	3
Quantitative Intensive (QI) course (PHIL 2200 suggested).....	3

Spring Semester (15 credits)

ENGL 4420 Advanced Fiction Writing (3 cr) or ENGL 4430 Advanced Poetry Writing (3 cr) or ENGL 4440 Advanced Nonfiction Writing (3 cr)	3
ENGL Linguistics course	3
ENGL Genre course	3
ENGL approved elective course.....	3
Elective course(s).....	3

Senior Year (30 credits)

Fall Semester (15 credits)

ENGL Authors course.....	3
ENGL approved elective courses	3
Communications Intensive (CI) course	3
Depth Social Sciences (DSS) course	3
Elective course(s).....	3

Spring Semester (15 credits)

ENGL 4420 Advanced Fiction Writing (3 cr) or ENGL 4430 Advanced Poetry Writing (3 cr) or ENGL 4440 Advanced Nonfiction Writing (3 cr)	3
ENGL 5450 Creative Writing Capstone.....	3
Communications Intensive (CI) course	3
Elective courses	6

Note: All courses from the following categories are upper-division courses: American, British, and World Literature; Linguistics; Authors; and Genre.

American Studies Major and Minor

Many important issues associated with the origin, evolution, and manifestation 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

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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

To obtain a degree in American Studies, students must complete a total of 51 credits, including 12 credits of core requirements that introduce foundations of American literature, region, and culture; 6 credits chosen from the 3000 level that expose students to the diversity of American culture; and 9 credits of upper-division work (4000 level) that allow students to approach American literature and culture through various genres.

In addition to completing the required English classes, students must complete 21 credits from two of the following six cognate areas: creative writing, folklore, history, nature and environment, political science, and sociology and anthropology. Students will be required to meet with either the director or the undergraduate advisor (Lisa Hamblin, 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 (12 credits)

ENGL 2160 American Literary History: Colonialism to 1865 (F,Sp)	3
ENGL 2170 American Literary History: 1865 to Present (F,Sp)	3
ENGL 2630 (BHU) American Culture and the Environment (F,Sp)	3
ENGL 4610 Western American Literature (F,Sp)	3

B. Choose two of the following courses (6 credits)

ENGL 3070 (DHA) Perspectives in Folklore (F,Su)	3
ENGL 3300 Period Studies in American Literature (F,Sp)	3
ENGL 3520 Multicultural American Literature (F,Sp)	3
ENGL 3620 Native American Studies (F,Sp)	3

C. Choose three of the following courses (9 credits)

ENGL 4310 American Writers (F,Sp)	3
ENGL 4340 Studies in Prose Fiction (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
ENGL 4620 (CI) Advanced Seminar in American Studies (F,Sp)	3
ENGL 4630 American Nature Writers (F,Sp)	3
ENGL/HIST 4640 (CI) Studies in the American West (F,Sp)	3
ENGL 4900 Internship/Cooperative Work Experience (F,Sp,Su)	1-3

D. Cognate Areas (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. Nature and Environment
5. Political Science
6. Sociology and Anthropology

E. Capstone Course (3 credits)

ENGL/HIST 5690 (CI) American Studies Capstone Seminar (Sp)	3
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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 must approve substitutions.

1. Creative Writing

Select *three* or *four* courses from the following:

ENGL 3420 Fiction Writing (F)	3
ENGL 3430 Poetry Writing (F,Sp)	3
ENGL 3440 Creative Nonfiction Writing (F,Sp)	3
ENGL 4420 Advanced Fiction Writing (Sp)	3
ENGL 4430 Advanced Poetry Writing (Sp)	3
ENGL 4440 Advanced Nonfiction Writing (Sp)	3

2. Folklore

Select *three* or *four* courses from the following:

ENGL/HIST/ANTH 2210 (BHU) Introduction to Folklore (F,Sp)	3
ENGL/HIST/ANTH 2720 Survey of American Folklore (F,Sp)	3
ENGL/HIST 3070 Perspectives in Folklore (F,Su)	3
ENGL/HIST 3700 (CI) Regional Folklore (F,Sp)	3
ENGL/HIST 3710 (CI) Folklore Colloquium (Sp)	3
ENGL/HIST 4700 Folk Material Culture (Sp)	3
ENGL/HIST 4750 Advanced Folklore Workshop: Fife Conference (Su)	3
ENGL/HIST/ANTH 5700 Folk Narrative (Sp)	3

3. History

Select *three* or *four* courses from the following:

HIST/ENGL 1600 American Cultures in Film (F,Sp)	3
HIST 2700 (BAI) United States to 1877 (F,Sp,Su)	3
HIST 2710 (BAI) United States 1877-Present (F,Sp,Su)	3
HIST 3720 Colonial America (F)	3
HIST 3730 The New American Nation (Sp)	3
HIST 3750 Civil War and Reconstruction (Sp)	3
HIST 3760 (CI) The United States, 1900-1945 (Sp)	3
HIST 3850 (CI) History of Utah (Sp)	3
HIST 4550 (CI) The History of Women and Family in America	3
HIST 4600 (CI) The History of the American West	3
HIST/ENGL 4640 (CI) Studies in the American West (F,Sp)	3
HIST 4710 American Indian History (F)	3
HIST 4730 (CI) History of Black America (Sp)	3
HIST 4740 American Immigration History (F)	3
HIST 4790 American Religious History	3
HIST 4810 American Military History	3

4. Nature and Environment

Select *three* or *four* courses from the following:

ENGL 4630 American Nature Writers (F,Sp)	3
ENVS 2340 (BSS) Natural Resources and Society (F,Sp)	3
ENVS 5110 Environmental Education (Sp)	3
FRWS 2200 (BLS) Ecology of Our Changing World (F,Sp)	3
HIST 3950 (CI) Environmental History	3
NR 1010 (BSS) Humans and the Changing Global Environment (F,Sp)	3
NR 2220 General Ecology (F,Sp)	3
PHIL 3510 Environmental Ethics (F,Sp)	3
POLS 4820 (DSS) Natural Resources and Environmental Policy (Sp)	3
SOC 3600 Sociology of Urban Places (F)	3
SOC 3610 (DSS) Rural Sociology (F)	3

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SOC 4620 (DSS) Sociology of the Environment and Natural Resources (Sp)	3
SPCH 5250 Environmental Rhetoric (Sp)	3

5. Political Science

Select *three* or *four* courses from the following:

POLS 1100 (BAI) United States Government and Politics (F,Sp)	3
POLS 2200 (BSS) Comparative Politics (F,Sp)	3
POLS 3140 (DSS) The Presidency (F)	3
POLS/ECON 3170 Law and Economics (F)	3
POLS 3310 (DSS) American Political Thought (F)	3
POLS 3320 The Foundations of American Constitutionalism	3
POLS 3400 (DSS) United States Foreign Policy (F,Sp)	3
POLS 4130 Constitutional Theory (Sp)	3
POLS 4140 Political Organizations	3

6. Sociology and Anthropology

Select *three* or *four* courses from the following:

ANTH 1010 (BSS) Cultural Anthropology (F,Sp)	3
ANTH 3110 North American Indian Cultures (F)	3
ANTH 3130 (CI) Peoples of Latin America	3
ANTH 3200 (DSS/CI) Perspectives on Race (Sp)	3
ANTH 3300 (DSS) Archaeology in North America (Sp)	3
ANTH 4110 (DSS) Southwest Indian Cultures, Past and Present (F)	3
ANTH 4360 (DSS) Ancient Desert West (F)	3-4
ANTH 5800 Museum Development (F,Sp,Su)	1-3
SOC 1010 (BSS) Introductory Sociology (F,Sp)	3
SOC 2370 Sociology of Gender (F)	3
SOC 3010 Race, Class, and Gender (F,Sp)	3

Sample Four-year Plan for American Studies 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

This is a sample plan. It outlines 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.

(**Note:** Students may *not* count the courses used for University Studies in a Cognate Area as well.)

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ENGL 1110 English Orientation	1
University Studies Breadth courses	6
University Studies Quantitative Literacy (QL) course	3
Elective course(s)	2

Spring Semester (15 credits)

ENGL 2160 American Literary History: Colonialism to 1865	3
ENGL 2630 (BHU) American Culture and Environment	3
University Studies Breadth courses	6
Elective course(s)	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
ENGL 2170 American Literary History: 1865 to Present	3
ENGL 3070 Perspectives in Folklore (3 cr) or	
ENGL 3300 Period Studies in American Literature (3 cr) or	
ENGL 3520 Multicultural American Literature (3 cr) or	
ENGL 3620 Native American Studies (3 cr)	3
University Studies Breadth course	3
Depth Life and Physical Sciences (DSC) course	3

Spring Semester (15 credits)

ENGL 3300 Period Studies in American Literature (3 cr) or	
ENGL 3520 Multicultural American Literature (3 cr)	3
ENGL 4310 American Writers (3 cr) or	
ENGL 4340⁹ Studies in Prose Fiction (3 cr) or	
ENGL 4360⁹ Studies in Drama/Film (3 cr) or	
ENGL 4630 American Nature Writers (3 cr) or	
ENGL 4900 Internship/Cooperative Work Experience (3 cr)	3
Cognate Area #1 course ¹⁰	3
Cognate Area #2 course ¹⁰	3
Elective course(s)	3

Junior Year (30 credits)

Fall Semester (15 credits)

ENGL 4310 American Writers (3 cr) or	
ENGL 4350⁹ Studies in Poetry (3 cr) or	
ENGL 4370⁹ Studies in Nonfiction Prose (3 cr) or	
ENGL 4620 (CI) Advanced Seminar in American Studies (3 cr) or	
ENGL 4630 American Nature Writers (3 cr) or	
ENGL 4640 (CI) Studies in the American West (3 cr) or	
ENGL 4900 Internship/Cooperative Work Experience (3 cr)	3
Cognate Area #1 course ¹⁰	3
Cognate Area #2 course ¹⁰	3
Depth Social Sciences (DSS) course (May <i>not</i> be a course used in one of the <i>Cognate Areas</i> .)	3
Elective course(s)	3

Spring Semester (15 credits)

ENGL 4310 American Writers (3 cr) or	
ENGL 4340⁹ Studies in Prose Fiction (3 cr) or	
ENGL 4360⁹ Studies in Drama/Film (3 cr) or	
ENGL 4630 American Nature Writers (3 cr) or	
ENGL 4900 Internship/Cooperative Work Experience (3 cr)	3
Quantitative Intensive (QI) course (PHIL 2200 suggested)	3
Cognate Area #1 course ¹⁰	3
Cognate Area #2 course ¹⁰	3
Elective course(s)	3

Senior Year (30 credits)

Fall Semester (15 credits)

ENGL 4610 Western American Literature	3
Communications Intensive (CI) course	3
Cognate Area #1 course ¹⁰	3
Elective courses	6

Spring Semester (15 credits)

ENGL 5690 (CI) American Studies Capstone Seminar	3
Elective courses	12

⁹These courses may be used toward the major *only* when course content is American Studies related. Students should contact their advisor for approval.

¹⁰Students may apply only *one* lower-division course in the *Cognate Areas* (one course total), *not* one course per Cognate Area.

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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 ENGL 2160, American Literary History: Colonialism to 1865; ENGL 2170, American Literary History: 1865 to Present; and one upper-division English course. They must also complete 12 credits of upper-division coursework drawn from two cognate areas. These courses of study must be approved by the Director of American Studies or by the American Studies advisor (Lisa Hamblin, 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 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)

ENGL/HIST/ANTH 2210 (BHU) Introduction to Folklore (F,Sp) 3
 ENGL/HIST/ANTH 5700 Folk Narrative (Sp) 3

B. Survey of Folklore in Culture and Place (3 credits)

Select *one* of the following courses:
 ENGL/HIST/ANTH 2720 Survey of American Folklore (F,Sp) 3
 ENGL/HIST 3700 (CI) Regional Folklore (F,Sp) 3

C. Folklore Genres (3 credits)

Select *one* of the following courses:
 ENGL/HIST 3070 (DHA) Perspectives in Folklore (F,Su) 3
 ENGL/HIST 4700 Folk Material Culture (Sp) 3

D. Focused Approaches to the Study of Folklore (3 credits)

Select *one* of the following courses:
 ENGL/HIST 3710 (CI) Folklore Colloquium (Sp) 3
 ENGL/HIST 4750 Advanced Folklore Workshop:
 Fife Conference (Su) 3

E. Electives (3 credits)

Select *one* of the following courses:
 ANTH 1010 (BSS) Cultural Anthropology (F,Sp) 3
 ANTH 2010 (BSS) Peoples of the Contemporary World (F) 3
 ANTH 3110 North American Indian Cultures (F) 3
 ANTH 3130 (CI) Peoples of Latin America 3
 ANTH 3160 (DSS) Anthropology of Religion (F) 3
 ANTH 4110 (DSS) Southwest Indian Cultures,
 Past and Present (F) 3
 ANTH 4120 (CI/DSS) Ethnography of Childhood (F) 3
 ANTH 4130 (DSS) Medical Anthropology:
 Matter, Culture, Spirit, and Health (Sp) 3
 ANTH 5190 Applied Anthropology Practicum 3
 ENGL/HIST 1600 American Cultures in Film (F) 3
 ENGL/HIST 3070 (DHA) Perspectives in Folklore (F,Su) 3
 ENGL 3520 Multicultural American Literature (F,Sp) 3
 ENGL 3620 Native American Studies (F,Sp) 3
 ENGL/HIST 3710 (CI) Folklore Colloquium (Sp) 3
 ENGL/HIST 4750 Advanced Folklore Workshop:
 Fife Conference (Su) 3
 HIST 4850 Interpreting the Past for Teachers (F,Sp) 3

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:

ENGL 2140 British Literary History: Anglo-Saxon to 18th Century
 (F,Sp) (3 cr) **or**
 ENGL 2150 British Literary History: Romanticism to Present
 (F,Sp) (3 cr) 3
 ENGL 2160 American Literary History: Colonialism to 1865
 (F,Sp) (3 cr) **or**
 ENGL 2170 American Literary History: 1865 to Present (F,Sp)
 (3 cr) 3
 ENGL 3510 Young Adult Literature (F,Sp) 3
 ENGL 3520 Multicultural American Literature (F,Sp) 3
 ENGL 4200 Linguistic Structures (F,Sp,Su) 3
 ENGL 4220 Ethnic Literacy (F,Sp) 3
 ENGL 4300 Shakespeare (F,Sp) 3
 ENGL 4500 (CI) Teaching Writing (F,Sp) 3
 ENGL 4510 (CI) Teaching Literature (F,Sp) 3

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 (Lisa Hamblin, Student Center 302, lisa.hamblin@usu.edu).

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. Nine 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 Director of Undergraduate Studies 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

Department of English

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.

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 3060 British and Commonwealth Cultures	3
ENGL 3310 Period Studies in British Literature (F,Sp).....	3
ENGL 3320 Period Studies in World Literature (F,Sp)	3
ENGL/HIST 3700 (CI) Regional Folklore (F,Sp).....	3
ENGL 4300 Shakespeare (F,Sp).....	3
ENGL 4320 British Writers (F,Sp).....	3
ENGL 4330 World Writers (F)	3
HIST 3240 Modern Europe from 1789 to the Present.....	3
HIST 3510 Africa and the World.....	3
HIST 3720 Colonial America (F).....	3
HIST 4210 Celtic Europe (F,Sp).....	3
HIST 4250 The Reformation in Britain: 1450-1688	3
HIST 4390 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.

ENGL 5920 Directed Study (F,Sp,Su).....	3
HIST 4930 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).

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, Lisa Hamblin (Student Center 302). Current requirement sheets are available online at: <http://www.usu.edu/ats/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

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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.
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 99-100 (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

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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 June 15 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; alternatively, they may perform additional 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)

Technical Writing is designed for students who already have some training and/or experience as practitioners of technical writing. The program is entirely online, via the Internet. The program's mission is to prepare students to enter or reenter nonacademic workplaces, not just as practitioners, but also as developers and managers of technical documents. When they finish the program, students will be qualified to determine and defend writing policy and practices in their workplaces.

To prepare students for these leadership roles, the program 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 program will balance 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 program 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.

Students in Technical Writing must complete 33 credits under the Plan C option. Courses may be taken in any sequence. Students in this program 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

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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 104-106 of this catalog). Only grades of *B-* or better will be accepted for credits in support of the degree programs; however, 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.

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)

Lynn L. Meeks, teacher education, composition and rhetoric, literature for children and young adults

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

Paul J. Crumbley, American poetry, nineteenth century American women writers, American identity, the wilderness experience

Brock Dethier, composition, creative writing

Kathryn R. Fitzgerald, teacher education, composition and rhetoric, writing assessment

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

Mark Zachry, rhetoric and professional communication; editor
Technical Communication Quarterly

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

Cheryl E. Ball, computers and writing, new media, visual rhetoric, composition studies, e-poetics

Christopher Cokinos, creative nonfiction, poetry writing, science and nature writing; editor, *Isotopes*

Kelli Cargile Cook, technical communication

Christine F. Cooper, medieval literature, commonwealth

Lisa Ann Gabbert, folklore, American studies

Shane Graham, postcolonial literature and theory, contemporary fiction and drama, multicultural literature

Ryan M. Moeller, professional writing, rhetorical theory, rhetorics of technology

Jennifer Sinor, rhetoric and composition, teacher education

Michael Sowder, creative writing (poetry), American literature

Roberta S. Stearman, American literature, fiction writing

Adjunct Assistant Professor

Christie L. Fox, folklore; Program Coordinator of Honors Program

Senior Lecturer

Nancy O'Rourke, technical communication

Department of English

Lecturers

Susan Andersen, literature and writing
Shanan L. Ballam, writing, creative writing
Star Coulbrooke, Associate Director of Writing Center
Carey Emmons, literature and writing
John Engler, literature and writing
Nikole Berger Eyre, literature and writing
Julie R. Foust, writing; Director of Rhetoric Associates
Marina L. Hall, Coordinator of Public Relations and Educational Outreach
Charlene A. Hirschi, Director of Writing Center

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 613-618.

Department of Environment and Society

Department Head: Terry L. Sharik
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@cc.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

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 offers flexibility for the development of either specialization or breadth of content to match the student's interests.

The **Geography** curriculum provides a broad background in the basic themes of geography—human (cultural), physical, and regional geography—with a particular focus on environmental and earth resources geography. In addition, students acquire technical geographic analysis skills. Students also have the opportunity to study in a systematic, regional, or technical area of geography.

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 managing outdoor recreation settings, such as public forests and rangelands, state and national parks, and wilderness areas. Because these jobs require an understanding of both the land and the people who visit it, the major offers courses in both the natural and social sciences, along with an emphasis on communication skills.

Environment and Society Minors

The department offers minors in Environmental Studies, Geography, Geography Teaching, and Recreation Resources. Students in all University majors may complete a Geography, Geography Teaching, or Recreation Resources minor. The Environmental Studies minor is open to all majors, *except* those in the College of Natural Resources. Because the same courses cannot be counted toward both a student's major and minor, students must take additional courses beyond those listed here if their majors require courses that are also included in the minor. Students wishing to minor in the above areas should contact the department to meet with the designated advisor for that minor.

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 126-127).

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 85-88 credits. This total includes the disciplinary foundation, professional courses, and a specialization option 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) or	
PHIL 3510 (DHA) Environmental Ethics (F,Sp) (3 cr).....	3
MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
STAT 2000 (QI) Statistical Methods (F,Sp).....	3

B. Professional Coursework (44-45 credits)

AWER 3700 (CI) Fundamentals of Watershed Science (Sp).....	3
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
FRWS 2200 (BLS) Ecology of Our Changing World (F,Sp).....	3
FRWS 3900 Managing Dynamic Ecological Systems (Sp).....	4
GEOG 1000 (BPS) Physical Geography (F,Sp,Su) (3 cr) or	
GEO 1110 (BPS) The Dynamic Earth: Physical Geography (F,Sp) (4 cr).....	3 or 4
GEOG 3850 Map, Air Photo, and GIS Interpretation (F).....	4

C. Animal Course (select 3 credits)

AWER 3100 (CI/DSC) Fish Diversity and Conservation (F).....	3
ENVS 3600 (DSC) Living With Wildlife (Sp).....	3

D. Plant Course (select 3-4 credits)

BIOL 3040 (DSC) Plants and Civilization (F).....	3
FRWS 3600 Wildland Plant Ecology and Identification (F).....	4
PLSC 3500 The Structure and Function of Economic Crop Plants (Sp).....	3

E. Policy Course (select 2-3 credits)

Courses chosen from this section *cannot* also be applied toward the specialization option.

ENVS 4110 Fisheries and Wildlife Policy and Administration (F).....	3
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 5550 Sustainable Development (Sp).....	3
ENVS 5640 Conflict Management in Natural Resources (Sp).....	3
Another course related to natural resource or environmental policy, numbered 3000 or higher.....	3

F. Specialization Option (15 credits)

Students majoring in Environmental Studies are required to select one of the following specialization options and complete at least 15 credits chosen from the classes listed. A student should meet with his or her advisor to develop and gain approval for the option *no later* than midway through the first semester of the junior year. Students must

file an approved specialization plan prior to applying for graduation; contact the departmental office in NR 201 for details. Some courses may require prerequisites; for additional information, see course descriptions.

Human Impacts on the Environment

ANTH 3320 (DSS) Ancient Humans and the Environment (F).....	3
AWER 3820 (DSC/QI) Climate Change (Sp).....	3
ENVS 5550 Sustainable Development (Sp).....	3
ENVS 5570 Sustainable Living (Sp).....	3
FRWS 4600 Conservation Biology (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.....	3

Communications

ENGL 2630 (BHU) American Culture and the Environment (F,Sp).....	3
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

Business and Economics

BA 3500 Fundamentals of Marketing (F,Sp,Su).....	3
ECON 1550 (BSS) Introduction to Environmental and Natural Resources Economics (F).....	3
ECON 3170 Law and Economics (F).....	3
ECON 5560 Natural Resource and Environmental Economics (Sp).....	3
ENVS 5550 Sustainable Development (Sp).....	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su).....	3
MHR 3110 (DSS) Managing Organizations and People (F,Sp,Su).....	3

Environmental Policy

ENVS 4110 Fisheries and Wildlife Policy and Administration (F).....	3
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 5550 Sustainable Development (Sp).....	3
ENVS 5640 Conflict Management in Natural Resources (Sp).....	3
POLS 5180 Natural Resource Policy (Sp).....	3
POLS 5200 Global Environment (F).....	3

International

ANTH 2010 (BSS) Peoples of the Contemporary World (F).....	3
ECON 5400 International and Development Economics (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 6650 Developing Societies (F).....	3
POLS 5200 Global Environment (F).....	3
SOC 4730 Women in International Development (Sp).....	3

Planning and Analysis

ANTH 5120 Applied Rural Development (Sp).....	3
AWER 4930 Geographic Information Systems (F).....	4
AWER 5330 Large River Management (F).....	3
AWER 5930 Geographic Information Analysis (Sp).....	4
BIOL 5010 Biogeography (Sp).....	3
GEO 3100 (DSC) Natural Disasters (Sp).....	3
GEOG 3610 Geography of Rural/Urban Planning (F).....	3
ENVS 5640 Conflict Management in Natural Resources (Sp).....	3
LAEP 3700 City and Regional Planning (Sp).....	3

Department of Environment and Society

Environmental Stewardship

In consultation with his or her advisor, a student may develop a custom specialization/emphasis of at least 15 credits. Students pursuing this option must fill out a specialization/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.

G. Electives (32-35 credits)

Students may take the remainder of the 120 credits from any department. The guidelines described under "Breadth Requirements" (see pages 50-51) and "Depth Education Requirements" (see pages 52-57) should be consulted to ensure meeting University Studies Requirements.

Environmental Studies Major Recommended Four-Year Plan of Study

Students should meet regularly with their faculty advisor and carefully plan their academic program, keeping in mind that many upper-division courses have prerequisites and must be taken in sequence.

Students following the recommended schedule listed below should be able to complete degree requirements in four years (eight semesters).

Freshman Year (28-29 credits)

Fall Semester (14-15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ENVS 1990 Professional Orientation for Environment and Society	2
ENVS 2340 (BSS) Natural Resources and Society	3
GEOG 1000 (BPS) Physical Geography (3 cr) or	
GEO 1110 (BPS) The Dynamic Earth:	
Physical Geology (4 cr)	3 or 4
USU 1320 (BHU) Civilization: Humanities (3 cr) or	
Other approved Breadth Humanities (BHU) course (3 cr)	3

Spring Semester (14 credits)

BIOL 1010 (BLS) Biology and the Citizen	3
BIOL 1020 Biological Discovery: A Lab Course	1
MATH 1050 (QL) College Algebra	4
USU 1300 (BAI) U.S. Institutions (3 cr) or	
Other approved Breadth American Institutions (BAI) course (3 cr)	3
USU 1330 (BCA) Civilization: Creative Arts (3 cr) or	
Other approved Breadth Creative Arts (BCA) course (3 cr)	3

Sophomore Year (29-30 credits)

Fall Semester (14 credits)

CHEM 1110 (BPS) General Chemistry I	4
FRWS 2200 (BLS) Ecology of Our Changing World	3
GEOG 3850 Map, Air Photo, and GIS Interpretation	4
STAT 2000 (QI) Statistical Methods	3

Spring Semester (15-16 credits)

AWER 3700 (CI) Fundamentals of Watershed Science	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing	
In a Persuasive Mode	3
ENVS 3330 Environment and Society	3
HIST 3950 (DHA/CI) Environmental History (3 cr) or	
PHIL 3510 (DHA) Environmental Ethics (3 cr)	3
Animal or plant course	3-4

Junior Year (28-32 credits)

Fall Semester (14-16 credits)

ENVS 3000 Natural Resources Policy and Economics	4
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Animal or plant course	3-4
Specialization or elective courses	7-8

Spring Semester (14-16 credits)

FRWS 3900 Managing Dynamic Ecological Systems	4
ENVS 4400 Economic Applications in Natural Resource Management	4
Policy or specialization courses	6-8

Senior Year (30-33 credits)

Fall Semester (15-16 credits)

ENVS 3500 (QI) Quantitative Assessment of Environmental and Natural Resource Problems	3
ENVS 4000 Human Dimensions of Natural Resource Management	3
ENVS 4990 Environmental and Natural Resource Professionalism Seminar	2
Specialization or elective courses	7-8

Spring Semester (15-17 credits)

ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources	3
Policy, specialization, or elective courses	12-14

Environmental Studies Minor (15-17 credits)

The Environmental Studies minor is open to all majors except those in the College of Natural Resources. 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 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
FRWS 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 4110 Fisheries and Wildlife Policy and Administration (F)	3
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 (F)	3
ENVS 5550 Sustainable Development (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.

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A. Disciplinary Foundation Courses (29 credits)

AWER 4930 Geographic Information Systems (F).....	4
ENVS 1990 Professional Orientation for Environment and Society (F).....	2
ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources (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

B. Quantitative Foundation (7 credits)

MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
STAT 2000 (QI) Statistical Methods (F,Sp).....	3

C. Specialization Option (12 credits)

Students majoring in Geography are required to select one of the following specialization options and complete at least 12 credits chosen from the classes listed. A student should meet with his or her advisor to develop and gain approval for the option *no later* than midway through the first semester of the junior year. Students must file an approved specialization plan prior to applying for graduation; contact the departmental office in NR 201 for details. Some courses may require prerequisites; for additional information, see course descriptions.

Human Impact on Environment

ANTH 3320 (DSS) Ancient Humans and the Environment (F).....	3
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
FRWS 2200 (BLS) Ecology of Our Changing World (F,Sp) (3 cr) or NR 2220 General Ecology (F,Sp) (3 cr).....	3
(Students can count <i>either</i> FRWS 2200 <i>or</i> NR 2220 toward the specialization option, but <i>cannot</i> count both.)	
FRWS 4600 Conservation Biology (Sp).....	3
HIST 3950 (DHA/CI) Environmental History.....	3

Cultural/Social Geography

ANTH 3110 North American Indian Cultures (F).....	3
ANTH 3160 (DSS) Anthropology of Religion (F).....	3
ENVS 5550 Sustainable Development (Sp).....	3
FREN 3550 (DHA) French Civilization (F) (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).....	3
(Must be the <i>second</i> geographic area of study <i>beyond</i> the area chosen in the <i>Disciplinary Foundation Courses</i> .)	
GEOG 5650 (DSS) Developing Societies (F).....	3
SOC 4710 Asian Cultures (Sp).....	3

Planning and Analysis

ANTH 5120 Applied Rural Development (Sp).....	3
AWER 5930 Geographic Information Analysis (Sp).....	4
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 2700 (CI) Site Analysis and Design (F).....	5
LAEP 3700 City and Regional Planning (Sp).....	3

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 a specialization/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.

Geography Major Recommended Four-Year Plan of Study

Students should meet regularly with their faculty advisor and carefully plan their academic program, keeping in mind that many upper-division courses have prerequisites and must be taken in sequence.

Students following the recommended schedule listed below should be able to complete degree requirements in four years (eight semesters). **Note:** Students in the Geography Teaching Major should contact their advisor for information about their recommended four-year plan of study.

Freshman Year (30 credits)

Fall Semester (14 credits)

ENVS 1990 Professional Orientation for Environment and Society.....	2
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
GEOG 1300 (BSS) World Regional Geography.....	3
USU 1300 (BAI) U.S. Institutions (3 cr) or Other approved Breadth American Institutions (BAI) course (3 cr).....	3
USU 1320 (BHU) Civilization: Humanities (3 cr) or Other approved Breadth Humanities (BHU) course (3 cr).....	3

Spring Semester (16 credits)

GEOG 1000 (BPS) Physical Geography.....	3
GEOG 1005 Physical Geography Lab.....	1
MATH 1050 (QL) College Algebra.....	4
USU 1330 (BCA) Civilization: Creative Arts (3 cr) or Other approved Breadth Creative Arts (BCA) course (3 cr).....	3
USU 1350 (BLS) Integrated Life Science (3 cr) or Other approved Breadth Life Sciences (BLS) course (3 cr).....	3
Elective course(s).....	2

Sophomore Year (30-32 credits)

Fall Semester (15 credits)

STAT 2000 (QI) Statistical Methods.....	3
GEOG 4200 (CI) Regional Geography.....	3
Elective courses.....	9

Spring Semester (15-17 credits)

GEOG 1400 (BSS) Human Geography.....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
Depth Humanities and Creative Arts (DHA) course.....	2-3
Geography specialization or elective courses.....	7-8

Junior Year (29-31 credits)

Fall Semester (14-15 credits)

AWER 4930 Geographic Information Systems.....	4
GEOG 3850 Map, Air Photo, and GIS Interpretation.....	4
Geography specialization or elective courses.....	6-7

Spring Semester (15-16 credits)

GEOG 4850 Cartographic Design.....	3
Depth Life and Physical Sciences (DSC) course.....	3-4
Elective courses (including CI course).....	9

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Senior Year (28-30 credits)

Fall Semester (14-15 credits)

ENVS 4990 Environmental and Natural Resource Professionalism Seminar (highly recommended)	2
Geography specialization or elective courses	12-13

Spring Semester (14-15 credits)

ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources	3
Geography specialization or elective courses	11-12

Geography Minor (24 credits minimum)

All courses required for the Geography minor *must* be taken on an A-B-C-D-F basis. **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.**

AWER 4930 Geographic Information Systems (F).....	4
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

Geography Teaching Major (38 credits minimum)

The teaching major in Geography consists of both the geography courses (38 credits minimum, shown in sections A, B, and C below), plus 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)

ENVS 1990 Professional Orientation for Environment and Society (F)	2
GEOG 1000 (BPS) Physical Geography (F,Sp,Su).....	3
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 (Utah) (Sp).....	3
GEOG 4200 (CI) Regional Geography (International Course) (F,Sp,Su)	3
GEOG 4850 Cartographic Design (Sp) (3 cr) or	
AWER 4930 Geographic Information Systems (F) (4 cr)	3 or 4

B. Geography Education Pedagogical Methods Courses (4 credits)

GEOG 4300 Geography Education Classroom Practicum (F,Sp,Su)	1
GEOG 4800 Teaching Geography (F).....	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 regional, physical, human, human-environment interaction techniques, technology in geography education, or classroom technology practicum credits. All electives must be coordinated with a geography education advisor.

D. 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.

E. Teaching Minor

A teaching major in Geography also requires an approved teaching minor from another field of study acceptable to the Secondary Education Department.

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 minimum GPA of 2.5 is required for courses taken to complete the minor.

A. Geography Teaching Minor Foundation Courses (18-19 credits)

GEOG 1000 (BPS) Physical Geography (F,Sp,Su).....	3
GEOG 1300 (BSS) World Regional Geography (F).....	3
GEOG 1400 (BSS) Human Geography (Sp).....	3
GEOG 4200 (CI) Regional Geography (Utah) (Sp).....	3
GEOG 4200 (CI) Regional Geography (International Course) (F,Sp,Su)	3
GEOG 3850 Map, Air Photo, and GIS Interpretation (F) (4 cr) or	
GEOG 4850 Cartographic Design (Sp) (3 cr) or	
AWER 4930 Geographic Information Systems (F) (4 cr)	3 or 4

B. Geography Education Courses (4 credits)

GEOG 4300 Geography Education Classroom Practicum (taken with GEOG 4800) (F,Sp,Su)	1
GEOG 4800 Teaching Geography (F).....	3

C. Geography Electives (1-2 credits)

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.

A. Level 1 (15-week courses) (11 credits minimum)

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 (30 hrs. minimum) (3300 in various departments).....	1
One or more methods courses in major (3-6 credits in minor—Social Studies Education).....	3

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B. Level 2 (15-week courses) (12 credits minimum)

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
Clinical Experience II (30 hrs. minimum) (4300 in various departments).....	1
Special Methods II (major or minor) (taught in various departments).....	3

C. Level 3 (includes 13 weeks of student teaching and 2 weeks of Student Teaching Seminar) (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

Recreation Resource Management Major

The Recreation Resource Management major consists of 84-86 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 (57-58 credits)

AWER 3700 (CI) Fundamentals of Watershed Science (Sp).....	3
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
FRWS 2200 (BLS) Ecology of Our Changing World (F,Sp).....	3
FRWS 3900 Managing Dynamic Ecological Systems (Sp).....	4
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
SOIL 3000 Fundamentals of Soil Science (F,Sp).....	4

C. Animal Course (select 3 credits)

AWER 3100 (CI/DSC) Fish Diversity and Conservation (F).....	3
ENVS 3600 (DSC) Living With Wildlife (Sp).....	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
FRWS 3600 Wildland Plant Ecology and Identification (F).....	4
PLSC 3500 The Structure and Function of Economic Crop Plants (Sp).....	3

F. Anthropology Course (select 3 credits)

ANTH 3110 North American Indian Cultures (F).....	3
ANTH 4110 Southwest Indian Cultures, Past and Present (F).....	3
Other Approved Anthropology Course.....	3

G. Electives (34-36 credits)

Students may take the remainder of the 120 credits from any department. The guidelines described under "Breadth Requirements" (see pages 50-51) and "Depth Education Requirements" (see pages 52-57) should be consulted to ensure meeting University Studies Requirements.

Recreation Resource Management Major Recommended Four-Year Plan of Study

Students should meet regularly with their faculty advisor and carefully plan their academic program, keeping in mind that many upper-division courses have prerequisites and must be taken in sequence.

Students following the recommended schedule listed below should be able to complete degree requirements in four years (eight semesters).

Freshman Year (28-29 credits)

Fall Semester (14-15 credits)	
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
ENVS 1990 Professional Orientation for Environment and Society.....	2
ENVS 2340 (BSS) Natural Resources and Society.....	3
GEOG 1000 (BPS) Physical Geography (3 cr) or GEO 1110 (BPS) The Dynamic Earth: Physical Geology (4 cr).....	3 or 4
USU 1320 (BHU) Civilization: Humanities (3 cr) or Other approved Breadth Humanities (BHU) course (3 cr).....	3

Spring Semester (14 credits)

BIOL 1010 (BLS) Biology and the Citizen.....	3
BIOL 1020 Biological Discovery: A Lab Course.....	1
MATH 1050 (QL) College Algebra.....	4
USU 1300 (BAI) U.S. Institutions (3 cr) or Other approved Breadth American Institutions (BAI) course (3 cr).....	3
USU 1330 (BCA) Civilization: Creative Arts (3 cr) or Other approved Breadth Creative Arts (BCA) course (3 cr).....	3

Sophomore Year (30-33 credits)

Fall Semester (15-16 credits)	
CHEM 1110 (BPS) General Chemistry I.....	4
ENVS 3300 Fundamentals of Recreation Resources Management.....	3
FRWS 2200 (BLS) Ecology of Our Changing World.....	3
STAT 2000 (QI) Statistical Methods.....	3
Elective course(s).....	2-3

Spring Semester (15-17 credits)

AWER 3700 (CI) Fundamentals of Watershed Science.....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
SOIL 3000 Fundamentals of Soil Science.....	4
Depth Humanities and Creative Arts (DHA) course.....	2-3
Plant or animal course.....	3-4

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Junior Year (29-31 credits)

Fall Semester (14-15 credits)

ENVS 3000 Natural Resources Policy and Economics.....	4
ENVS 4500 (CI) Wildland Recreation Behavior	3
GEOG 3850 Map, Air Photo, and GIS Interpretation.....	4
Plant or animal course.....	3-4

Spring Semester (15-16 credits)

ENVS 4130 Recreation Policy and Planning.....	3
ENVS 4400 Economic Applications in Natural Resource Management	4
FRWS 3900 Managing Dynamic Ecological Systems	4
Elective courses	4-5

Senior Year (29 credits)

Fall Semester (14 credits)

ENVS 3500 (QI) Quantitative Assessment of Environmental and Natural Resource Problems	3
ENVS 4000 Human Dimensions of Natural Resource Management	3
ENVS 4920 Special Projects in Recreation Management (3 cr) or Education/Interpretation course (3 cr)	3
ENVS 4990 Environmental and Natural Resource Professionalism Seminar.....	2
Anthropology course	3

Spring Semester (15 credits)

ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources.....	3
ENVS 4920 Special Projects in Recreation Management (3 cr) or Education/Interpretation course (3 cr)	3
Elective courses	9

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 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

Financial Assistance

The main opportunities for undergraduates to find financial support through grants, work-study, and loans are listed on pages 23-28 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. 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@cc.usu.edu. Additional information can be found online at: <http://www.usu.edu/honors/>

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 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/ats/majorsheets/>

Graduate Programs

Admission Requirements

See general admission requirements on pages 99-100. 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.

Department of Environment and Society

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.

Geography and Geography Teaching

Geography and Geography Teaching 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 aimed at students interested in managing outdoor recreation settings, such as public forests and rangelands, state and national parks, and wilderness areas. An understanding of both the land itself and the people who visit these areas is required. Opportunities are available to work as environmental interpreters, recreation planners, park rangers, trail crew supervisors, ski area employees, visitor center directors, wilderness rangers, and similar occupations. Graduate study provides additional opportunities for research and teaching in higher education, as well as in the private and government 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.

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

Department of Environment and Society

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 98-99 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
Clifford B. Craig, human geography, geographic education, rural/urban planning and development, geography of Utah, GIS education
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
Terry L. Sharik, academic administration and leadership, teaching and learning pedagogy, forest ecology
Richard E. Toth, bioregional planning and water resources management

Adjunct Professor

Thomas C. Edwards, Jr., Utah Cooperative Fish and Wildlife Research Unit, spatial

Adjunct Research Professor

Leila McReynolds Shultz, plant taxonomy and geography

Professors Emeritus

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

Associate Professors

Ted J. Alsop, physical geography, university pedagogy, photogrammetry
Dale J. Blahna, natural resource/community social science, outdoor recreation, policy
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 J. Lilieholm, natural resource economics and management, international protected areas
Robert H. Schmidt, wildlife policy and human dimensions, wildlife damage management

Adjunct Associate Professors

Christopher Call, vegetation manipulation/management
Arthur J. Caplan, environmental economics, public policy, quantitative analysis
R. Douglas Ramsey, remote sensing, geographic information systems, landscapes

Assistant Professors

Nicole L. McCoy, natural resource economics and policy
Claudia A. Radel, human-environment geography, cultural/political ecology, feminist geography

Research Assistant Professor

Theresa L. Selfa, sociology of environment and development, rural development

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
Nancy O. Mesner, water quality extension specialist, water policy and modeling
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

Department of Environment and Society

Adjunct Lecturers

Kerry F. Case, Utah House Program Coordinator, extension agent,
rhetoric, resource conservation and efficiency
Catherine A. "Kate" Stephens, Program Coordinator of Utah
Conservation Corps, environmental education

Course Descriptions

Environment and Society (ENVS), pages 618-621.
Geography (GEOG), pages 636-638.
National Environmental Policy Act (NEPA), page 676.

Department of Family, Consumer, and Human Development

Department Head: Thomas R. Lee
Location: Family Life 203B
E-mail: tom.lee@usu.edu
Phone: (435) 797-1551
FAX: (435) 797-3845
E-mail (undergraduate): karencc@cc.usu.edu
E-mail (graduate): teresab@cc.usu.edu
WWW: http://www.usu.edu/fchd

Associate Department Head and Adele and Dale Young Child Development Laboratory Director:

Shelley L. Knudsen Lindauer, Family Life 106A,
(435) 797-1532, lindauer@cc.usu.edu

Gerontology Certificate Program Coordinator:

Jana Darrington, Family Life 218, (435) 797-7140,
jdarrington@cc.usu.edu

Marriage and Family Therapy Program Director:

Scot M. Allgood, Family Life Center 207, (435) 797-7433,
allgood@cc.usu.edu

Undergraduate Academic Advisor:

Marilyn B. Kruse, Family Life 205A, (435) 797-1530,
marilynkc@cc.usu.edu

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; 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; Human Development; BS, BA in Early Childhood Education—licensure, K-3rd grades*

Graduate specializations: *MS— 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. For a list of requirements for this interdisciplinary certificate, contact the department. 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; and Early Childhood Education. All programs are designed to prepare students for successful careers serving individuals and families across the life span. Through classroom study 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 prepared 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 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 Human 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), and Early Childhood Education (ECE), 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 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)

Students who complete the Family and Community Services emphasis are eligible to apply for the Certified Family Life Educator credential through the National Council on Family Relations.

Gerontology Certificate

Students pursuing the Gerontology Certificate must take additional courses and complete a gerontology practicum as required for certification. A complete list of requirements may be obtained in Family Life 214 or by calling (435) 797-7140.

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 1100, 1500, and 2400) with a cumulative GPA of 3.0 is required for admission into the Family and Community Services, Human Development, and Deaf Education emphases. Family Finance premajor courses include FCHD 1100, 1500, 2400, and 2450. A cumulative GPA of 3.0 is required.

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.

Department of Family, Consumer, and Human Development

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, Human Development, Deaf Education, or Family Finance. These requirements are shown below.

Family and Community Services and Human 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 (54 credits)

FCHD 1100 Critical Issues in Family, Consumer, and Human Development (F,Sp,Su)	1
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,Su)	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, ENGL 2010) (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,Sp)	3
FCHD 3530 Adolescence (Prereq: Junior standing, FCHD 1500) (F,Sp)	3
FCHD 3540 Adult Development and Aging (Prereq: Junior standing and FCHD 1500) (F,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) (F,Sp)	3
FCHD 4240 Social and Family Gerontology (Prereq: Junior standing, FCHD 2400, 3540) (F,Sp)	3
FCHD 4900 (CI) Pre-Practicum Skills (Prereq: Junior standing, FCHD 2610, 3100, ENGL 2010) (F,Sp)	3
FCHD 4980¹ Practicum (F,Sp,Su)	6
PSY 2800 (QI) Psychological Statistics (Prereq: STAT 1040) (3 cr) or SOC 3120 (QI) Social Statistics I (Prereq: Completion of 6 credits in Sociology departmental courses and STAT 1040 or equivalent) (3 cr)	3

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 Human Development Emphasis.

Family and Community Services Emphasis (7 credits)

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 3350 (QI)⁶ Family Finance (F,Sp,Su)	3
FCHD 5540 Family Life Education Methods (Prereq: Junior Standing, FCHD 1500, 2400) (F,Sp) (majors only)	3

Human 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 4960² Practice Teaching in Child Development Laboratories (Prereq: Junior standing, FCHD 4550) (F,Sp,Su)	3

Suggested Electives

FCHD 5550 Workshop: Casework Training I (F)	3
FCHD 5550 Workshop: Casework Training II (Sp)	3

Suggested Four-year Course of Study for Family, Consumer, and Human Development Major, Family and Community Services Emphasis

The suggested course of study shown below is 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.

Freshman Year (30-33 credits)

Fall Semester (15-18 credits)

FCHD 1100 Critical Issues in Family, Consumer, and Human Development	1
FCHD 1500 (BSS)⁴ Human Development Across the Lifespan	3
MATH 1010 Intermediate Algebra	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
USU 1000 Introduction to Computers and Information Literacy (1 cr) or OSS 1400 Microcomputer Applications (3 cr) or Passing scores on Computer and Information Literacy (CIL) exams (0 cr)	0-3
(Note: Although USU 1000 and OSS 1400 include the CIL exams, the CIL requirement is met <i>only</i> by passing all six exams, <i>not</i> by simply passing USU 1000 or OSS 1400.)	
University Studies Breadth course ⁵	3
Elective course(s)	2

Spring Semester (15 credits)

FCHD 2400 (BSS)⁴ Marriage and Family Relationships	3
FCHD 2610 Child Guidance	3
STAT 1040 (QL) Introduction to Statistics	3
University Studies Breadth course ⁵	3
Elective course(s)	3

Sophomore Year (30 credits)

Fall Semester (15 credits)

FCHD 3100 Abuse and Neglect in Family Context	3
FCHD 3110 Human Sexuality	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
PSY 2800 (QI) Psychological Statistics	3
University Studies Breadth course ⁵	3

Department of Family, Consumer, and Human Development

Spring Semester (15 credits)

FCHD 3210 (CI) Families and Cultural Diversity.....	3
FCHD 3350 (QI) ⁶ Family Finance.....	3
University Studies Breadth courses ⁵	6
Elective course(s).....	3

Junior Year (30 credits)

Fall Semester (15 credits)

FCHD 3510 Infancy and Early Childhood.....	3
FCHD 3550 ⁷ Infant Lab.....	1
FCHD 3540 Adult Development and Aging.....	3
FCHD 4220 Family Crises and Interventions.....	3
Depth Humanities and Creative Arts (DHA) course.....	3
Elective course(s).....	2

Spring Semester (15 credits)

FCHD 3130 (QI) Research Methods.....	3
FCHD 3520 Children in the Middle Years.....	3
FCHD 3530 Adolescence.....	3
FCHD 4230 Families and Social Policy.....	3
Elective course(s).....	3

Senior Year (30 credits)

Fall Semester (15 credits)

FCHD 4240 Social and Family Gerontology.....	3
FCHD 4900 (CI) Pre-Practicum Skills.....	3
FCHD 5540 Family Life Education Methods.....	3
Depth Life and Physical Sciences (DSC) course.....	3
Elective course(s).....	3

Spring Semester (15 credits)

FCHD 4980 Practicum.....	6
Elective course(s).....	9

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.

Required Courses³

FCHD 1100 Critical Issues in Family, Consumer, and Human Development (F,Sp,Su).....	1
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,Su).....	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, ENGL 2010) (F,Sp) (majors only).....	3

FCHD 3510 Infancy and Early Childhood (Prereq: Junior standing, FCHD 1500, 2610) (F,Sp).....	3
FCHD 3550 Infant Lab (take concurrently with FCHD 3510) (F,Sp).....	1
FCHD 3520 Children in the Middle Years (Prereq: Junior standing, FCHD 1500, 2610) (F,Sp).....	3
FCHD 4220 Family Crises and Interventions (Prereq: Junior standing, FCHD 2400) (F,Su).....	3
FCHD 4550 Preschool Methods and Curriculum (Prereq: Junior standing, FCHD 1500) (F,Sp).....	3
FCHD 4900 (CI) Pre-Practicum Skills (Prereq: Junior standing, FCHD 2610, 3100, ENGL 2010) (F,Sp).....	3
FCHD 4960 ² Practice Teaching in Child Development Laboratories (Prereq: Junior standing, FCHD 4550) (F,Sp,Su).....	3
FCHD 4980 ¹ Practicum (with ages 0-3) (F,Sp,Su).....	3
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
PSY 2800 (QI) Psychological Statistics (Prereq: STAT 1040) (3 cr) or SOC 3120 (QI) Social Statistics I (Prereq: Completion of 6 credits in Sociology departmental courses and STAT 1040 or equivalent) (3 cr).....	3
SPED 4000 Education of Exceptional Individuals (F,Sp,Su).....	2

In addition to these courses, students must complete the following courses during their senior year:

COMD 3080 American Sign Language Practicum (F,Sp).....	1
COMD 3910 Sign Language II (F,Sp,Su).....	4
COMD 4630 Teaching Speech to Deaf and Hard of Hearing Children (Sp).....	3
COMD 4750 Teaching the English Language to Individuals who are Deaf and Hard of Hearing (F).....	3
COMD 4770 Audiology and Teachers of Children who are Deaf and Hard of Hearing (F).....	3
COMD 4780 Socio-Cultural Aspects of Deafness (F).....	3
COMD 4790 Psychological Principles and Individuals who are Deaf and Hard of Hearing (Sp).....	3
COMD 5610 Introduction to Education of the Deaf and Hard of Hearing (F).....	3
SPED 5810 Seminar and Field Experiences with Infants and Families (Sp).....	4

Students in this emphasis must meet with their advisor each semester.

¹Prerequisite: 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.

²Students must sign up one year in advance in Family Life 205.

³For COMD and SPED course offerings, contact the Department of Communicative Disorders and Deaf Education and the Department of Special Education and Rehabilitation.

⁴FCHD 1500 or 2400 meets the Breadth Social Sciences (BSS) requirement.

⁵At least two of the six required breadth courses *must* have a USU prefix.

⁶Effective Fall Semester 2007, Quantitative Intensive (QI) University Studies credit will no longer be granted for FCHD 3350.

⁷FCHD 3550 must be taken concurrently with FCHD 3510.

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, mortgage defaults, and reverse mortgages. The Family Life Center is a U.S. Department of Housing and Urban Development (HUD) approved housing and financial counseling agency that provides counseling

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and education to the community. Employment opportunities exist with 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, and Housing and Urban Development. A student graduating with a Family Finance emphasis may be employed as a 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, or financial planner.

Major Courses (56 credits)

FCHD 1100 Critical Issues in Family, Consumer, and Human Development (F,Sp,Su)	1
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 3130 (QI) Research Methods (Prereq: STAT 1040) (majors only) (F,Sp)	3
FCHD 3210 (CI) Families and Cultural Diversity (Prereq: FCHD 1500, 2400, ENGL 2010) (F,Sp) (majors only)	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 3350 (QI) Family Finance (F,Sp,Su)	3
FCHD 3450 Consumer Credit Problems (Prereq: FCHD 3350) (F)	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) (F,Sp)	3
FCHD 4330 Family Finance Career Seminar (Prereq: FCHD 3350) (F)	1
FCHD 4350 Advanced Family Finance (Prereq: FCHD 3350) (Sp)	3
FCHD 4460 Financial Counseling (Prereq: FCHD 3350, 3450) (majors only) (Sp)	3
FCHD 4950 Practicum: Consumer Science (majors only) (F,Sp,Su) ...	6
FCHD 5340 Housing Finance and Regulations (Prereq: FCHD 3340, 3350) (majors only) (Sp)	3
FCHD 5950 Financial Counseling Practicum (Prereq: FCHD 4220, 4460, 5340) (majors only) (F,Sp,Su)	3

Required General Education Courses

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp)	3
STAT 1040 (QL) Introduction to Statistics (Prereq: MATH 1010) (F,Sp,Su)	3
SPCH 1020 (CI) Public Speaking (F,Sp)	3

Suggested Support Courses

BA 3460 Fundamentals of Personal Investing	3
BIS 2450 Spreadsheets and Databases for Business (F,Sp,Su)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp)	3
FCHD 3540 Adult Development and Aging (Prereq: Junior Standing, FCHD 1500) (F,Sp)	3
FCHD 4240 Social and Family Gerontology (Prereq: Junior standing, FCHD 2400, 3540) (F,Sp)	3
PFP 5060 Personal Financial Planning and Advising (F)	3
PFP 5070 Retirement Planning (Sp)	3
PFP 5080 Estate Planning (Sp)	3

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 1100 Critical Issues in Family, Consumer, and Human Development (F,Sp,Su)	1
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 (QI) 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 3100⁸ Abuse and Neglect in Family Context (F,Sp)	3
FCHD 3110⁹ Human Sexuality (F,Su)	3
FCHD 3510¹⁰ Infancy and Early Childhood (F,Sp)	3
FCHD 3520¹⁰ Children in the Middle Years (F,Sp)	3
FCHD 3530¹¹ Adolescence (F,Sp)	3
FCHD 3540¹² Adult Development and Aging (F,Sp)	3
FCHD 4220¹³ Family Crises and Interventions (F,Su)	3
FCHD 4230¹³ Families and Social Policy (F,Sp)	3
FCHD 4240¹³ Social and Family Gerontology (F,Sp)	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, 4550, 4800, 4940, 5550; practica (FCHD 4900, 4950, 4960, 4970, 4980); and Readings and Conference (FCHD 4990).

⁸Prerequisites: Sophomore standing, FCHD 1500, 2400.

⁹Prerequisites: FCHD 1500, 2400.

¹⁰Prerequisites: Junior standing, FCHD 1500, 2610.

¹¹Prerequisites: Junior standing, FCHD 1500.

¹²Prerequisites: Junior standing, FCHD 1500.

¹³Prerequisites: Junior standing, FCHD 2400. For FCHD 4240, the additional prerequisite of FCHD 3540 is required.

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Family Finance Minor (3.0 GPA required)

Required Courses (6 credits)

FCHD 2450 (BSS) The Consumer and the Market (F,Sp)	3
FCHD 3350 (QI) 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 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 Department of Elementary Education. 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 this course.)

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:
ECON 1500, HIST 1700, POLS 1100, USU 1300 3

Choose *one* course from the following to meet BCA requirement:
MUSC 1010, USU 1330, ID 1750 3

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

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

Choose *one* course from the following to meet BLS requirement:
AWER 1200, BIOL 1010, FRWS 2200, NFS 1020, PLSC 2100,
USU 1350 3

Complete PHYS 1200 and choose *one* course from the following to meet BPS requirement:
BMET 2000, GEOG 1000, GEO 1010, GEO 1110, CHEM 1010, PHYS
1040, SOIL 2000, USU 1360 6

Depth Education Requirements

Communications Intensive (CI) (2 courses)

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II	6
ELED 4030 (CI) 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.)

MATH 2020 (QI) Introduction to Logic and Geometry (F,Sp,Su)	3
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(Prereq: MATH 1050 or Math ACT score of 25 or higher; also required to apply to the Teacher Education Program)

Depth Course Requirements (2 courses)

Choose two 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 Elementary Education Department.

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 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. **Note:** Please contact an advisor if PPST (Pre-Professional Skills Test) results are being used in the admission process.

Students majoring in Early Childhood Education must complete all of the following courses as indicated.

FCHD Required Course (1 credit)

FCHD 1100 Critical Issues in Family, Consumer, and Human Development (F,Sp,Su)	1
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Level I (6 credits)¹⁴

ELED 1010 Orientation to Elementary Education	3
FCHD 1500 (BSS) Human Development Across the Lifespan	3

Level II (15 credits)¹⁵

Students must be officially admitted to the Teacher Education Program prior to Level II.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II	6
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	2

(Level II courses must be taken concurrently.)

ELED 3100 ¹⁵ Teaching Reading I	3
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(ELED 3100 may be taken during transition semester, if desired.)

Transition (11 credits)¹¹

SPED 4000 ¹⁵ Education of Exceptional Individuals	2
INST 4010 ¹⁵ Principles and Practices of Technology for Elementary Teachers	3
FCHD 4550 ^{16,17} Preschool Methods and Curriculum	3
ELED 4480 ¹⁶ Early Childhood Education Kindergarten through Grade 3	3

Level III (15 credits; must follow Level II)

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III	3

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ELED 4040 (CI) Teaching Reading II and Practicum Level III.....	3
ELED 4050 Teaching Social Studies and Practicum Level III.....	3
ELED 4060 Teaching Mathematics and Practicum Level III.....	3
(Level III courses must be taken concurrently.)	

Level IV (21 credits)

ELED 5050 Student Teaching—Kindergarten.....	6
ELED 5100 Student Teaching—Primary Grades (1-3).....	6
ELED 5250 Student Teaching—Seminar.....	3
FCHD 4960 ^{17,18} 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:

ART 3700 Elementary Art Methods.....	3
THEA 4030 Storytelling.....	3
THEA 4330 Drama and Theatre for Youth: Grades K-6.....	3
THEA 5360 Drama in the Secondary Education Classroom:	
Grades 7-12.....	3
HEP 3500 Elementary School Health Education.....	2
PEP 3050 Physical Education in the Elementary School.....	3
PEP 3650 Movement Exploration for Elementary Teachers.....	2
ETE 3070 K-8 Engineering and Technology Education.....	3
ENVS 5110 Environmental Education.....	3
ELED 4410 Gifted Education in the Regular Classroom.....	3
ELED 4420 Multiple Talent Approach to Thinking.....	2
FCHD 2610 Child Guidance.....	3
ENGL 3530 ¹⁹ Children's Literature.....	3
MUSC 3260 Elementary School Music.....	2

¹⁴These courses are prerequisites to Level II.

¹⁵SPED 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. See the *Schedule of Classes* for information about when these courses will be taught.

¹⁶ELED 4480 and FCHD 4550 must be taken after completion of Level II.

¹⁷FCHD 4550 is a prerequisite for FCHD 4960.

¹⁸Students must apply for FCHD 4960 three to four semesters in advance of taking the class. Apply in Family Life Building, room 205.

¹⁹ENGL 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

SPCH 1020 (CI) Public Speaking.....	3
SPCH 2110 (CI) Interpersonal Communication.....	3
SPCH 3330 (DSS) Intercultural Communication.....	3
THEA 1030 (BHU) Exploring Performance Through Aesthetic Texts.....	3
THEA 4030 Storytelling.....	3
THEA 4330 Drama and Theatre for Youth: Grades K-6.....	3
THEA 5360 Drama in the Secondary Education Classroom:	
Grades 7-12.....	3

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 3700 (CI) Regional Folklore.....	3

Electives

ENGL 2140 British Literary History: Anglo-Saxon to 18th Century.....	3
ENGL 2600 Introduction to Literary Theory.....	3
ENGL 3050 (DHA) Masterpieces of World Literature.....	3
ENGL 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 2010 (BSS) Peoples of the Contemporary World.....	3
ANTH 2030 (CI/BSS) World Archaeology.....	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

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles.....	3
ECON 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 Race, Class, and Gender.....	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

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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 to 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) The History of Women and Family in America.....	3
HIST 4600 (CI/DHA) The History of the American West.....	3
HIST 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
PHYS 3030 (DSC/QI) The Universe.....	3
BMET 2000 (BPS) The Atmosphere and Weather.....	3
BMET 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

AWER 3000 (DSC) Oceanography.....	3
BIOL 1110 Elementary Microbiology.....	4
BIOL 1610 Biology I.....	4
BIOL 1620 (BLS) Biology II.....	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
FRWS 2200 (BLS) Ecology of Our Changing World.....	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

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

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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 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 World of Food and Nutrition	1
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 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, day care, and preschools where there is a strong commitment to a parent involvement program, or as an instructor for community adult education programs.

FCHD 3510²⁰ Infancy and Early Childhood (Coreq: FCHD 3550, Infant Lab)	3
FCHD 3550²⁰ Infant Lab (Coreq: FCHD 3510).....	1
FCHD 3520²⁰ Children in the Middle Years (Coreq: FCHD 3560, Middle Childhood Lab)	3
FCHD 3560²⁰ Middle Childhood Lab (Coreq: FCHD 3520).....	1
FCHD 3110²¹ Human Sexuality	3
NFS 1020 (BLS) Science and Application of Human Nutrition	3

²⁰Prerequisites: Junior standing and FCHD 1500, 2610.

²¹Prerequisites: 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.

Admission Requirements

To qualify for admission to the Family and Consumer Sciences (FCS) major, students must complete *at least* 24 semester credits (including FCHD 1100, 1500, 2400, and 2450) with a cumulative GPA of at least 3.0. However, students who have completed *less than 24 credits* may declare a premajor in FCS.

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.
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.

FCHD 1100 Critical Issues in Family, Consumer, and Human Development (F,Sp,Su)	1
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

Major Courses (51 credits)

Students must select courses from each of the following five areas. The minimum number of credits to be selected from each area is shown in parentheses.

Human Development and Family Studies (12 credits)

Select at least 12 credits from the following:

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,Su).....	3
FCHD 3550 Infant Lab (F,Sp).....	1
FCHD 3560 Middle Childhood Lab (F,Sp).....	1
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,Sp)	3

Department of Family, Consumer, and Human Development

FCHD 3530 Adolescence (Prereq: Junior standing, FCHD 1500) (F,Sp).....	3
FCHD 3540 Adult Development and Aging (Prereq: Junior standing and FCHD 1500) (F,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) (F,Sp).....	3
FCHD 4240 Social and Family Gerontology (Prereq: Junior standing, FCHD 2400, 3540) (F,Sp).....	3
FCHD 4550 Preschool Methods and Curriculum (Prereq: Junior standing, FCHD 1500) (F,Sp).....	3

Consumer and Family Finance (12 credits)

Select at least 12 credits from the following:

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 3350 (QI) Family Finance (F,Sp,Su).....	3
FCHD 3450 Consumer Credit Problems (Prereq: FCHD 3350) (F).....	3
FCHD 4330 Family Finance Career Seminar (Prereq: FCHD 3350) (F).....	1
FCHD 4350 Advanced Family Finance (Prereq: FCHD 3350) (Sp).....	3
FCHD 5340 Housing Finance and Regulations (Prereq: FCHD 3340, 3350) (majors only) (Sp).....	3

Foods and Nutrition (9 credits)

Select at least 9 credits from the following:

NFS 1000 World of Food and Nutrition (F).....	1
NFS 1020 (BLS) Science and Application of Human Nutrition (F,Sp,Su).....	3
NFS 1240 Culinary Basics (F,Su).....	3
NFS 1250 Sanitation and Safety (Sp).....	3
NFS 2020 Nutrition Throughout the Life Cycle (Prereq: NFS 1020) (Sp).....	3
NFS 2030 Catering (Prereq: NFS 1240, 1250) (F).....	3
NFS 3020 Nutrition and Physical Performance (Prereq: NFS 1020) (F).....	2
NFS 3110 (DSC) Food, Technology, and Health (Prereq: University Studies Breadth Life Sciences Course) (F).....	3
NFS 4070 Experimental Foods (Prereq: CHEM 1120 or 2300 or 2310) (Sp).....	4
NFS 4480 Community Nutrition (Prereq: NFS 1020) (F).....	3

Research Methods and Professional Courses (12 credits)

The following courses are required:

FCHD 3130 (QI) Research Methods (Prereq: STAT 1040) (F,Sp) (majors only).....	3
FCHD 3210 (CI) Families and Cultural Diversity (Prereq: FCHD 1500, 2400, ENGL 2010) (F,Sp) (majors only).....	3

Choose one of the following:

OSS 1550 (CI) Business Correspondence.....	3
BIS 2200 (CI) Business Communication (F,Sp,Su).....	3
FCHD 4900 (CI) Pre-Practicum Skills (Prereq: Junior Standing, FCHD 2610, 3100, ENGL 2010) (F,Sp).....	3
SPCH 1020 (CI) Public Speaking (F,Sp).....	3
SPCH 2110 (CI) Interpersonal Communication (F,Sp).....	3

Choose one of the following:

FCHD 4900 (CI) Pre-Practicum Skills (Prereq: Junior Standing, FCHD 2610, 3100, ENGL 2010) (F,Sp).....	3
PHIL 1120 (BHU) Social Ethics (F).....	3
PHIL 2400 (BHU) Ethics (Sp).....	3

Practicum (6 credits)

Complete a total of 6 credits from one or both of the following:

FCHD 4950²² Practicum: Consumer Science (F,Sp,Su).....	3-6
FCHD 4960²³ Practice Teaching in Child Development Laboratories (Prereq: Junior Standing, FCHD 4550) (F,Sp,Su).....	3

Suggested Support Courses

The following courses are *suggested* (but not required) for students in the FCS major:

FCSE 2040 Clothing Production Principles (F,Sp).....	3
FCSE 3030 (DSC) Textile Science (Sp).....	4
FCSE 3040 Advanced Clothing Production Principles (F,Sp).....	3
FCSE 3060 (DSS/CI) Human Behavior Related to Dress (F) (3 cr) or	
FCSE 3080 Dress and Humanity (F,Su) (3 cr).....	3
ID 1790 (BCA) Interior Design Theory (Sp).....	3
ID 3740 (DHA) History of Interior Furnishings and Architecture I (F)....	3
ID 3750 (DHA/CI) History of Interior Furnishings and Architecture II (Sp).....	3

²²Enrollment in FCHD 4950 is limited to FCS majors *only*, 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.

²³Students must sign up one year in advance in Family Life 205.

Suggested Four-year Course of Study for Family and Consumer Sciences (FCS) Major

The FCS major is an interdisciplinary program. Students are required to take 12 credits in **Human Development and Family Studies**, 12 credits in **Consumer and Family Finance**, and 9 credits in **Foods and Nutrition**, as well as professional courses listed on the major requirement sheet.

The suggested course of study shown below is 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.

Freshman Year (30-33 credits)

Fall Semester (15-18 credits)

FCHD 1100 Critical Issues in Family, Consumer, and Human Development.....	1
FCHD 1500 (BSS)²⁴ Human Development Across the Lifespan.....	3
MATH 1010 Intermediate Algebra.....	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
USU 1000 Introduction to Computers and Information Literacy (1 cr) or	
OSS 1400 Microcomputer Applications (3 cr) or Passing scores on Computer and Information Literacy (CIL) exams (0 cr).....	0-3
(Note: Although USU 1000 and OSS 1400 include the CIL exams, the CIL requirement is met <i>only</i> by passing all six exams, <i>not</i> by simply passing USU 1000 or OSS 1400.)	
University Studies Breadth course ²⁵	3
Elective course(s).....	2

Spring Semester (15 credits)

FCHD 2400 (BSS)²⁴ Marriage and Family Relationships.....	3
FCHD 2450 (BSS)²⁴ The Consumer and the Market.....	3
STAT 1040 (QL) Introduction to Statistics.....	3
University Studies Breadth course ²⁵	3
Elective course(s).....	3

Department of Family, Consumer, and Human Development

Sophomore Year (30 credits)

Fall Semester (15 credits)

FCHD 3350 (QI) ²⁶ Family Finance	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
NFS 1020 (BLS) ²⁴ Science and Application of Human Nutrition	3
FCHD Human Development and Family Studies course	3
University Studies Breadth course ²⁵	3

Spring Semester (15 credits)

FCHD Human Development and Family Studies course	3
FCHD Consumer and Family Finance course	3
NFS Foods and Nutrition course	3
Communications Intensive (CI) course (as listed in FCS requirements)	3
Elective course(s)	3

Junior Year (30 credits)

Fall Semester (15 credits)

FCHD 3210 (CI) Families and Cultural Diversity	3
FCHD Human Development and Family Studies course	3
FCHD Consumer and Family Finance course	3
NFS Foods and Nutrition course	3
Elective course(s)	3

Spring Semester (15 credits)

FCHD Human Development and Family Studies course	3
FCHD Consumer and Family Finance course	3
PHIL Ethics course (as listed in FCS requirements) ²⁴	3
Elective course(s)	6

Senior Year (30 credits)

Fall Semester (15 credits)

FCHD 3130 (QI) Research Methods	3
Depth Life and Physical Sciences (DSC) course	3
Depth Humanities and Creative Arts (DHA) course	3
Elective course(s)	6

Spring Semester (15 credits)

FCHD 4950 Practicum: Consumer Science	6
Elective course(s)	9

²⁴FCHD 1500, 2400, or 2450 meets the Breadth Social Sciences (BSS) requirement, NFS 1020 meets the Breadth Life Sciences (BLS) requirement, and the PHIL Ethics Course meets the Breadth Humanities (BHU) requirement.

²⁵At least two of the six required breadth courses must have a USU prefix.

²⁶Effective Fall Semester 2007, Quantitative Intensive (QI) University Studies credit will no longer be granted for FCHD 3350.

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, honors@cc.usu.edu. Additional information can be found online at: <http://www.usu.edu/honors/>, or by contacting Dr. Ann Austin (FCHD honors advisor) at ann.austin@usu.edu or at (435) 797-1527.

Additional Information

For more detailed information about the Family, Consumer, and Human Development; Early Childhood Education; and Family and Consumer Sciences 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/ats/majorsheets/>

Financial Support

In addition to the scholarships, assistantships, grants-in-aid, and work-study programs available through the University, the 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 99-100. 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 1, but may be considered throughout the year, with the *exception* of applications for the Marriage and Family Therapy (MFT) Specialization and the Master of Family and Human Development (MFHD) degree. MFT applications *must* be received by January 1, and MFHD applications *must* be received by March 1 in years that a new cohort is admitted.

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.

Department of Family, Consumer, and Human Development

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.

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, consumer sciences, 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/graduate_handbook.pdf

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
Raymond T. Coward, USU Provost; aging, elder care, rural health care
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
Jean M. Lown, consumer and family economics
Brent C. Miller, marriage and family relationships, adolescent pregnancy, adoption, research methods
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
Barbara R. Rowe, family resource management, extension

Department of Family, Consumer, and Human Development

Adjunct Professors

Frank R. Ascione, prosocial development, moral development, developmental psychopathology
Sarah Rule, methods of early intervention, applications of technology to staff development, improvement of service delivery systems

Professors Emeritus

Glen O. Jenson, marriage education, in-law and grandparent role performance, family life education, work/family challenges
Jay D. Schvaneveldt, marriage and family studies, family life education, international families, theory and methods

Associate Professors

Scot M. Allgood, family therapy process, assessment, and marital studies
Randall M. Jones, adolescent development, identity, problem behavior, prevention, research methods
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

Assistant Professors

Troy E. Beckert, life span human development, adolescence, research methods, parenting
Karen Biers, clothing and textiles, home-based entrepreneurship, extension
Lucy Delgadillo, family and consumer sciences, housing
Yoon G. Lee, family and consumer sciences, family finance
Sylvia Niehuis, premarital relationships, transition from courtship to marriage, marriage preparation, prediction of marital outcomes, longitudinal research methods

Maria C. Norton, geriatric mental health, psychosocial and biological factors, research methodology and epidemiology
Linda M. Skogrand, families from diverse populations, transcending traumatic childhoods, marriage and family education

Adjunct Assistant Professor

Carol M. Baumann, child welfare, foster care, adoption

Adjunct Research Assistant Professor

Lisa K. Boyce, infancy and early childhood, language development, parent-child interaction

Principal Lecturer

Deborah B. Ascione, marriage, human development, child abuse and neglect

Lecturers

Jana Darrington, adult development and aging, relationship development, family policy
Susan L. Ericksen, undergraduate practicum coordinator, marriage and family therapy, professional development
Alena Johnson, family financial management, financial counseling, students and debt
Farol Ann G. Nelson, early childhood education, child development, parent education, experiences in the arts for early childhood
Kaelin Olsen, infant and toddler development, developmentally appropriate practice in early childhood education, preschool curriculum, child guidance

Course Descriptions

Family, Consumer, and Human Development (FCHD), pages 624-627.

Department of Geology

Department Head: John W. Shervais

Location: Geology 205

Phone: (435) 797-1273

FAX: (435) 797-1588

E-mail: geology@cc.usu.edu

WWW: http://www.usu.edu/geo/

Undergraduate Advisor:

Peter T. Kolesar, Geology 110, (435) 797-3282,

peter.kolesar@usu.edu

Graduate Program Director:

W. David Liddell, Geology 212, (435) 797-1261, davel@cc.usu.edu

Degrees offered: Bachelor of Science (BS), Bachelor of Arts (BA), Master of Science (MS), and Doctor of Philosophy (PhD) in Geology; BS in Composite Teaching in Earth Science

Undergraduate emphases: *BS in Geology*—Hydrogeology-Engineering Geology and Geoarchaeology

Graduate Specializations: *MS in Geology*—Geochemistry, Hydrogeology, Igneous Petrology, Paleocology, 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 department also offers the Composite Teaching Major in Earth Science 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 Composite Teaching Major in Earth Science 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 Department of Secondary Education.

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 Composite Teaching Major in Earth Science should be aware that a 2.75 minimum GPA is required for admission to the Secondary Teacher Education Program (STEP) in the Department of Secondary Education. 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

GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp)	4
GEO 3200 (DSC) The Earth Through Time (Sp)	4
GEO 3500 Mineralogy and Crystallography (F)	4
GEO 3520 Optical Mineralogy and Petrography (Sp)	2
GEO 3550 (CI) Sedimentation and Stratigraphy (F)	4
GEO 3600 Geomorphology (F)	4
GEO 3700 Structural Geology (Sp)	4
GEO 4500 Igneous and Metamorphic Petrology (Sp)	4
GEO 4700 (CI) Geologic Field Methods (F)	3
GEO 5200 Geology Field Camp (Su)	5
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
MATH 1210 (QL) ¹ Calculus I (F,Sp,Su)	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su) (3 cr) or	
MATH 1220 (QL) Calculus II (F,Sp,Su) (4 cr)	3 or 4

Department of Geology

- CS 1050** Problem Solving with Computers (F,Sp) (3 cr) **or**
CS 1400 Introduction to Computer Science—CS 1 (F,Sp,Su) (3 cr) **or**
CEE 5190 Geographic Information Systems for Civil Engineers
 (Sp) (3 cr) **or**
AWER 4930 Geographic Information Systems (F) (4 cr) 3 or 4
PHYS 2210 (QI) General Physics—Science and Engineering I 4
PHYS 2220 (BPS/QI) 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).

Suggested Four-year Course of Study for General Geology Option

Freshman Year (31 credits)

Fall Semester (16 credits)

- GEO 1110 (BPS)** The Dynamic Earth: Physical Geology 4
CHEM 1210 Principles of Chemistry I 4
CHEM 1215 Chemical Principles Laboratory I 1
MATH 1210 (QL) Calculus I 4
 University Studies course 3

Spring Semester (15 credits)

- GEO 3200 (DSC)** The Earth Through Time 4
CHEM 1220 (BPS) Principles of Chemistry II 4
CHEM 1225 Chemical Principles Laboratory II 1
STAT 3000 (QI) Statistics for Scientists 3
 University Studies course 3

Sophomore Year (30 credits)

Fall Semester (15 credits)

- GEO 3500** Mineralogy and Crystallography 4
GEO 3550 (CI) Sedimentation and Stratigraphy 4
GEO 3600 Geomorphology 4
 University Studies course 3

Spring Semester (15 credits)

- GEO 3520** Optical Mineralogy and Petrography 2
GEO 3700 Structural Geology 4
 University Studies courses 9

Junior Year (35 credits)

Fall Semester (16 credits)

- GEO 4700 (CI)** Geologic Field Methods 3
PHYS 2210 (QI) General Physics—Science and Engineering I 4
 Upper-division Geology elective course 3
 University Studies courses or elective courses 6

Spring Semester (14 credits)

- GEO 4500** Igneous and Metamorphic Petrology 4
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II 4
 Upper-division Geology elective course 3
 University Studies course 3

Summer Semester (5 credits)

- GEO 5200** Geology Field Camp 5

Senior Year (25 credits)

Fall Semester (13 credits)

- AWER 4930** Geographic Information Systems 4
 Upper-division Geology elective course 3
 University Studies courses and general elective courses 6

Spring Semester (12 credits)

- Upper-division Geology elective course 3
 General elective courses 9

Geology Major—Hydrogeology-Engineering Geology Emphasis

- GEO 1110 (BPS)** The Dynamic Earth: Physical Geology (F,Sp) 4
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
GEO 5200 Geology Field Camp (Su) 5
GEO 5510 (QI) Groundwater Geology (F) 3
GEO 5600 Geochemistry (F) 3
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
MATH 1210 (QL)¹ Calculus I (F,Sp,Su) 4
MATH 1220 (QL) Calculus II (F,Sp,Su) 4
MATH 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su) .. 4
CS 1050 Problem Solving with Computers (F,Sp) (3 cr) **or**
CS 1400 Introduction to Computer Science—CS 1 (F,Sp,Su) (3 cr) **or**
CEE 5190 Geographic Information Systems for Civil Engineers
 (Sp) (3 cr) **or**
AWER 4930 Geographic Information Systems (F) (4 cr) 3 or 4
PHYS 2210 (QI) General Physics—Science and Engineering I 4
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II .. 4
ENGR 2010 Engineering Mechanics Statics (F,Sp) 2
ENGR 2140 Strength of Materials (F,Sp) 2
CEE 3500 Civil and Environmental Engineering Fluid Mechanics
 (F,Sp) 3
CEE 3430 Engineering Hydrology (Sp) (3 cr) **or**
CEE 4300 Engineering Soil Mechanics (Sp) (4 cr) 3 or 4
SOIL 3000 Fundamentals of Soil Science (F,Sp) (4 cr) **or**
SOIL 5130 Soil Genesis, Morphology, and Classification (F) (4 cr) 4

Suggested Four-year Course of Study for Hydrology-Engineering Geology Emphasis

Freshman Year (32 credits)

Fall Semester (16 credits)

- GEO 1110 (BPS)** The Dynamic Earth: Physical Geology 4
CHEM 1210 Principles of Chemistry I 4
CHEM 1215 Chemical Principles Laboratory I 1
MATH 1210 (QL) Calculus I 4
 University Studies course 3

Spring Semester (16 credits)

- GEO 3200 (DSC)** The Earth Through Time 4
CHEM 1220 (BPS) Principles of Chemistry II 4
CHEM 1225 Chemical Principles Laboratory II 1
MATH 1220 (QL) Calculus II 4
 University Studies course 3

Sophomore Year (31 credits)

Fall Semester (15 credits)

- GEO 3550 (CI)** Sedimentation and Stratigraphy 4
PHYS 2210 (QI) General Physics—Science and Engineering I 4
MATH 2250 (QI) Linear Algebra and Differential Equations 4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a
 Persuasive Mode 3

Department of Geology

Spring Semester (16 credits)
GEO 3700 Structural Geology..... 4
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II..... 4
ENGR 2010 Engineering Mechanics Statics..... 2
 University Studies courses..... 6

Junior Year (33 credits)
Fall Semester (14 credits)
GEO 3500 Mineralogy and Crystallography..... 4
GEO 3600 Geomorphology..... 4
GEO 4700 (CI) Geologic Field Methods..... 3
 University Studies course or elective course..... 3

Spring Semester (14 credits)
ENGR 2140 Strength of Materials..... 2
 Elective courses..... 6
 University Studies courses..... 6

Summer Semester (5 credits)
GEO 5200 Geology Field Camp..... 5

Senior Year (26-27 credits)
Fall Semester (13 credits)
GEO 5510 (QI) Groundwater Geology..... 3
GEO 5600 Geochemistry..... 3
AWER 4930 Geographic Information Systems..... 4
CEE 3500 Civil and Environmental Engineering Fluid Mechanics..... 3

Spring Semester (13-14 credits)
SOIL 3000 Fundamentals of Soil Science..... 4
CEE 3430 Engineering Hydrology (3 cr) or
CEE 4300 Engineering Soil Mechanics (4 cr)..... 3 or 4
 University Studies courses..... 6

Geology Major—Geoarchaeology Emphasis

GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp)..... 4
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
GEO 5430 Paleontology (F)..... 2
ANTH 2030 (CI/BSS) World Archaeology (F,Sp)..... 3
ANTH 4350 Archaeological Method/Theory and Cultural Resource Management (Sp)..... 3
ANTH 4360 (DSS) Ancient Desert West (F)..... 3-4
ANTH 5300 Archaeology Field School (Su)..... 4-5
ANTH 5310 Archaeology Lab..... 1-3

CHEM 1110 (BPS) General Chemistry I (F,Sp) (4 cr) and
CHEM 1115 General Chemistry Laboratory (Sp) (1 cr) and
CHEM 1120 (BPS) General Chemistry II (Sp) (4 cr)..... 9
 Or
CHEM 1210 Principles of Chemistry I (F,Sp) (4 cr) and
CHEM 1215 Chemical Principles Laboratory I (F,Sp) (1 cr) and
CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su) (4 cr) and
CHEM 1225 Chemical Principles Laboratory II (F,Sp) (1 cr)..... 10

BIOL 3010 (CI/DSC) Evolution (Sp)..... 3

Two courses selected from:

BIOL 2220 General Ecology (F,Sp) (3 cr) and/or
BIOL 3030 (DSC) Genetics and Society (Sp) (3 cr) and/or
BIOL 3040 (DSC) Plants and Civilization (F) (3 cr) and/or
BIOL 3220 (QI) Field Ecology (F) (2 cr)..... 5 or 6

MATH 1210 (QL)¹ Calculus I (F,Sp,Su)..... 4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)..... 3
AWER 4930 Geographic Information Systems (F)..... 4
AWER 5930 Geographic Information Analysis (Sp)..... 4
SOIL 3000 Fundamentals of Soil Science (F, Sp) (4 cr) or
SOIL 5130 Soil Genesis, Morphology, and Classification (F) (4 cr)..... 4

Composite Teaching Major in Earth Science

GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp)..... 4
GEO 2500² 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 1020 (BPS)³ Energy..... 3
PHYS 2210 (QI) General Physics—Science and Engineering I..... 4
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II .. 4
PHYS 3010 (QI/DSC) Space Exploration from Earth to the Solar System..... (3 cr) or
PHYS 3030 (QI/DSC) The Universe (3 cr)..... 3
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
FRWS 2200 (BLS) Ecology of Our Changing World (F,Sp) (3 cr)..... 3
BMET 2000 (BPS) The Atmosphere and Weather (F,Sp)..... 3
AWER 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)¹ Calculus I (F,Sp,Su)..... 4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)..... 3
CS 1050 Problem Solving with Computers (F,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 (F,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,Sp)..... 3

Level 3 (12 credits)
SCED 5500 Student Teaching Seminar (F,Sp)..... 2
SCED 5630 Student Teaching in Secondary Schools (F,Sp)..... 10

Notes

This curriculum meets the standards of the Utah Core Curriculum—Science 7-12.

Department of Geology

Beginning in 2006, 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) Geology of National Parks: Introduction to Geology (F,Su) (3 cr) **or**

GEO 1110 (BPS)⁴ 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.

¹Students may need to complete prerequisite courses prior to enrolling in MATH 1210.

²GEO 2500 (a 1-credit course) is repeatable for credit, and must be taken *twice* for the student to earn the required 2 credits.

³PHYS 1020 may also be listed as USU 1360, ST: Energy.

⁴GEO 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.

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 research coordinator, James Evans, (435) 797-1267, jpevans@cc.usu.edu. More information may be found on the Geology Department website: <http://www.usu.edu/geo/>

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/ats/majorsheets/>

Graduate Programs

Admission Requirements

See general admission requirements on pages 99-100. 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 matriculated 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 AWER 4930. Deficiencies in geology are determined based on current

Department of Geology

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

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 Biometeorology; Watershed Sciences; and Wildland 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 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, paleoecology (including invertebrate paleontology), 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

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.

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 AWER 4930, 6760, AWER/BIE/BMET 6250, FRWS 6740, 6750, ENVS 6550.
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.

Department of Geology

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.

Research activity in **hydrogeology** has included wellhead protection in confined to semiconfined aquifers, the relationships between stream losses and water table depths, and the identification and geochemical characterization of groundwater recharge to surface streams.

Research in **petrology** focuses on the origin and evolution of magmatic systems, 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** has included sedimentation and development of coral reefs and associated carbonate environments during Pleistocene and Holocene times, sequence stratigraphy of Paleozoic carbonate and detrital systems, study of mixed carbonate-siliciclastic deposition in Proterozoic and Paleozoic time, and Proterozoic basin analysis, isotope geochemistry, and paleobiology. Research activities are dominantly field-oriented, with studies ongoing in the western United States, Mexico, and the Caribbean.

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 Biometeorology, 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
W. David Liddell, marine ecology, paleoecology, sedimentology
John W. Shervais, igneous petrology, geochemistry, tectonics

Adjunct Professor

David G. Tarboton, water resources and hydrology

Professor Emeritus

Robert Q. Oaks, Jr., sedimentary petrology, stratigraphy

Associate Professors

Donald W. Fiesinger, igneous petrology, Dean of College of Science
Susanne U. Janecke, tectonics, structural geology
Peter T. Kolesar, carbonate petrology, geochemistry
Thomas E. Lachmar, hydrogeology
Joel L. Pederson, process geomorphology, Quaternary geology

Adjunct Associate Professors

Janis L. Boettinger, soil mineralogy
John C. Schmidt, fluvial geomorphology

Assistant Professors

Carol M. Dehler, sedimentation, geochemical cycles
Anthony R. Lowry, geophysics

Adjunct Assistant Professor

David G. Chandler, surface hydrology

Lecturer

Susan K. Morgan, science education, carbonate petrology

Course Descriptions

Geology (GEO), pages 633-636.

Department of Health, Physical Education and Recreation

Department Head: Craig W. Kelsey
Location: Health, Physical Education and Recreation 122
Phone: (435) 797-1498
FAX: (435) 797-3759
E-mail: hper@cc.usu.edu
WWW: http://cehs.usu.edu/hper/

Graduate Program Coordinator:
Richard D. Gordin, Jr., HPER 155, (435) 797-1506,
gordin@cc.usu.edu

Undergraduate Academic Advisors:
Health Education Specialist Major and Parks and Recreation Major:

Mary Lou Reynolds, HPER 145, (435) 797-1278,
reynolds@cc.usu.edu

Physical Education Major:
Suzanne D. Stones, HPER 143, (435) 797-1495,
suzies@cc.usu.edu
(Note: During the summer months, the advisor for the Physical Education Major is Mary Lou Reynolds.)

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, 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.

Recreational and Intramural Activities

The intramural program is planned and conducted to meet the needs of all students regardless of skill or ability. The major objectives are to offer a wide variety of sports experiences, to encourage lifetime sports participation, to develop habits of fair play, and to provide leadership experiences. The intramural concept not only embraces the traditional highly-organized program with teams, leagues, and tournaments, but also voluntary free play activities where opportunities are provided for physical recreation for all segments of the University community.

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:

BIOL 2320 Human Anatomy (Sp,Su) (4 cr) or	
BIOL 2420 Human Physiology (F,Sp,Su) (4 cr).....	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose (F,Sp,Su) .	3
HEP 2500 Health and Wellness (F,Sp,Su)	2
MATH 1050 (QL) College Algebra (F,Sp,Su) (4 cr) or	
STAT 1040 (QL) Introduction to Statistics (F,Sp,Su)	
(or higher) (3 cr)	3 or 4
NFS 1020 (BLS) 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. A 2.75 total GPA is also 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.

Department of Health, Physical Education and Recreation

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 3200	Consumer Health (F,Su)	3
HEP 3600 (CI)	Introduction to Community Health (F)	3
HEP 4200 (QI) ²	Planning and Evaluation for Health Education (F)	3
HEP 5000 (CI) ^{8,11}	Race, Culture, Class, and Gender Issues in Health (Sp)	3
BIOL 2320	Human Anatomy (Sp,Su)	4
BIOL 2420	Human Physiology (F,Sp,Su)	4
NFS 1020 (BLS)	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)

HEP 3800 ²⁶	Grant Proposal Writing (Sp)	3
HEP 3900 ²⁷	Social Marketing in Health Education (Sp)	3
HEP 4100 ⁹	Foundations of Community Health (Sp)	3
HEP 4600 ¹⁰	Field Work in Health Education (F,Sp,Su)	9
INST 5400	Computer Applications for Instruction and Training (F,Sp,Su)	3
MHR 3110 (DSS) ⁸	Managing Organizations and People (F,Sp,Su)	3
NFS 4480	Community Nutrition (F)	3
PSY 2800 (QI) ¹²	Psychological Statistics (F,Sp)	3
PUBH 4030 ¹³	Communicable Disease Control (F)	3
PUBH 4040 ¹⁴	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

ANTH 3110	North American Indian Cultures (F)	3
ANTH 4130 (DSS) ⁸	Medical Anthropology: Matter, Culture, Spirit, and Health (Sp)	3
FCHD 1500 (BSS) ⁸	Human Development Across the Lifespan (F,Sp)	3
FCHD 3110 ¹⁶	Human Sexuality (F,Su)	3
FCHD 3530 ¹	Adolescence (F,Sp)	3
PSY 1010 (BSS) ⁸	General Psychology (F,Sp,Su)	3
PSY 1100 ¹⁵	Developmental Psychology: Infancy and Childhood (F,Sp)	3
PSY 1210 ¹⁵	Psychology of Human Adjustment (F,Sp)	3
PSY 4240 (DSS) ^{8,15}	Multicultural Psychology (F)	3
SOC 2370	Sociology of Gender (F)	3
SOC 3010	Race, Class, and Gender (F,Sp)	3
SOC 3330	Medical Sociology (F)	3
SW 2100 ¹⁷	Human Behavior in the Social Environment (Sp)	3

Content and Methods in Education

OSS 1400 ¹⁹	Microcomputer Applications (F,Sp,Su)	3
OSS 1550 (CI) ⁸	Business Correspondence	3
HEP 3100 ²²	School Health Programs (F)	3
HEP 3400	Stress Management (F,Sp)	3

HEP 3500	Elementary School Health Education (F,Sp)	2
HEP 4400 ²²	Creative Methods in Teaching Health Education (F,Sp)	3
HEP 4500 ²²	Sexuality Education Within the Schools (Sp)	3
HEP 5700	Special Topics in Health (Arr)	1-3
JCOM 1130 ²⁰	Beginning Newswriting for the Mass Media (F,Sp,Su)	3
JCOM 2220 ²¹	Introduction to Video Media (F,Sp)	3
JCOM 3010	Communication Research Methods (F,Sp)	3
NFS 2020 ²³	Nutrition Throughout the Life Cycle (Sp)	3
PEP 4100 ²⁴	Exercise Physiology and Principles of Conditioning (F,Sp)	4
SOC 3750	Sociology of Aging (F)	3
SPCH 1020 (CI) ⁸	Public Speaking (F,Sp)	3

Organizational Dynamics in the Family and Community

FCHD 3100 ¹⁶	Abuse and Neglect in Family Context (F,Sp)	3
HEP 5000 (CI) ^{8,11}	Race, Culture, Class, and Gender Issues in Health (Sp)	3
JCOM 2300	Introduction to Public Relations (F,Sp)	3
MHR 3820 (DSS) ⁸	International Management (F,Sp)	3
POLS 3810 (DSS) ⁸	Introduction to Public Policy (F)	3
PUBH 3120	Family and Community Health (Sp)	3
PUBH 3310 ²⁵	Occupational Health and Safety (F)	3
SPCH 2110 (CI) ⁸	Interpersonal Communication (F,Sp)	3
SPCH 3250 (CI) ⁸	Organizational Communication (F)	3
SW 2400 ¹⁷	Social Work with Diverse Populations (Sp)	3
SW 3750 ¹⁸	Medical Social Services	3

Suggested Four-year Course of Study for Health Education Specialist Major, Community Health Emphasis

Freshman Year (28 credits)

Fall Semester (14 credits)

HEP 2500	Health and Wellness	2	
PSY 1010 (BSS)	General Psychology (3 cr) or FCHD 1500 (BSS)	Human Development Across the Lifespan (3 cr)	3
ENGL 1010 (CL1)	Introduction to Writing: Academic Prose	3	
STAT 1040 (QL)	Introduction to Statistics	3	
Breadth Creative Arts (BCA) course		3	

Spring Semester (14 credits)

HEP 2000	First Aid and Emergency Care	2
NFS 1020 (BLS)	Science and Application of Human Nutrition	3
Breadth American Institutions (BAI) course		3
Breadth Humanities (BHU) course		3
Breadth Physical Sciences (BPS) course		3

Sophomore Year (32 credits)

Fall Semester (16 credits)

HEP 3000	Drugs and Human Behavior	3
HEP 3200	Consumer Health	3
HEP 3600 (CI)	Introduction to Community Health	3
BIOL 2420	Human Physiology	4
Health elective course(s)		3

Spring Semester (16 credits)

HEP 3800	Grant Proposal Writing	3
HEP 3900	Social Marketing in Health Education	3
ENGL 2010 (CL2)	Intermediate Writing: Research Writing in a Persuasive Mode	3
BIOL 2320	Human Anatomy	4
Depth Humanities and Creative Arts (DHA) course		3

Junior Year (30 credits)

Fall Semester (15 credits)

HEP 4200 (QI)	Planning and Evaluation for Health Education	3
INST 5400	Computer Applications for Instruction and Training	3

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NFS 4480 Community Nutrition.....	3
PSY 2800 (QI) Psychological Statistics.....	3
PUBH 4030 Communicable Disease Control.....	3

Spring Semester (15 credits)

HEP 4100 Foundations of Community Health.....	3
HEP 5000 (CI) Race, Culture, Class, and Gender Issues in Health.....	3
MHR 3110 (DSS) Managing Organizations and People.....	3
PUBH 4040 Fundamentals of Epidemiology.....	3
Elective course(s).....	3

Senior Year (30 credits)

Fall Semester (14 credits)

HEP 4600 Field Work in Health Education.....	9
Elective course(s).....	5

Spring Semester (16 credits)

Elective courses.....	16
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**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 Department of Secondary Education. 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)

FCHD 1500 (BSS) ⁸ Human Development Across the Lifespan (F,Sp).....	3
HEP 3100 ⁵ School Health Programs (F).....	3
HEP 4500 ⁵ Sexuality Education within the Schools (Sp).....	3

**B. Secondary Teacher Education Program (STEP)
(35 credits)**

Level 1 (15-week courses)³

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
HEP 3300 ⁵ Clinical Experience I (or minor Clinical Experience I) (F,Sp).....	1
HEP 4400 ⁷ Creative Methods in Teaching Health Education (F,Sp) (3 cr) or Minor Special Methods Course (3 cr).....	3

Level 2 (15-week courses)⁴

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
HEP 4300 ⁵ Clinical Experience II (or minor Clinical Experience II) (F,Sp).....	1
HEP 4400 ⁷ Creative Methods in Teaching Health Education (F,Sp) (3 cr) or Minor Special Methods Course (3 cr).....	3

Level 3 (includes 13 weeks of student teaching and 2 weeks of Student Teaching Seminar)⁶

HEP 5500 ⁵ Student Teaching Seminar (2 weeks) (F,Sp).....	2
HEP 5630 ⁵ Student Teaching (13 weeks) (F,Sp).....	10

Suggested Four-year Course of Study for Health Education Specialist Major, School Health Emphasis

Freshman Year (29-30 credits)

Fall Semester (14-15 credits)

HEP 2500 Health and Wellness.....	2
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
FCHD 1500 (BSS) Human Development Across the Lifespan.....	3
STAT 1040 (QL) Introduction to Statistics (3 cr) or MATH 1050 (QL) College Algebra (4 cr).....	3 or 4
NFS 1020 (BLS) Science and Application of Human Nutrition.....	3

Spring Semester (15 credits)

HEP 2000 First Aid and Emergency Care.....	2
BIOL 2420 Human Physiology.....	4
Breadth American Institutions (BAI) course.....	3
Breadth Creative Arts (BCA) course.....	3
Breadth Physical Sciences (BPS) course.....	3

Sophomore Year (30 credits)

Fall Semester (16 credits)

HEP 3000 Drugs and Human Behavior.....	3
HEP 3200 Consumer Health.....	3
Breadth Humanities (BHU) course.....	3
Minor courses.....	7

Spring Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
BIOL 2320 Human Anatomy.....	4
Depth Humanities and Creative Arts (DHA) course.....	3
Minor courses.....	6

Junior Year (32 credits)

Fall Semester (15 credits)

HEP 3100 School Health Programs.....	3
HEP 3600 (CI) Introduction to Community Health.....	3
Minor courses.....	9

Spring Semester (17 credits)

HEP 4500 Sexuality Education within the Schools.....	3
HEP 5000 (CI) Race, Culture, Class, and Gender Issues in Health.....	3
Level I courses.....	11

Senior Year (27 credits)

Fall Semester (15 credits)

SCED 4200 (CI) Reading, Writing, and Technology.....	3
Level II courses.....	12

Spring Semester (12 credits)

Level III courses.....	12
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School Health Minor (33 credits)

Note: This is an approved teaching minor through the Department of Secondary Education. 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.

FCHD 1500 (BSS) ⁸ Human Development Across the Lifespan (F,Sp).....	3
HEP 2000 First Aid and Emergency Care (F,Sp,Su).....	2
HEP 2500 Health and Wellness (F,Sp,Su).....	2

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HEP 3000 Drugs and Human Behavior (F,Su)	3
HEP 3100 ⁵ School Health Programs (F)	3
HEP 3200 Consumer Health (F,Su).....	3
HEP 3300 ⁵ Clinical Experience I (F,Sp) (1 cr) or	
HEP 4300 ⁵ Clinical Experience II (F,Sp) (1 cr)	1
HEP 4400 ⁵ Creative Methods in Teaching Health Education (F,Sp).....	3
HEP 4500 ⁵ Sexuality Education within the Schools (Sp)	3
HEP 5000 (CI) ^{8,11} Race, Culture, Class, and Gender Issues in Health (Sp)	3
BIOL 2320 Human Anatomy (Sp,Su) (4 cr) or	
BIOL 2420 Human Physiology (F,Sp,Su) (4 cr).....	4
NFS 1020 (BLS) Science and Application of Human Nutrition (F,Sp,Su)	3

¹Prerequisites: Junior standing and FCHD 1500.
²Prerequisites: 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.
³Prerequisite: Admittance to teacher education program.
⁴Prerequisite: Admission to teacher education program and completion of level 1.
⁵Prerequisite: Formal acceptance into the School Health emphasis or School Health minor.
⁶Prerequisite: Completion of Levels 1 and 2; Student Teaching Placement.
⁷Students 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.
⁸Course approved for University Studies credit.
⁹Prerequisite: HEP 2500.
¹⁰Prerequisites: HEP 3600, 4100, and consent of instructor.
¹¹Prerequisite: Junior standing (or higher).
¹²Prerequisite: STAT 1040 (or higher).
¹³It is recommended that BIOL 1110 or 3300; or BIOL 2320 and 2420 be completed prior to taking PUBH 4030.
¹⁴It is recommended that a course in statistics, such as STAT 3000 or PSY 2800, and PUBH 4030 be completed prior to taking PUBH 4040.
¹⁵Prerequisite: PSY 1010.
¹⁶Prerequisites: FCHD 1500, 2400.
¹⁷Prerequisite: SW 1010.
¹⁸Prerequisites: SW 1010, 2100, 2400.
¹⁹Prerequisite: Ability to keyboard at 25 wpm minimum.
²⁰Prerequisites: ENGL 1010 or equivalent, English Proficiency Test, typing test, and permission of Department of Journalism and Communication.
²¹Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010.
²²Prerequisite: Consent of instructor for students not in the School Health emphasis or the School Health minor.
²³Prerequisite: NFS 1020.
²⁴Prerequisites: BIOL 2320, 2420, MATH 1050.
²⁵Prerequisite: CHEM 1220.
²⁶Prerequisites: HEP 2500, ENGL 2010, and passing score on Computer and Information Literacy (CIL) exam.
²⁷Prerequisites: 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, therapeutic, 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)

PRP 1000 Introduction to Parks and Recreation (F,Sp)	3
PRP 2100 Leisure and Aging (Sp).....	2
PRP 2500 Outdoor Recreation Management (F)	3
PRP 3000 Recreation Programming (Sp)	3
PRP 3500 (CI) ^{29, 30} Community Recreation Administration (F)	3
PRP 3750 Commercial Recreation and Tourism (Sp)	3
PRP 3900 Introduction of Therapeutic Recreation for Diverse Populations (F)	3
PRP 4300 ³³ Legal Aspects of Recreation and Leisure (Sp)	3
PRP 4400 ³⁴ Recreation Facility Design and Management (F)	3
PRP 4700 Internship Seminar (Sp)	1
PRP 4750 ³¹ Recreation Internship (F,Sp,Su)	6

PRP 5000 (CI) ^{29,32} Seminar in Recreation (F,Sp)	3
INST 5400 Computer Applications for Instruction and Training (F,Sp,Su)	3
ENVS 3300 Fundamentals of Recreation Resources Management (F).....	3

B. Electives (9 credits)

Select at least 9 credits from the following courses:

FCHD 1500 (BSS) ^{28,35} Human Development Across the Lifespan (F,Sp)	3
PRP 1500 Social Recreation Leadership (Sp)	3
HEP 2000 First Aid and Emergency Care (F,Sp,Su)	2
HEP 3400 Stress Management (F,Sp)	3
LAEP 1030 (BCA) ²⁸ Introduction to Landscape Architecture (F,Sp,Su)	3
SOC 3010 Race, Class, and Gender (F,Sp).....	3
ENVS 4130 Recreation Policy and Planning (Sp).....	3
ENVS 4500 (CI) ²⁹ Wildland Recreation Behavior (F)	3
ENVS 4600 Natural Resource Interpretation (F).....	3
Activity Courses in Physical Education (numbered PE 1000-2000).....	1-3

C. Additional Requirements

In addition to the above requirements for the major, students are required to select a minor from an approved area outside the major.

Suggested Four-year Course of Study for Parks and Recreation Major

Freshman Year (29-30 credits)

Fall Semester (15-16 credits)

PRP 1000 Introduction to Parks and Recreation	3
MATH 1030 (QL) Quantitative Reasoning (3 cr) or	
STAT 1040 (QL) Introduction to Statistics (3 cr) or	
MATH 1050 (QL) College Algebra (4 cr)	3 or 4
Parks and Recreation elective course	3
Breadth American Institutions (BAI) course	3
Breadth Humanities (BHU) course	3

Spring Semester (14 credits)

PRP 2100 Leisure and Aging	2
Parks and Recreation elective course(s).....	3
Breadth Life Sciences (BLS) course	3
Breadth Creative Arts (BCA) course.....	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3

Sophomore Year (30 credits)

Fall Semester (15 credits)

PRP 2500 Outdoor Recreation Management.....	3
PRP 3900 Introduction of Therapeutic Recreation for Diverse Populations.....	3
INST 5400 Computer Applications for Instruction and Training.....	3
Breadth Physical Sciences (BPS) course	3
Minor course(s).....	3

Spring Semester (15 credits)

PRP 3000 Recreation Programming	3
PRP 3750 Commercial Recreation and Tourism	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Minor course(s).....	3
Breadth Social Sciences (BSS) course	3

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Junior Year (33 credits)

Fall Semester (15 credits)

PRP 3500 (CI) Community Recreation Administration	3
PRP 4400 Recreation Facility Design and Management	3
ENVS 3300 Fundamentals of Recreation Resources Management	3
Parks and Recreation elective courses	6

Spring Semester (18 credits)

PRP 4300 Legal Aspects of Recreation and Leisure	3
PRP 4700 Internship Seminar	1
Upper-division Depth Life and Physical Sciences (DSC) course	3
Quantitative Intensive (QI) course	3
Elective courses	8

Senior Year (31 credits)

Fall Semester (17 credits)

PRP 5000 (CI) Seminar in Recreation	3
Upper-division Depth Humanities and Creative Arts (DHA) course	3
Elective courses	8
Minor course(s)	3

Spring Semester (14 credits)

PRP 4750 Recreation Internship	6
Elective course	5
Minor course(s)	3

Parks and Recreation Minor

(for students not majoring in Parks and Recreation)

A. Required Courses (15 credits)

PRP 1000 Introduction to Parks and Recreation (F,Sp)	3
PRP 1500 Social Recreation Leadership (Sp)	3
PRP 2500 Outdoor Recreation Management (F)	3
PRP 3000 Recreation Programming (Sp)	3
PRP 3500 (CI) ²⁹ Community Recreation Administration (F)	3

B. Elective Courses (5 credits)

Select at least 5 credits from the following courses.

PRP 2100 Leisure and Aging (Sp)	2
PRP 3900 Introduction of Therapeutic Recreation for Diverse Populations (F)	3
PRP 4300 ³³ Legal Aspects of Recreation and Leisure (Sp)	3
PRP 4400 ³⁴ Recreation Facility Design and Management (F) (prereq: PRP 3000)	3
ENVS 3300 Fundamentals of Recreation Resources Management (F)	3

²⁸FCHD 1500 will meet the University Studies Breadth Social Sciences (BSS) requirement.
LAEP 1030 will meet the University Studies Breadth Creative Arts (BCA) requirement.

²⁹This course is approved for Communications Intensive (CI) University Studies credit.

³⁰PRP 1000 and 3000 are prerequisites to PRP 3500.

³¹PRP 1000, 3000, 4300, and 4700 are prerequisites to PRP 4750. Students must

complete 200 hours of related work experience prior to enrolling in PRP 4750.

³²PRP 1000, 2500, 3500, 3750, 3900, 4000, and 4400 are prerequisites to PRP 5000.

³³PRP 1000 and 3000 are prerequisites for PRP 4300.

³⁴PRP 3000 is a prerequisite for PRP 4400.

³⁵FCHD 1500 is also available online. For more information, contact the FCHD Department or see the current *Schedule of Classes*.

Physical Education Major: Exercise Science Emphasis (58 credits)

A 2.75 total GPA is required for graduation.

A. Prerequisites (12 credits)

BIOL 2320 Human Anatomy (Sp,Su)	4
BIOL 2420 Human Physiology (F,Sp,Su)	4
MATH 1050 (QL) ³⁶ College Algebra (F,Sp,Su)	4

B. Professional Foundation (28 credits)

PE 3000 Dynamic Fitness (F,Sp,Su)	3
HEP 2500 Health and Wellness (F,Sp,Su)	2
PEP 2000 Introduction and History of Physical Education (F,Sp)	2
PEP 3100 Athletic Injuries (F,Sp)	3
PEP 3250 Anatomical Kinesiology (Sp)	3
PEP 4100 ^{37, 53} Exercise Physiology and Principles of Conditioning (F,Sp)	4
PEP 4200 (QI) ^{37, 52, 53} Biomechanics (F,Sp)	4
PEP 4400 (QI) ⁵² Evaluation in Physical Education (F,Sp)	3
PEP 5100 Fitness Assessment and Exercise Programs (F)	4

C. Professional Development (15 credits)

HPER (5 credits minimum)

HEP 2000 First Aid and Emergency Care (F,Sp,Su)	2
HEP 3200 Consumer Health (F,Su)	3
HEP 3400 Stress Management (F,Sp)	3
PEP 4000 Mental Aspects of Sports Performance (F,Sp,Su)	3
PEP 5070 Sport Sociology (Sp)	3
PEP 5430 (CI) ⁵¹ The History and Philosophy of Physical Education (F)	3

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) ³⁸ Biology II (Sp)	4
BIOL 3060 (QI) ^{39, 52} Principles of Genetics (F,Sp,Su)	4
BIOL 3300 ⁴⁰ General Microbiology (F,Sp)	4

Chemistry (3 credits minimum)

CHEM 1010 (BPS) Introduction to Chemistry (F,Sp)	3
CHEM 1110 (BPS) ⁵⁵ General Chemistry I (F,Sp)	4
CHEM 1115 ⁴¹ General Chemistry Laboratory (Sp)	1
CHEM 1120 (BPS) ⁴² General Chemistry II (Sp)	4
CHEM 1210 ⁴³ Principles of Chemistry I (F,Sp)	4
CHEM 1215 ⁴⁴ Chemistry Principles Laboratory I (F,Sp)	1
CHEM 1220 (BPS) ⁴⁵ Principles of Chemistry II (F,Sp,Su)	4
CHEM 1225 ⁴⁶ Chemistry Principles Laboratory II (F,Sp)	1

Integrated (3 credits minimum)

NFS 1020 (BLS) Science and Application of Human Nutrition (F,Sp,Su)	3
NFS 3020 Nutrition and Physical Performance (F)	2
PHYS 1100 (BPS) Great Ideas in Physics	3
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration	4
PHYS 2110 ⁴⁷ The Physics of Living Systems I	4
PHYS 2120 (BPS) ⁴⁸ The Physics of Living Systems II	4
PSY 1010 (BSS) General Psychology (F,Sp,Su)	3
PSY 2100 ⁴⁹ Developmental Psychology: Adolescence (Sp)	3
PSY 2800 (QI) ⁵⁰ Psychological Statistics (F,Sp)	3
PSY 3210 (DSS) Abnormal Psychology (F,Sp)	3
STAT 1040 (QL) ⁵⁴ 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

³⁶Math ACT score of at least 23, MATH 1010, or satisfactory score on placement exam is a prerequisite for this course.

³⁷BIOL 2320, 2420, MATH 1050 are prerequisites for this course.

³⁸BIOL 1610 is a prerequisite for this course.

³⁹BIOL 1610; MATH 1050; and CHEM 1110 or 1220 are prerequisites for this course.

⁴⁰BIOL 1610 (with a grade of C- or better); and CHEM 1120 or 2300 or 2310 (may be taken concurrently) are prerequisites for this course.

⁴¹CHEM 1110 must be taken previously or concurrently.

⁴²CHEM 1110 is a prerequisite for this course.

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⁴³MATH 1050 or higher, or Math ACT score of at least 25, is a prerequisite for this course.

⁴⁴CHEM 1210 must be taken previously or concurrently.

⁴⁵CHEM 1210 is a prerequisite for this course.

⁴⁶CHEM 1215 is a prerequisite for this course.

⁴⁷MATH 1100 or 1210 is a prerequisite for this course.

⁴⁸MATH 1100 or 1210, and PHYS 2110 are prerequisites for this course.

⁴⁹PSY 1010 is a prerequisite for this course.

⁵⁰STAT 1040 is a prerequisite for this course.

⁵¹This course is approved for Communications Intensive (CI) University Studies credit.

⁵²This course is approved for Quantitative Intensive (QI) University Studies credit.

⁵³Admission to the Physical Education Major is required prior to enrolling in this course.

⁵⁴Math ACT score of 19 or greater, or MATH 1010, or 70 percent or greater on MATH 1050 placement test is a prerequisite for this course.

⁵⁵Math ACT score of at least 23, or MATH 1050 or higher, is a prerequisite for this course.

Suggested Four-year Course of Study for Physical Education Major, Exercise Science Emphasis

Freshman Year (32 credits)

Fall Semester (16 credits)

HEP 2000 First Aid and Emergency Care	2
HEP 2500 Health and Wellness	2
BIOL 1010 (BLS) Biology and the Citizen	3
BIOL 1020 Biological Discovery: A Lab Course	1
MATH 1050 (QL) College Algebra.....	4
PE activity course.....	1
Elective course(s).....	3

Spring Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
PSY 1010 (BSS) General Psychology	3
PE activity course.....	1
Breadth American Institutions (BAI) course.....	3
Breadth Humanities (BHU) course	3
Elective course(s).....	3

Sophomore Year (29 credits)

Fall Semester (14 credits)

PE 3000 Dynamic Fitness	3
PEP 3100 Athletic Injuries	3
BIOL 2420 Human Physiology	4
PE activity course.....	1
Breadth Creative Arts (BCA) course.....	3

Spring Semester (15 credits)

BIOL 2320 Human Anatomy	4
CHEM 1010 (BPS) Introduction to Chemistry	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
HPER elective course(s)	5

Junior Year (27 credits)

Fall Semester (15 credits)

PEP 3250 Anatomical Kinesiology	3
PEP 4400 (QI) Evaluation in Physical Education	3
Upper-division Communications Intensive (CI) course	3
Upper-division Depth Humanities and Creative Arts (DHA) course	3
Upper-division Depth Social Sciences (DSS) course	3

Spring Semester (12 credits)

PEP 4100 Exercise Physiology and Principles of Conditioning.....	4
PEP 4200 (QI) Biomechanics.....	4
Upper-division Communications Intensive (CI) course	3
Upper-division elective course	1

Senior Year (32 credits)

Fall Semester (15 credits)

PEP 5100 Fitness Assessment and Exercise Programs	4
Elective courses	11

Spring Semester (17 credits)

Elective courses	17
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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)

BIOL 2320 Human Anatomy (Sp,Su)	4
BIOL 2420 Human Physiology (F,Sp,Su)	4
MATH 1050 (QL) ⁵⁶ College Algebra (F,Sp,Su)	4
PSY 1010 (BSS) General Psychology (F,Sp,Su)	3

B. Professional Foundations (30 credits)

PE 3000 Dynamic Fitness (F,Sp,Su)	3
PEP 2020 Introduction to Physical Therapy (F)	2
PEP 3100 Athletic Injuries (F,Sp).....	3
PEP 3250 Anatomical Kinesiology (Sp)	3
PEP 4100 ^{57, 72} Exercise Physiology and Principles of Conditioning (F,Sp).....	4
PEP 4200 (QI) ^{57, 71, 72} Biomechanics (F,Sp)	4
PEP 4250 Advanced Cooperative Work Experience (F,Sp,Su).....	4
PEP 4400 (QI) ⁷¹ Evaluation in Physical Education (F,Sp)	3
PEP 5100 Fitness Assessment and Exercise Programs (F)	4

C. Professional Development (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) ⁵⁸ Biology II (Sp)	4
BIOL 3060 (QI) ^{59, 71} Principles of Genetics (F,Sp,Su).....	4
BIOL 3300 ⁶⁰ General Microbiology (F,Sp).....	4

Chemistry (9 credits minimum)

CHEM 1110 (BPS) ⁷³ General Chemistry I (F,Sp)	4
CHEM 1115 ⁷⁴ General Chemistry Laboratory (Sp).....	1
CHEM 1120 (BPS) ⁷⁵ General Chemistry II (Sp).....	4
Or	
CHEM 1210 ⁶¹ Principles of Chemistry I (F,Sp).....	4
CHEM 1215 ⁶² Chemistry Principles Laboratory I (F,Sp).....	1
CHEM 1220 (BPS) ⁶³ Principles of Chemistry II (F,Sp,Su).....	4
CHEM 1225 ⁶⁴ Chemistry Principles Laboratory II (F,Sp).....	1

Mathematics and Statistics (6 credits minimum)

Choose one course from the following:

MATH 1100 (QL) ⁶⁵ Calculus Techniques (higher-numbered course may be substituted) (F,Sp,Su).....	3
MATH 1210 (QL) ⁶⁵ Calculus I (F,Sp,Su).....	4

Choose one course from the following:

STAT 2000 (QI) ⁶⁶ Statistical Methods (F,Sp)	3
STAT 2300 (QL) ⁶⁶ Business Statistics (F,Sp,Su).....	4
STAT 3000 (QI) ⁶⁷ Statistics for Scientists (F,Sp,Su).....	3

Physics (8 credits minimum)

PHYS 2110 ⁶⁸ The Physics of Living Systems I.....	4
PHYS 2120 (BPS) ⁶⁹ The Physics of Living Systems II.....	4

Psychology (3 credits minimum)

PSY 1210 ⁷⁰ Psychology of Human Adjustment (F,Sp)	3
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Department of Health, Physical Education and Recreation

PSY 2100 ⁷⁰ Developmental Psychology: Adolescence (Sp)	3
PSY 3210 ⁷⁰ (DSS) Abnormal Psychology (F,Sp)	3

⁵⁶Math ACT score of at least 23, MATH 1010, or satisfactory score on placement exam is a prerequisite for this course.
⁵⁷BIOL 2320, 2420, MATH 1050 are prerequisites for this course.
⁵⁸BIOL 1610 is a prerequisite for this course.
⁵⁹BIOL 1610; MATH 1050; and CHEM 1110 or 1220 are prerequisites for this course.
⁶⁰BIOL 1610 (with a grade of C- or better); and CHEM 1120 or 2300 or 2310 (may be taken concurrently) are prerequisites for this course.
⁶¹MATH 1050, or Math ACT score of at least 25, is a prerequisite for this course.
⁶²CHEM 1210 must be taken previously or concurrently.
⁶³CHEM 1210 is a prerequisite for this course.
⁶⁴CHEM 1215 is a prerequisite for this course.
⁶⁵MATH 1050, or a Math ACT score of at least 25, is a prerequisite for MATH 1100; 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.
⁶⁶MATH 1050 is a prerequisite for this course.
⁶⁷MATH 1100 or 1210 is a prerequisite for this course.
⁶⁸MATH 1100 or 1210 is a prerequisite for this course.
⁶⁹MATH 1100 or 1210, and PHYS 2110 are prerequisites for this course.
⁷⁰PSY 1010 is a prerequisite for this course.
⁷¹This course is approved for Quantitative Intensive (QI) University Studies credit.
⁷²Admission to the Physical Education Major is required prior to enrolling in this course.
⁷³Math ACT score of at least 23, or MATH 1050 or higher, is a prerequisite for this course.
⁷⁴CHEM 1110 must be taken previously or concurrently.
⁷⁵CHEM 1110 is a prerequisite for this course.

Suggested Four-year Course of Study for Physical Education Major, Pre-Physical Therapy Emphasis

Freshman Year (27 credits)

Fall Semester (13 credits)	
PEP 2020 Introduction to Physical Therapy	2
BIOL 1010 (BLS) Biology and the Citizen	3
BIOL 1020 Biological Discovery: A Lab Course	1
MATH 1050 (QL) College Algebra	4
PSY 1010 (BSS) General Psychology	3

Spring Semester (14 credits)

PEP 3100 Athletic Injuries	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1060 Trigonometry	2
USU 1300 (BAI) U.S. Institutions	3
Breadth Humanities (BHU) course	3

Sophomore Year (29 credits)

Fall Semester (14-15 credits)	
PE 3000 Dynamic Fitness	3
BIOL 2420 Human Physiology	4
MATH 1100 (QL) Calculus Techniques (3 cr) or	
MATH 1210 (QL) Calculus I (4 cr)	3 or 4
Breadth Creative Arts (BCA) course	3
Elective course	1

Spring Semester (15 credits)

BIOL 2320 Human Anatomy	4
CHEM 1110 (BPS) General Chemistry I (4 cr) or	
CHEM 1210 Principles of Chemistry I (4 cr)	4
CHEM 1115 General Chemistry Laboratory (1 cr) or	
CHEM 1215 Chemical Principles Laboratory I (1 cr)	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing	
in a Persuasive Mode	3
Communications Intensive (CI) course	3

Junior Year (32-33 credits)

Fall Semester (16 credits)	
PEP 4250 Advanced Cooperative Work Experience	4
PEP 3250 Anatomical Kinesiology	3
CHEM 1120 (BPS) General Chemistry II (4 cr) or	
CHEM 1220 (BPS) Principles of Chemistry II (4 cr)	4
CHEM 1115 General Chemistry Laboratory (1 cr) or	

CHEM 1225 Chemical Principles Laboratory II (1 cr)	1
PHYS 2110 The Physics of Living Systems I	4

Spring Semester (16-17 credits)

PHYS 2120 (BPS) The Physics of Living Systems II	4
PSY 3210 (DSS) Abnormal Psychology	3
STAT 2000 (QI) Statistical Methods (3 cr) or	
STAT 2300 (QL) Business Statistics (4 cr) or	
STAT 3000 (QI) Statistics for Scientists (3 cr)	3 or 4
Upper-division Communications Intensive (CI) course	3
Upper-division Depth Humanities and Creative Arts (DHA) course	3

Senior Year (32 credits)

Fall Semester (13 credits)	
PEP 4100 Exercise Physiology and Principles of Conditioning	4
PEP 4400 (QI) Evaluation in Physical Education	3
Upper-division elective course(s)	3
Elective course(s)	3

Spring Semester (19 credits)

PEP 4200 (QI) Biomechanics	4
PEP 5100 Fitness Assessment and Exercise Programs	4
Elective courses	11

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 Department of Secondary Education.

A. Prerequisites (17 credits)

BIOL 2320 Human Anatomy (Sp,Su)	4
BIOL 2420 Human Physiology (F,Sp,Su)	4
MATH 1050 (QL) ⁷⁶ College Algebra (F,Sp,Su)	4
HEP 2000 First Aid and Emergency Care (F,Sp,Su)	2
PE 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) ^{83, 87} Motor Learning and Skill Analysis (F,Sp,Su)	3

D. Professional Foundations (16 credits)

PEP 4000 Mental Aspects of Sports Performance (F,Sp,Su)	3
PEP 4100 ^{77, 87} Exercise Physiology and Principles of Conditioning (F,Sp)	4
PEP 4200 (QI) ^{77, 86, 87} Biomechanics (F,Sp)	4
PEP 4350 Administration of Physical Education (F,Sp)	2
PEP 4400 (QI) ⁸⁶ Evaluation in Physical Education (F,Sp)	3

E. Methods of Teaching (3 credits)

PEP 3550 Strategies and Methods of Teaching Team, Individual, and Dual Sports and Fitness (F,Sp)	3
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F. Methods of Coaching (3 credits)

PEP 4500 ⁷⁸ Methods of Coaching (F,Sp)	3
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Department of Health, Physical Education and Recreation

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) ⁷⁹	1
Methods of Teaching (in minor) ⁸⁰	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 4300⁸¹ Clinical Experience II (F,Sp)	1
PEP 4900 (CI)^{82, 83} Methods of Physical Education (F,Sp)	3

Level 3 (includes 13 weeks of student teaching and 2 weeks of Student Teaching Seminar)

PEP 5500⁸⁴ Student Teaching Seminar (2 weeks) (F,Sp)	2
PEP 5630⁸⁵ Student Teaching in Secondary Schools (13 weeks) (F,Sp)	10

⁷⁶Math ACT score of at least 23, MATH 1010, or satisfactory score on placement exam is a prerequisite for this course.

⁷⁷BIOL 2320, 2420, MATH 1050 are prerequisites for this course.

⁷⁸HEP 2000 (which may be taken concurrently) should be completed prior to taking this course.

⁷⁹Clinical Experience I is taught under course number 3300 in various departments. Must be taken concurrently with Methods of Teaching in minor.

⁸⁰Methods of Teaching courses are taught under various course numbers in various departments. Must be taken concurrently with Clinical Experience I in minor.

⁸¹Must be taken concurrently with PEP 4900.

⁸²PEP 3550 should be taken prior to this course.

⁸³This course is approved for Communications Intensive (CI) University Studies credit.

⁸⁴Must be taken concurrently with PEP 5630.

⁸⁵Must be taken concurrently with PEP 5500. Application for student teaching must be completed. Applications are available in EDUC 330.

⁸⁶This course is approved for Quantitative Intensive (QI) University Studies credit.

⁸⁷Admission to the Physical Education Major is required prior to enrolling in this course.

Suggested Four-year Course of Study for Physical Education Major, Teaching Emphasis

Freshman Year (30 credits)

Fall Semester (14 credits)	
PEP 2000 Introduction and History of Physical Education	2
PEP 2200 Skills 2 (Lifetime Activities)	1
PEP 2300 Skills 3 (Softball, Basketball, Soccer)	1
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) College Algebra	4
PSY 1010 (BSS) General Psychology	3

Spring Semester (16 credits)

PEP 2100 Skills 1 (Swimming, Volleyball, Football)	1
PEP 2400 Skills 4 (Tennis, Badminton, Track and Field)	1
HEP 2000 First Aid and Emergency Care	2
PEP 3100 Athletic Injuries	3
Breadth American Institutions (BAI) course	3
Breadth Physical Sciences (BPS) course	3
Breadth Life Sciences (BLS) course	3

Sophomore Year (33 credits)

Fall Semester (17 credits)

PE 3000 Dynamic Fitness	3
PEP 2500 Rhythms and Movement	1
BIOL 2420 Human Physiology	4
Breadth Creative Arts (BCA) course	3
Breadth Humanities (BHU) course	3
Course(s) for teaching minor	3

Spring Semester (16 credits)

PEP 3200 (CI) Motor Learning and Skill Analysis	3
PEP 4000 Mental Aspects of Sports Performance	3
BIOL 2320 Human Anatomy	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Course(s) for teaching minor	3

Junior Year (31 credits)

Fall Semester (15 credits)

PEP 3050 Physical Education in the Elementary School	3
PEP 4100 Exercise Physiology and Principles of Conditioning	4
PEP 4350 Administration of Physical Education	2
PEP 4500 Methods of Coaching	3
Course(s) for teaching minor	3

Spring Semester (16 credits)

PEP 3550 Strategies and Methods of Teaching Team, Individual, and Dual Sports and Fitness	3
PEP 4200 (QI) Biomechanics	4
PEP 4400 (QI) Evaluation in Physical Education	3
Courses for teaching minor	6

Senior Year (32 credits)

Fall Semester (17 credits)

Depth Humanities and Creative Arts (DHA) course	3
Course(s) for teaching minor	3

Level I courses

INST 3500 Technology Tools for Secondary Teachers	1
SCED 3100 Motivation and Classroom Management	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
Clinical Experience course (in teaching minor)	1
Methods of Teaching course (in teaching minor)	3

Spring Semester (15 credits)

Course(s) for teaching minor	3
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Level II courses

SPED 4000 Education of Exceptional Individuals	2
SCED 4200 (CI) Reading, Writing, and Technology	3
SCED 4210 Cognition and Evaluation of Student Learning	3
PEP 4300 Clinical Experience II	1
PEP 4900 (CI) Methods of Physical Education	3

Level III (12 credits)

Students must complete Level I and Level II field experiences prior to enrolling in PEP 5500 and 5630.

PEP 5500 Student Teaching Seminar	2
PEP 5630 Student Teaching in Secondary Schools	10

Physical Education Coaching Minor

This minor requires 28 credits, plus 17 credits of prerequisites and the 35-credit Secondary Teacher Education Program (STEP).

Department of Health, Physical Education and Recreation

A. Required Prerequisites (17 credits)

BIOL 2320 Human Anatomy (Sp,Su)	4
BIOL 2420 Human Physiology (F,Sp,Su)	4
MATH 1050 (QL) ⁸⁸ College Algebra (F,Sp,Su)	4
HEP 2000 First Aid and Emergency Care (F,Sp,Su)	2
PE 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) ^{91, 93} Motor Learning and Skill Analysis (F,Sp,Su)	3
PEP 4000 Mental Aspects of Sports Performance (F,Sp,Su)	3
PEP 4100 ^{89, 93} Exercise Physiology and Principles of Conditioning (F,Sp)	4
PEP 4350 Administration of Physical Education (F,Sp)	2
PEP 4400 (QI) ⁹² Evaluation in Physical Education (F,Sp)	3

D. Methods of Teaching (3 credits)

PEP 3550 Strategies and Methods of Teaching Team, Individual, and Dual Sports and Fitness (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 ⁹⁰ Methods of Coaching (F,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.

⁸⁸Math ACT score of at least 23, MATH 1010, or satisfactory score on placement exam is a prerequisite for this course.

⁸⁹BIOL 2320, 2420, MATH 1050 are prerequisites for this course.

⁹⁰HEP 2000 (which may be taken concurrently) should be completed prior to taking this course.

⁹¹This course is approved for Communications Intensive (CI) University Studies credit.

⁹²This course is approved for Quantitative Intensive (QI) University Studies credit.

⁹³Admission to the Physical Education Coaching Minor is required prior to enrolling in this course.

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@cc.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://www.coe.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/ats/majorsheets/>

Financial Support

The 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.

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.

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.

Graduate Programs

Please refer to the general admission requirements on pages 99-100 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

Department of Health, Physical Education and Recreation

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

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, and Health Education.

Course Requirements

Core Courses

MS candidates specializing in **Corporate Wellness** must complete the following courses:

EDUC 6570 Introduction to Educational and Psychological Research (F,Sp,Su)	3
HEP 6800 Seminar in Health Behavior (F)	3
PEP 6290 Corporate Wellness Marketing (Sp)	3
PEP 6400 Exercise in Health, Fitness, and Sport (Arr)	4
PEP 6450 Fitness Assessment and Exercise Testing (Sp)	3
PEP 6500 Practicum in Corporate Wellness (F,Sp,Su)	1-10
PEP 6540 Wellness Programming (Sp)	3
PEP 6800 Biomechanics and Ergonomics of Health, Industry, and Sport (Sp)	3
PEP 6810 Research Methods in Health Sciences (F)	3
PSY 6470 Health Psychology (F)	3

MS candidates specializing in **Exercise Science** must complete the following courses:

EDUC 6600 Measurement, Design, and Analysis I (F,Sp,Su)	3
PEP 6400 Exercise in Health, Fitness, and Sport (Arr)	4
PEP 6800 Biomechanics and Ergonomics of Health, Industry, and Sport (Sp)	3
PEP 6810 Research Methods in Health Sciences (F)	3
PEP 6970 Thesis (F,Sp,Su)	1-9

Eleven credits must be selected from the following:

HEP 6100 Current Trends in Health Promotion (F)	3
PEP 6050 Psychological Aspects of Sports Performance (Arr)	3
PEP 6070 Sport in Society (Sp)	3
PEP 6420 Curriculum in Physical Education (F)	3
PEP 6430 History and Philosophy of Physical Education and Sport (F)	3
PEP 6450 Fitness Assessment and Exercise Testing (Sp)	3
PEP 6540 Wellness Programming (Sp)	3
PEP 6830 Motor Learning (Sp)	3

or other committee-approved electives

MS candidates specializing in **Health Education** must complete the following courses:

EDUC 6570 Introduction to Educational and Psychological Research (F,Sp,Su)	3
EDUC 6600 Measurement, Design, and Analysis I (F,Sp,Su)	3

HEP 6000 Evaluating Health-Promotion Programs (Sp)	3
HEP 6100 Current Trends in Health Promotion (F)	3
HEP 6600 Field Work in Health Education (F,Sp,Su)	3
HEP 6800 Seminar in Health Behavior (F)	3
HEP 6970 Thesis (F,Sp,Su)	1-9

Students must also complete 6 credits from the following:

FCHD 6020 Survey of Human Development Research (Sp)	3
FCHD 6060 Human Development Theories (F)	3
HEP 6300 Stress Management (Arr)	3
HEP 6700 Special Topics in Health (Arr)	1-6
HEP 6900 Independent Study (F,Sp,Su)	1-3
HEP 6950 Independent Research (F,Sp,Su)	1-3
INST 5230 Instructional Graphic Production (F,Su)	3
INST 6350 Instructional Design Process (F)	3
MHR 6370 Project Management	3
NFS 6200 Nutritional Epidemiology (F)	2
NFS 6210 Advanced Public Health Nutrition (Sp)	2
PEP 6290 Corporate Wellness Marketing (Sp)	3
PEP 6400 Exercise in Health, Fitness, and Sport (Arr)	4
PEP 6540 Wellness Programming (Sp)	3
PSY 6470 Health Psychology (F)	3
PSY 7700 Grant Writing (Sp)	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 4330 Industrial Hygiene Physical Hazards (Sp)	3
SOC 6460 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:

EDUC 6410 Educational Foundations (F,Su)	2
EDUC 6550 Research for Classroom Teachers (F,Sp,Su)	3
EDUC 6710 Diversity in Education (Sp,Su)	3
PEP 6050 Psychological Aspects of Sports Performance (Arr)	3
PEP 6070 Sport in Society (Sp)	3
PEP 6400 Exercise in Health, Fitness, and Sport (Arr)	4
PEP 6420 Curriculum in Physical Education (F)	3
PEP 6430 History and Philosophy of Physical Education and Sport (F)	3
PEP 6690 Analysis of Teaching Physical Education (Arr)	3
PEP 6800 Biomechanics and Ergonomics of Health, Industry, and Sport (Sp)	3
PEP 6830 Motor Learning (Sp)	3
PEP 6960 Master's Project (F,Sp,Su)	3

Research

Research areas include health promotion, health education, exercise science, corporate wellness, sport psychology, sport in society, biomechanics, and pedagogy.

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.

Department of Health, Physical Education and Recreation

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://www.coe.usu.edu/hper>.

Health, Physical Education and Recreation Faculty

Professors

Richard D. Gordin, Jr., sport psychology
Edward M. Heath, exercise physiology
Craig W. Kelsey, parks and recreation

Associate Professors

Hilda Fronske, motor learning
Julie A. Gast, community health, multicultural health issues, women's health
Donna L. Gordon, health promotion
Arthur R. Jones, recreation administration
John M. Kras, administration, history, philosophy and sociology of sport
Dennis A. Nelson, family recreation, multicultural education, recreation programming
Rolayne Wilson, elementary physical education

Nontenure Assistant Professors

Brett Holt, education pedagogy
Phillip Waite, community health, therapeutic reminiscence, worksite health promotion, program evaluation
Dale Wagner, exercise physiology

Principal Lecturer

Peter J. Mathesius, conditioning, sport skills, and teaching methods

Course Descriptions

Health Education Professional (HEP), pages 639-641.

Physical Education Professional (PEP), pages 684-687.

Parks and Recreation Professional (PRP), page 697.

Physical Education Activity (PE), pages 682-684.

Dance West Summer, Dance Education Classes (DE), pages 600-601.

Department of History

Department Head: Norman L. Jones
Location: Main 323
Phone: (435) 797-1290
FAX: (435) 797-3899
TTY: (435) 797-1290
E-mail: monica.ingold@usu.edu
WWW: http://www.usu.edu/history

Graduate Program Coordinator: Christopher A. Conte,
Main 323G, (435) 797-1303, cconte@cc.usu.edu

Director of Undergraduate Studies: Denise O. Conover,
Main 321H, (435) 797-0870, conoverd@hass.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 inculcate 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, as well as 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 major, minors in history and classics, and the interdisciplinary programs of folklore, American studies, and British and commonwealth studies.

History is a reading- and writing-intensive program.

Requirements

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.

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 major or teaching minor, or a classics minor.

Bachelor of Arts (BA) Degree in History

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.

Bachelor of Science (BS) Degree in History

The BS degree in history requires 15 credits of math and science beyond the University Studies requirements. Of the 15 credits, 3 must be earned in a statistics course, preferably in social science statistics. The remaining 12 credits must include a course series from the following list:

BIOL 1610 Biology I (F).....	4
BIOL 1620 (BLS) Biology II (Sp).....	4
CHEM 1210 Principles of Chemistry I (F,Sp)	4
CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su)	4
GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp).....	4
GEO 3200 (DSC) The Earth Through Time (Sp).....	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

History Major

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:

HIST 1060 (BHU) Introduction to Islamic Civilization	3
HIST 1100 (BHU) Foundations of Western Civilization: Ancient and Medieval (F,Sp,Su)	3
HIST 1500 (BHU) 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:

HIST 1110 (BHU) Foundations of Western Civilization: Modern (F,Sp,Su)	3
HIST 1510 (BHU) The Modern World (F,Sp,Su)	3

Each major must complete *one* of the following two courses in the area of American history:

HIST 2700 (BAI) United States to 1877 (F,Sp,Su)	3
HIST 2710 (BAI) United States 1877-Present (F,Sp,Su)	3

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.

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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 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).

Sample Four-year Plan for History Major

Minimum GPA for Admission: 2.5, major; 2.5, Career

Minimum GPA for Graduation: 2.5, major courses

Minimum Grade Accepted: C in major courses

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
History Premodern Civilization course	3
History Modern Civilization course	3
University Studies Breadth course	3
Elective course(s)	3

Spring Semester (15 credits)

MATH 1030 (QL) Quantitative Reasoning (3 cr) or	
STAT 1040 (QL) Introduction to Statistics (3 cr)	3
History American course	3
History upper-division course	3
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
History upper-division course	3
Degree Requirement (BS/BA) course	4
University Studies Breadth course	3
Elective course(s)	2

Spring Semester (15 credits)

History upper-division course	3
Degree Requirement (BS/BA) course	4
Minor courses	6
Elective course(s)	2

Junior Year (32 credits)

Fall Semester (16 credits)

History upper-division courses	6
Degree Requirement (BS/BA) course	4
Minor course	3
Communications Intensive (CI) course	3

Spring Semester (16 credits)

History upper-division courses	6
Degree Requirement (BA) or Elective (for BS degree) course(s)	4
Minor course	3
Depth Life and Physical Sciences (DSC) course	3

Senior Year (28 credits)

Fall Semester (15 credits)

HIST 4990 (CI) Special Topics In History	3
Minor course	3
Depth Social Sciences (DSS) course	3
Quantitative Intensive (QI) course	3
Elective course	3

Spring Semester (13 credits)

History upper-division course	3
Minor course	3
Elective upper-division courses	7

History Teaching Emphasis

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:

HIST 1060 (BHU) Introduction to Islamic Civilization	3
HIST 1100 (BHU) Foundations of Western Civilization: Ancient and Medieval (F,Sp,Su)	3
HIST 1500 (BHU) 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:

HIST 1110 (BHU) Foundations of Western Civilization: Modern (F,Sp,Su)	3
HIST 1510 (BHU) The Modern World (F,Sp,Su)	3

Each student must complete *one* of the following two courses in the area of American history:

HIST 2700 (BAI) United States to 1877 (F,Sp,Su)	3
HIST 2710 (BAI) United States 1877-Present (F,Sp,Su)	3

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:

HIST 4850 Interpreting the Past for Teachers (F,Sp)	3
HIST 4860 Teaching History (F)	3
HIST 4870 Teaching World History: Themes, Approaches, and Materials (Sp)	3

Students should complete their remaining 24-27 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

Department of History

credits of coursework, in addition to the 39 credits of history courses. For additional information about the STEP, contact Harold Heap, secondary education undergraduate advisor, (435) 797-2222.

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.

Sample Four-year Plan for History Major, 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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
History Premodern Civilization course	3
History Modern Civilization course	3
University Studies Breadth courses	6

Spring Semester (15 credits)

MATH 1030 (QL) Quantitative Reasoning (3 cr) or STAT 1040 (QL) Introduction to Statistics (3 cr)	3
History American course	3
History upper-division course	3
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
History upper-division course	3
Degree Requirement (BS/BA) course	4
Teaching Minor course	3
Quantitative Intensive (QI) course	3

Spring Semester (16 credits)

History upper-division courses	6
Degree Requirement (BS/BA) course	4
Teaching Minor courses	6

Junior Year (32 credits)

Fall Semester (16 credits)

History upper-division courses	6
Degree Requirement (BS/BA) course	4
Teaching Minor courses	6

Spring Semester (16 credits)

History upper-division course	3
History Teaching upper-division course	3
Degree Requirement (BA) or Elective (for BS degree) course(s)	4

Teaching Minor course	3
Depth Life and Physical Sciences (DSC) course	3

Apply for admission to the STEP Program.

Senior Year (29 credits)

Fall Semester (14 credits)

SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
History upper-division course	3
STEP courses	8

Spring Semester (15 credits)

SCED 4200 (CI) Reading, Writing, and Technology	3
History upper-division course	3
STEP courses	9

Certification Semester (12 credits)

STEP (Student Teaching) courses	12
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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:

HIST 1060 (BHU) Introduction to Islamic Civilization	3
HIST 1100 (BHU) Foundations of Western Civilization: Ancient and Medieval (F,Sp,Su)	3
HIST 1500 (BHU) 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:

HIST 1110 (BHU) Foundations of Western Civilization: Modern (F,Sp,Su)	3
HIST 1510 (BHU) The Modern World (F,Sp,Su)	3

Every student must complete *one* of the following courses in the area of American history:

HIST 2700 (BAI) United States to 1877 (F,Sp,Su)	3
HIST 2710 (BAI) United States 1877-Present (F,Sp,Su)	3

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

Twenty-four credits are required. A grade of C or better must be earned in all history courses used for the minor. Every student must complete *one* of the following three courses in premodern civilization:

HIST 1060 (BHU) Introduction to Islamic Civilization	3
HIST 1100 (BHU) Foundations of Western Civilization: Ancient and Medieval (F,Sp,Su)	3
HIST 1500 (BHU) 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:

HIST 1110 (BHU) Foundations of Western Civilization: Modern (F,Sp,Su)	3
HIST 1510 (BHU) The Modern World (F,Sp,Su)	3

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Every student must complete *one* of the following courses in the area of American history:

HIST 2700 (BAI) United States to 1877 (F,Sp,Su).....	3
HIST 2710 (BAI) United States 1877-Present (F,Sp,Su)	3

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:

HIST 4850 Interpreting the Past for Teachers (F,Sp).....	3
HIST 4860 Teaching History (F)	3
HIST 4870 Teaching World History: Themes, Approaches, and Materials (Sp)	3

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) can be applied toward the minor.

Classics Minor

For information about the Classics Minor, which is administered through the Department of History, see page 220. of this catalog.

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/ats/majorsheets/>

Financial Support

Scholarships, grants-in-aid, and work-study programs are available through the University. The History Department offers tuition waivers and 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.

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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 pages 104-105.

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 one of the following two tracks. *Track A*: a minimum of 15 credits from two approved minor areas, with at least two courses in each minor area. *Track B*: a minimum of 15 credits from an approved minor and a liberal arts and sciences cluster, with at least two courses in the minor and two courses in the cluster. 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.

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 98). 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. Utley 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, the College of Humanities, Arts and Social Sciences, and the S. George Ellsworth Endowment of the Mountain West Center for Regional Studies. The S. George Ellsworth Fellowship is being offered for the 2007-2008 academic year.

Funding for the Robert M. Utley Fellowship is provided by the *Western Historical Quarterly* and the School of Graduate Studies. The Robert M. Utley Fellowship is being offered for the 2006-2007 and 2008-2009 academic years. 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: cdoyle@hass.usu.edu.

The application deadline for both fellowships is February 1, for the upcoming academic year.

Department of History

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
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
Michael L. Nicholls, early American history
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

Adjunct Professors

Doran J. Baker, Electrical and Computer Engineering Department, history of science
Barry M. Franklin, Secondary Education Department, history of education
Christopher B. R. Pelling, Regius Professor of Greek, Oxford University: Classics

Trustee Professor Emeritus

Anne M. Butler, U.S. West, U.S. Women

Professors Emeritus

William F. Lye, Africa, India, Canada
F. Ross Peterson, U.S. modern political history, Black history

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
Peter Mentzel, Eastern Europe, Ottoman empire, Islamic civilization
Colleen O'Neill, West, Native American, labor, associate editor of *Western Historical Quarterly*
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
Jennifer Ritterhouse, U.S. history, African-American history, U.S. South, women's history
James Sanders, Latin America
Timothy S. Wolters, science and technology, American history

Adjunct Assistant Professors

Daniel M. Davis, photograph curator, U.S. West
Stephen C. Sturgeon, manuscript curator, Twentieth Century U.S. West, political, environmental history

Senior Lecturer

Denise O. Conover, American diplomatic history, U.S. military, American civilization

Adjunct Instructors

Michael W. Johnson, Director of Utah History Fair, Mountain West Center for Regional Studies
Robert E. Parson, University Archivist, Special Collections and Archives
Elaine Thatcher, Associate Director of Mountain West Center for Regional Studies

Course Descriptions

History (HIST), pages 641-645.
Latin (LATN), page 658.
Greek (GRK), page 639.
Classics (CLAS), page 592.

Honors Program

Director: Christie L. Fox
Location: Main 15
Phone: (435) 797-2715
FAX: (435) 797-3941
E-mail: honors@cc.usu.edu
WWW: <http://www.usu.edu/honors/>

Administrative Assistant:
Danene Dustin, Main 15, (435) 797-2715, danene@cc.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 includes 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 both entering freshmen and transfer students. The most important criterion for success is a student's motivation and dedication to learning.

Entrance to the Honors Program

Students generally enter Honors at one of two points during their academic career. The majority will enter through "Scholars Forum." Students with strong academic qualifications, who plan to enroll at Utah State as freshmen, are automatically enrolled in Scholars Forum, a 1-credit online orientation class (HONR 2000H), as well as an appropriate Honors University Studies class. The Scholars Forum gives high-ability students the opportunity to explore various options to maximize the value of their undergraduate education. Many will elect to continue along the "Honors Pathway" until graduation, through a formal application process conducted during October.

Other students may join Honors after they have completed all or nearly all of their General Education requirements. These students will initially enroll in HONR 2100H (Honors Inquiry Seminar), which will prepare them to pursue an Honors degree in their major (i.e., "Departmental Honors").

Participation in Honors

To be eligible for entrance into Honors, a student must have a GPA of 3.50. 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 can be requested if the GPA is raised to 3.30. 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://www.usu.edu/honors/>

Course Descriptions

Honors (HONR), pages 645-646.

Department of Instructional Technology

Department Head: Byron R. Burnham
Location: Emma Eccles Jones Education 215A
Phone: (435) 797-2692
FAX: (435) 797-2693
E-mail: ashlee.davis@usu.edu
WWW: <http://it.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 available only through distance education. Those persons wanting endorsement for positions in the public schools must complete a 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 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 99-100. 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 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

Master of Education (MEd)

This master's program is only available through extension and 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 an 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 (available only through extension and 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.

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 Faculty

Professors

Byron R. Burnham, adult learning
J. Nicholls Eastmond, Jr., theory and evaluation
Alan M. Hofmeister, research
Mimi Recker, cognitive modeling, interactive learning

Associate Professors

David A. Wiley, learning objects, instructional design theory
Linda L. Wolcott, distance education, library media, and foundations

Assistant Professors

Joanne P. Bentley, learning theory and evaluation
Yanghee Kim, pedagogical agents, instructional design, learning, intelligent tutoring systems
Brett E. Shelton, immersive technologies, cognitive studies
Deepak P. Subramony, technology effects in non-Western cultural groups and cultural diversity among technology users
Andrew E. Walker, collaborative information filtering and problem-based learning, situated cognition

Adjunct Instructors

JaDene M. Denniston, school library media
Leong-Guan (Eddie) Loo, instructional design
Kevin L. Reeve, distance education

Lecturer

Sheri Haderlie, Instructional Technology Department Outreach Program Manager

Professors Emeritus

M. David Merrill, instructional design
Don C. Smellie, foundations
Ron J. Thorkildsen, research and interactive learning
R. Kent Wood, theory, foundations

Associate Professor Emeritus

J. Steven Soulier, message design, computer applications

Course Descriptions

Instructional Technology (INST), pages 648-651.

Intensive English Language Institute

Director: Glenda R. Cole
Location: Main 071
Phone: (435) 797-2059
FAX: (435) 797-4050
E-mail: gcole@cc.usu.edu
WWW: <http://www.usu.edu/ieli/>

Assistant Director:
James E. Bame, Main 077, (435) 797-3908, fabame@cc.usu.edu

IELI Undergraduate and Graduate Advisor:
Margaret Garr, Main 069A, (435) 797-2081, mgarr@cc.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 173 computerized, 500 paper/pencil, or 61 on the iBT; and graduate students applying without a minimum TOEFL score of 213 computerized, 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. (**Note:** iBT is the Internet-based TOEFL.)

Curriculum

Four levels of study are offered each semester. The ability levels of classes range from elementary 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 international student officer.

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 services, 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
James R. Rogers II
Thomas J. Schroeder

Associate Professors Emeritus

Susan J. Carkin
Lee Ann Rawley

Assistant Professors

Ann E. Roemer
Nolan Weil

Course Descriptions

Intensive English Language Institute (IELI), pages 647-648.

Interdisciplinary Studies Major

Academic Advisement:

College of Agriculture

Lisa Allen, (435) 797-2267, lisa.allen@usu.edu

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, mleavitt@hass.usu.edu

College of Natural Resources

Maureen Wagner, (435) 797-2448, maureen@cc.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 College of Business, the College of Engineering, nor the Department of Computer Science. The Interdisciplinary Studies degree is also available through the University's Continuing 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

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 Susan Haddock, University Advising and Transfer Services, (435) 797-3373, susan.haddock@usu.edu.

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/ats/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 652.

Interior Design Program

Director: Tom C. Peterson
Location: Family Life 320A
Phone: (435) 797-1557
FAX: (435) 797-8245
E-mail: interiors@cc.usu.edu

Academic Advisor: Mary E. Leavitt, Student Center 302/
Family Life 320H, (435) 797-3883, mary.leavitt@usu.edu

Degrees Offered: Bachelor of Science (BS) and
Bachelor of Arts (BA) in Interior Design

A Master of Science (MS) degree is also available. Degree options are designed for graduates with degrees in interior design, as well as those without interior design degrees. For additional graduate degree information, contact the Interior Design Program.

Undergraduate Emphases: Studio Emphasis,
Design Sales and Marketing Emphasis

Overview

The program in interior design is structured with two specific emphases, both of which offer a BS and BA degree. Each has been developed to prepare students for entry into the varied professions of interior design. Students must identify, research, and creatively solve problems pertaining to the function and quality of the interior environment, as well as its relationship to natural and man-made resources. Students must 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 interior and related spaces, both commercial and residential, with special attention to the individuals who will eventually reside in those spaces. These services include programming, design analysis, space planning, and aesthetics, using specialized knowledge of interior construction, building codes, equipment, materials, and furnishings. Another component of each student's training in interior design is the preparation of drawings and documents relative to the design of interior spaces, in order to enhance and protect the health, safety, and welfare of the public.

In an effort to meet the needs of the design profession, 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 choice of emphases students may select to complete their degree. The two available emphases are (1) **Studio** and (2) **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@cc.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: Portfolio review during sophomore year determines which students may matriculate into the upper-division portion of the program.

Minimum GPA for Graduation: 2.5, major; 2.0, Career

Minimum Grade Accepted: C in major requirements:

Studio Emphasis—USU 1330, MHR 2050, PHIL 3810, all ID courses; *Design Sales and Marketing Emphasis*—BIS 2100, 2200, OSS 2800, BA 3500 (or BUS 3500), MHR 2050, 3110 (or BUS 3110), 3710, PHIL 3810, all 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 3740 History of Interior Furnishings and Architecture I	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ART 1120 Two-dimensional Design	3
USU 1330 (BCA) Civilization: Creative Arts (section 001)	3
University Studies Breadth course	3

Spring Semester (16 credits)

ID 1700 Interior Design Professional Seminar	1
ID 1790 (BCA) Interior Design Theory	3
ID 3750 (CI) History of Interior Furnishings and Architecture II	3
ART 1020 Drawing I	3
University Studies Breadth course	3
University Studies Quantitative Literacy (QL) course	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (29-29.5 credits)

Fall Semester (14.0-14.5 credits)

ID 1700 Interior Design Professional Seminar	1
ID 2710 Architectural Graphics I	4
ID 2750 Computer Aided Drafting and Design I	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Art Elective course(s)	3.0-3.5

Spring Semester (15 credits)

ID 1700 Interior Design Professional Seminar	1
ID 2720 Architectural Graphics II	4
ID 2730 Interior Space Planning and Human Dimensions	4
ID 2760 Computer Aided Drafting and Design II	3
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern	3

Interior Design Program

Studio Emphasis

Junior Year (32-32.5 credits)

Fall Semester (14.0-14.5 credits)

ID 1700 Interior Design Professional Seminar	1
ID 3730 Interior Materials and Construction	3
ID 3760 Commercial Design Studio	4
ID 3790 Architectural Systems	3
Art Elective course(s)	3.0-3.5

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
Depth Life and Physical Sciences (DSC) course	3

Summer Semester (4 credits)

ID 4710 Interior Design Advanced Internship I	4
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Senior Year (26 credits)

Fall Semester (13 credits)

ID 1700 Interior Design Professional Seminar	1
ID 4750 Senior Design Studio I	3
MHR 2050 Legal and Ethical Environment of Business	3
University Studies Breadth courses	6

Spring Semester (13 credits)

ID 1700 Interior Design Professional Seminar	1
ID 4740 (CI) Business and Professional Practices in Interior Design ...	2
ID 4760 Senior Design Studio II	3
ID 4770 Senior Exhibit	1
Depth Social Sciences (DSS) course	3
Quantitative Intensive (QI) course	3

Design Sales and Marketing Emphasis

Junior Year (30-30.5 credits)

Fall Semester (13 credits)

ID 1700 Interior Design Professional Seminar	1
ID 3730 Interior Materials and Construction	3
ID 3790 Architectural Systems	3
MHR 2050 Legal and Ethical Environment of Business	3
University Studies Breadth course	3

Spring Semester (13.0-13.5 credits)

ID 1700 Interior Design Professional Seminar	1
BIS 2100 Principles of Management Information Systems	3
Art Elective course(s)	3.0-3.5
University Studies Breadth course	3
Depth Life and Physical Sciences (DSC) course	3

Summer Semester (4 credits)

ID 4710 Interior Design Advanced Internship I	4
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Senior Year (24 credits)

Fall Semester (12 credits)

ID 1700 Interior Design Professional Seminar	1
BIS 2200 (CI) Business Communication	3
MHR 3110 (DSS) Managing Organizations and People (3 cr) or	
BUS 3110 (DSS) Management Fundamentals (3 cr)	3
OSS 2800 Principles of Selling	2
BA 3500 Fundamentals of Marketing (3 cr) or	
BUS 3500 Marketing Principles (3 cr)	3

Spring Semester (12 credits)

ID 1700 Interior Design Professional Seminar	1
ID 4740 (CI) Business and Professional Practices in Interior Design ...	2
PHIL 3810 Aesthetics	3
MHR 3710 Developing Team and Interpersonal Skills	3
Quantitative Intensive (QI) course	3

Laptop Computer Requirement

Students entering sophomore-level interior design courses must bring their own laptop computer. Specifications for the laptop will be provided by the Interior Design Program. The computer should be purchased just prior to beginning the sophomore year. Required software will be made available through a special leasing program.

Sophomore 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 first submit projects from as many of the following courses as possible: ID 1790, 2710, 2720, 2730, 2750, 2760; ART 1020, 1120; and one elective art skills class. Students will be expected to organize and properly label their projects, as well as deliver them to a location designated by the program.

An additional component of the Sophomore Review will be an analysis of the student's academic performance. Courses considered for junior status are: ID 1750, 1790, 2710, 2720, 2730, 2750, 2760, 3740, 3750; ART 1020, 1120; three credits from ARTH 2710 or 2720; and one art skills course. The student's overall GPA will also be used as part of the review process.

Students with a cumulative GPA of 3.0 or above will be given preference in this process, following the successful completion of the first portion of the review. As studio space is limited, admission to the Studio Emphasis will be offered first to those ranking highest in the review process, until capacity is reached. Others who successfully complete the review process will be offered a place in the Design Sales and Marketing Emphasis.

If a student who has been approved to take upper-division classes stops out of the program, he or she will be readmitted if space is available. Due to space limitations, first preference will be given to students with continuous registration in the program.

Tours

Each year the Interior Design Program may sponsor a tour to a major design center. Students should plan to take advantage of this opportunity while enrolled in the program.

Study Abroad

The world is expanding. In this rapidly growing environment, students need to be more globally 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. This study abroad program addresses these needs and goals through a collaborative and intensive study of design in the rich environment of Great Britain and France. The Interior Design Travel Course (ID 4780) is delivered through a

Interior Design Program

variety of learning and teaching structures, which include individual and group tutorials, projects, seminars, lectures, and visits to museums, galleries, and studios. The course provides the opportunity for students to apply what is learned in its historical and cultural context.

Interior Design Programmatic Learning Objectives

1. The Interior Design Program will allow students to develop the attitudes, traits, and values of professional responsibility, accountability, and effectiveness.
2. Students will learn the fundamentals of art and design, theories of design and human behavior, and discipline-related history.
3. Students will understand and apply the knowledge, skills, processes, and theories of interior design.
4. Students will learn to communicate effectively.
5. Students will design within the context of building systems. Students will use appropriate materials and products.
6. Students will learn to apply the laws, codes, regulations, standards, and practices that protect the health, safety, and welfare of the public.
7. Students will be given a foundation in business and professional practice.

Assessment

The Interior Design Program participates in an ongoing self-assessment of the program and completes regular evaluations of the curriculum to ensure continuing growth and development. Much of this activity is stimulated by a continuing need to meet the requirements set forth by the program's accreditation. The program also conducts two major portfolio reviews each year. The first review occurs at the end of a student's sophomore year, and the second review is conducted at the conclusion of a student's senior year of classes. These reviews allow the program to determine areas of strength, as well as areas of weakness, in order to provide direction for needed revision, to meet the needs of the various industries in which graduates of the program will be employed. Additionally, information is requested from alumni, in an effort to assess how the curriculum has prepared them to meet necessary employment expectations.

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/ats/majorsheets/>

Interior Design Faculty

Professor

Tom C. Peterson, design process and experiential learning

Assistant Professors

Darrin S. Brooks, residential design and interior history

Steven R. Mansfield, architecture and computer aided design

Course Descriptions

Interior Design (ID), pages 646-647.

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://websites.usu.edu/politicalscience/>

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, the student must also complete an international experience component. The student may choose the traditional study abroad experience in an accredited program, which must be approved by the international studies advisor. The student may also choose an internship. The internship must have a clear international focus and must be supervised by a faculty member. The relevant faculty member, as well as the international studies advisor, 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@cc.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)

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
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp) (3 cr) or	
ECON 3400 (DSS) International Economics for Business (F,Sp,Su) (prereq: ECON 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 *either* one course at the 3000 level *or* pass a competency examination at the same level.

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

ANTH 5160 (DSS) Cities and Development (Sp).....	3
ANTH/GEOG/SOC 5650 (DSS) Developing Societies (F).....	3
BA 4300 International Finance (F,Sp).....	3
BA 4590 Global Marketing Strategy (F,Sp) (prereq: BA 4540, 4550)....	3
BIS 4550 (CI) Principles of International Business Communications (Sp).....	3
ECON 5100 History of Economic Thought (Sp) (prereq: ECON 2010).....	3
ECON/POLS 5120 Economics of Russia and Eastern Europe, 9th Century to 21st Century (F).....	3
ECON 5150 (DSS) Comparative Economic Systems (Sp) (prereq: ECON 2010).....	3
ECON 5400 International and Development Economics (F) (prereq: ECON 4020 or 5000; ECON 4010 or 5010).....	4
HIST 4610 Themes and Methods in Economic History.....	3
MHR 3820 (DSS) International Management (F,Sp).....	3
MHR 4890 (CI) Business Strategy in a Global Context (F,Sp,Su) (prereq: senior standing; MHR 3110; BA 3400, 3500, 3700).....	3
PHIL 3520 (DHA) Business Ethics (Sp).....	3
PLSC 4300 World Food Crops and Cropping Systems: The Plants That Feed Us (Sp).....	3
POLS 3100 Global Issues (F).....	3
POLS 4480 International Trade Policy (Sp).....	3
POLS 5210 Comparative Political Change/Development (F).....	3
SOC 3600 Sociology of Urban Places (F).....	3
SOC 3610 (DSS) Rural Sociology (F).....	3
SOC 4730 Women in International Development (Sp).....	3

Peace and Security

GEOG/POLS 3430 Political Geography (Sp).....	3
HIST 3230 Early Modern Europe.....	3
HIST 3240 Modern Europe from 1789 to the Present.....	3
HIST 3310 Balkans Since 1389.....	3
HIST 3410 The Modern Middle East.....	3
HIST 3460 Comparative Asian History.....	3
HIST 4290 Europe and the French Revolution, 1700-1815.....	3
HIST 4310 History of Nationalism.....	3
HIST 4390 British Imperialism from 1688 to the Present.....	3
HIST 4810 American Military History.....	3
HIST 4820 World War II in Europe.....	3
HIST 4821 World War II in Asia.....	3
PHIL 4610 (DHA) Social and Political Philosophy (Sp).....	3
POLS 3100 Global Issues (F).....	3
POLS 3190 (DSS) Gender, Power, and Politics (F).....	3
POLS 3400 (DSS) United States Foreign Policy (F,Sp).....	3
POLS 4210 European Union Politics (Sp).....	3
POLS 4220 (CI) Ethnic Conflict and Cooperation (Sp).....	3
POLS 4280 Politics and War (Sp).....	3
POLS 4410 Global Negotiations (Sp).....	3
POLS 4450 (CI) United States and Latin America (Sp).....	3
POLS 4460 National Security Policy (Sp).....	3
POLS 4470 Foreign Policy in the Pacific (Sp).....	3
POLS 4890 Special Topics (F,Sp) (1-5 cr) or POLS 4990 (CI) 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

AWER 4750 Fundamentals of Remote Sensing Science (F).....	3
AWER 4930 Geographic Information Systems (F).....	4
BIOL 3100 (CI) Bioethics (Sp).....	3
ECON 1550 (BSS) Introduction to Environmental and Natural Resource Economics (F).....	3

ECON 5560 Natural Resource and Environmental Economics (Sp) (prereq: ECON 1550 or 2010).....	3
ENVS 2340 (BSS) Natural Resources and Society (F,Sp).....	3
ENVS 3330 Environment and Society (Sp).....	3
ENVS 5550 Environment, Resources, and Development Policy (Sp)....	3
ENVS 5640 Conflict Management in Natural Resources (Sp).....	3
FRWS 2200 (BLS) Ecology of Our Changing World (F,Sp).....	3
GEOG 1000 (BPS) Physical Geography (F,Sp,Su).....	3
GEOG 2130 Population Geography (Sp).....	3
HIST 3530 African Environmental History.....	3
HIST 3950 (DHA/CI) Environmental History.....	3
PHIL 3510 (DHA) Environmental Ethics (F,Sp).....	3
POLS 3100 Global Issues (F).....	3
POLS 5200 Global Environment (F).....	3
SOC 4620 (DSS) Sociology of the Environment and Natural Resources (Sp).....	3

Peoples and Nations

ANTH 3130 (CI) Peoples of Latin America.....	3
ANTH 3160 (DSS) Anthropology of Religion (F).....	3
ANTH 3200 (DSS/CI) Perspectives on Race (Sp).....	3
ANTH 4100 The Study of Language (F,Sp).....	3
ANTH 4130 (DSS) Medical Anthropology: Matter, Culture, Spirit, and Health (Sp).....	3
ANTH 5100 (DSS) Anthropology of Sex and Gender (Sp).....	3
ENGL/HIST 2040 (BHU) British and Commonwealth Cultures (Sp)....	3
ENGL 4230 Language and Society (F).....	3
ENGL 5320 (CI) Literature and Cultural Difference (Sp).....	3
GEOG 2030 (BSS) Human Geography (Sp).....	3
GEOG 2130 Population Geography (Sp).....	3
GEOG 4200 (CI) Regional Geography (F,Sp,Su).....	3
HIST 3240 Modern Europe from 1789 to the Present.....	3
HIST 3260 History of Spain and Portugal.....	3
HIST 3280 East Central Europe Since 1520.....	3
HIST 3310 Balkans Since 1389.....	3
HIST 3330 The Soviet Union and its Heirs.....	3
HIST 3410 The Modern Middle East.....	3
HIST 3460 Comparative Asian History.....	3
HIST 3480 History of China.....	3
HIST 3510 Africa and the World.....	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
HIST 4310 History of Nationalism.....	3
HIST 4330 Modern Germany with Special Emphasis on the Twentieth Century.....	3
JCOM 4020 (DSS) Mass Media and Society (Sp).....	3
PHIL 3700 Philosophy of Religion (F).....	3
PHIL 3710 Philosophies of East Asia (F).....	3
POLS 2200 (BSS) Comparative Politics (F,Sp).....	3
POLS 3190 (DSS) Gender, Power, and Politics (F).....	3
POLS 3210 (DSS) Western European Government and Politics (F)....	3
POLS 3220 (DSS) Russian and East European Government and Politics (F).....	3
POLS 3230 Middle Eastern Government and Politics (F).....	3
POLS 3250 (DSS) Chinese Government and Politics (F).....	3
POLS 3270 (DSS) Latin American Government and Politics (F).....	3
POLS 4220 (CI) Ethnic Conflict and Cooperation (Sp).....	3
POLS 4230 Issues in Middle East Politics (Sp).....	3
POLS 4260 Southeast Asian Government and Politics (Sp).....	3
PSY 4240 (DSS) Multicultural Psychology (F) (prereq: PSY 1010)....	3
SOC 2370 Sociology of Gender (F).....	3
SOC 3200 (DSS) Population and Society (F,Sp).....	3
SOC 4330 Sociology of Religion (F).....	3
SOC 4710 Asian Societies (Sp).....	3

International Studies Major and Minor

Sample Four-year Plan for International Studies Major

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

This is a sample plan. It outlines 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.

Freshman Year (32 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ANTH 1010 (BSS) Cultural Anthropology (3 cr) or	
ANTH 2010 (BSS) Peoples of the Contemporary World (3 cr)	3
HIST 1500 (BHU) Cultural and Economic Exchange in the Pre-Nineteenth Century World (3 cr) or	
HIST 1510 (BHU) The Modern World (3 cr)	3
Foreign Language 1010-level course	4
University Studies Breadth course	3

Spring Semester (16 credits)

GEOG 1300 (BSS) World Regional Geography	3
POLS 2100 Introduction to International Politics	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
Foreign Language 1020-level course	4
Quantitative Literacy (QL) course	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
International Studies Area Option courses	6
University Studies Breadth course	3
Foreign Language 2010-level course	4

Spring Semester (16 credits)

International Studies Area Option course	3
Communications Intensive (CI) course	3
University Studies Breadth course	3
Foreign Language 2020-level course	4
Elective course(s)	3

Junior Year (30 credits)

Fall Semester (15 credits)

International Studies Area Option course	3
International Studies upper-division elective course	3
Communications Intensive (CI) course	3
Quantitative Intensive (QI) course	3
Foreign Language upper-division course	3

Spring Semester (15 credits)

International Study Abroad (upper-division) (15 cr) or	
International Internship (upper-division) (15 cr)	15

Senior Year (30 credits)

Fall Semester (15 credits)

International Studies Area Option elective course	3
International Studies upper-division elective course	3
Depth Humanities and Creative Arts (DHA) course (3 cr) or	
Depth Social Sciences (DSS) course (3 cr)	3
Elective courses	6

Spring Semester (15 credits)

Senior Thesis (upper-division) course	3
Depth Life and Physical Sciences (DSC) course	3
Upper-division elective courses	9

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
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp) (3 cr) or	
ECON 3400 (DSS) International Economics for Business (F,Sp,Su) (prereq: ECON 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/ats/majorsheets/>

Department of Journalism and Communication

Department Head: Michael S. Sweeney
Location: Animal Science 310
Phone: (435) 797-3292
FAX: (435) 797-3973
E-mail: jcom@cc.usu.edu
WWW: <http://www.usu.edu/journalism>

Assistant Department Head:
Penny M. Byrne, Animal Science 108A, (435) 797-3289,
penny.byrne@usu.edu

Graduate Program Coordinator:
Edward C. Pease, Animal Science 308B, (435) 797-3293,
tpease@cc.usu.edu

Degrees offered: Bachelor of Science (BS) and Bachelor of Arts (BA) in Journalism; Master of Science (MS) and Master of Arts (MA) in 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.

With individual student objectives in mind, the Department of Journalism and Communication offers a flexible program of study having the following learning objectives:

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 photographic darkroom. 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 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; University Studies courses, 30 credits; courses in the minor/cognate area, 18 credits; electives from outside the Journalism and Communication Department, 36-40 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 and Utah State University allow 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 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.

Students dropped from the Journalism major for failure to achieve the minimum grades within three attempts, or for failure to maintain a GPA of at least 2.5, should speak with an advisor. Options may include switching to another major or creating an Interdisciplinary Studies major.

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:

JCOM 1130 Beginning Newswriting for Mass Media (F,Sp,Su)	3
JCOM 1500 (BSS) Introduction to Mass Communication (F,Sp)	3
JCOM 2010 (BSS) 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. 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:

JCOM 2160 (CI) Introduction to Online Journalism (F,Sp)	2
(prereq: min of C+ in JCOM 1130, 1500, and 2010)	
JCOM 4000 Senior Seminar in Mass Communication (F,Sp)	1
(prereq: senior standing)	
JCOM 4030 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)

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)

JCOM 2220 Introduction to Video Media (F,Sp).....	3
JCOM 2230 Writing for Electronic Media (F).....	3
Additional major requirements (JCOM 2160, 4000, 4030)	6

C. Newscast or Corporate Video/Multimedia (6-8 credits)

Students should complete *one* of the two pairs of courses listed below.

JCOM 4210 (CI) Newscast I (F,Sp) (4 cr) and	
JCOM 4220 (CI) Newscast II (F,Sp) (4 cr).....	8
Or	
JCOM 4230 Corporate Video (F,Sp) (3 cr) and	
JCOM 5210 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)

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)

JCOM 2170 (CI) Reporting Public Affairs (F,Sp)	3
JCOM 3110 (CI) Beyond the Inverted Pyramid (F,Sp)	3
JCOM 3120 (CI) Copy Editing and Publication Design (F,Sp)	3
Additional major requirements (JCOM 2160, 4000, 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)

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)

JCOM 2300 Introduction to Public Relations (F,Sp)	3
JCOM 2310 (CI) Writing for Public Relations (F,Sp)	3
Additional major requirements (JCOM 2160, 4000, 4030)	6

C. Upper-division Required Courses (6 credits; must be taken in sequence after completion of JCOM 2300, 2310)

JCOM 3300 Strategic Research Methods in Public Relations (F,Sp) ..	3
JCOM 5300 (CI) Case Studies in Public Relations (F,Sp)	3

D. Electives (3-9 credits; at least 3 credits in skills course; 3 credits upper division)

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 Plan for Journalism Major, Broadcast/Electronic Media Emphasis

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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
JCOM 1500 (BSS) Introduction to Mass Communication	3
Quantitative Literacy (QL) course.....	3
University Studies Breadth course	3
Elective course(s).....	3

Spring Semester (15 credits)

JCOM 1130 Beginning Newswriting for the Mass Media	3
Minor or Cognate course	3
University Studies Breadth courses	6
Elective course(s).....	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (29 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
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Department of Journalism and Communication

JCOM 2010 (BSS) Media Smarts: Making Sense of the Information Age	3
Minor or Cognate courses	3
University Studies Breadth courses	6

Spring Semester (14 credits)

JCOM 2160 (CI) Introduction to Online Journalism	2
JCOM 2220 Introduction to Video Media	3
Minor or Cognate course	3
Minor or Cognate upper-division course	3
Quantitative Intensive (QI) course	3

Junior Year (31 Credits)

Fall Semester (13 credits)

JCOM 2230 Writing for Electronic Media	3
JCOM 4210 (CI)¹ Newscast I	4
Minor or Cognate upper-division course	3
Depth Humanities and Creative Arts (DHA) course	3

Spring Semester (15 credits)

JCOM 4220 (CI)¹ Newscast II	4
Depth Life and Physical Sciences (DSC) course	3
Elective courses	8

Summer Semester (3 credits)

JCOM 4510 Communication Internship	3
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Senior Year (30 credits)

Fall Semester (15 credits)

JCOM 4030 Mass Media Law	3
Minor or Cognate upper-division course	3
Upper-division elective courses	6
Elective course(s)	3

Spring Semester (15 credits)

JCOM 4000 Senior Seminar in Mass Communication	1
JCOM elective course	3
Upper-division elective courses	4
Elective courses	7

¹Students completing this emphasis have the option of taking *both* **JCOM 4210 (CI) Newscast I** (4 cr) *and* **JCOM 4220 (CI) Newscast II** (4 cr) *or* substituting *both* **JCOM 4230 Corporate Video** (3 cr) *and* **JCOM 5210 Website Design and Production** (3 cr). Students choosing the second option must make up the credit difference with a 3-credit JCOM upper-division elective course to accumulate a minimum of 120 credits, as required for graduation. In addition, students completing the second option must complete two Communications Intensive (CI) courses.

Sample Four-year Plan for Journalism Major, Print Journalism Emphasis

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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
JCOM 1500 (BSS) Introduction to Mass Communication	3
Quantitative Literacy (QL) course	3
University Studies Breadth course	3
Elective course(s)	3

Spring Semester (15 credits)

JCOM 1130 Beginning Newswriting for the Mass Media	3
Minor or Cognate course	3
University Studies Breadth courses	6
Elective course(s)	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (29 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
JCOM 2010 (BSS) Media Smarts: Making Sense of the Information Age	3
Minor or Cognate courses	3
University Studies Breadth courses	6

Spring Semester (14 credits)

JCOM 2160 (CI) Introduction to Online Journalism	2
JCOM 2170 (CI) Reporting Public Affairs	3
Minor or Cognate upper-division course	3
Quantitative Intensive (QI) course	3
Elective course(s)	3

Junior Year (33 credits)

Fall Semester (15 credits)

JCOM 3110 (CI) Beyond the Inverted Pyramid	3
JCOM elective course	3
Minor or Cognate upper-division course	3
Depth Humanities and Creative Arts (DHA) course	3
Upper-division elective course	3

Spring Semester (15 credits)

JCOM 3120 (CI) Copy Editing and Publication Design	3
JCOM 4030 Mass Media Law	3
Depth Life and Physical Sciences (DSC) course	3
Elective courses	6

Summer Semester (3 credits)

JCOM 4510 Communication Internship	3
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Senior Year (28 credits)

Fall Semester (15 credits)

JCOM elective courses	6
Minor or Cognate upper-division course	3
Upper-division elective course	3
Elective course(s)	3

Spring Semester (13 credits)

JCOM 4000 Senior Seminar in Mass Communication	1
JCOM upper-division courses	6
Elective courses	6

Department of Journalism and Communication

Sample Four-year Plan for Journalism Major, Public Relations/Corporate Communications Emphasis

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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
JCOM 1500 (BSS) Introduction to Mass Communication	3
Quantitative Literacy (QL) course	3
University Studies Breadth course	3
Elective course	3

Spring Semester (15 credits)

JCOM 1130 Beginning Newswriting for the Mass Media	3
Minor or Cognate course	3
University Studies Breadth courses	6
Elective course(s)	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (29 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
JCOM 2010 (BSS) Media Smarts: Making Sense of the Information Age	3
Minor or Cognate courses	3
University Studies Breadth courses	6

Spring Semester (14 credits)

JCOM 2160 (CI) Introduction to Online Journalism	2
JCOM 2300 Introduction to Public Relations	3
Minor or Cognate course	3
Minor or Cognate upper-division course	3
Quantitative Intensive (QI) course	3

Junior Year (30 credits)

Fall Semester (15 credits)

JCOM 2310 (CI) Writing for Public Relations	3
Minor or Cognate upper-division course	3
Depth Humanities and Creative Arts (DHA) course	3
Depth Life and Physical Sciences (DSC) course	3
Upper-division elective course	3

Spring Semester (12 credits)

JCOM 3300 Strategic Research Methods in Public Relations	3
JCOM 4030 Mass Media Law	3
JCOM upper-division Skills elective course	3
Communications Intensive (CI) course	3

Summer Semester (3 credits)

JCOM 4510 Communication Internship	3
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Senior Year (31 credits)

Fall Semester (15 credits)

JCOM 4530 Special Topics in Communication: Integrated Marketing	3
JCOM 5300 (CI) Case Studies in Public Relations (3 cr) or JCOM 5320 Public Relations Agency (3 cr)	3
Minor or Cognate upper-division course	3
Upper-division elective courses	6

Spring Semester (16 credits)

JCOM 4000 Senior Seminar in Mass Communication	1
Elective courses	15

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:

JCOM 1130 Beginning Newswriting for the Mass Media (F,Sp,Su) (3 cr) or JCOM 2010 (BSS) Media Smarts: Making Sense of the Information Age (F,Sp) (3 cr)	3
JCOM 1500 (BSS) Introduction to Mass Communication (F,Sp)	3

For the remaining 12 JCOM credits, students must select one of the following options:

(a)	JCOM 2170 (CI) Reporting Public Affairs (F,Sp)	3
	JCOM faculty advisor-approved upper-division JCOM credits	9
(b)	JCOM 2220 Introduction to Video Media (F,Sp)	3
	JCOM 2230 Writing for Electronic Media (F,Sp)	3
	JCOM faculty advisor-approved upper-division JCOM credits	6
(c)	JCOM 2300 Introduction to Public Relations (F,Sp)	3
	JCOM 2310 (CI) 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 juniors, seniors, and graduate students. 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

Department of Journalism and Communication

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@cc.usu.edu; or contact the Journalism and Communication departmental advisor, Penny Byrne, at 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/ats/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.

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:

JCOM 1130 Beginning Newswriting for the Mass Media (F,Sp,Su)	3
JCOM 2010 (BSS) Media Smarts: Making Sense of the Information Age (F,Sp).....	3
JCOM 3110 (CI) Beyond the Inverted Pyramid (F,Sp)	3
JCOM 4030 (DSS) 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.

Department of Journalism and Communication

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

Associate Professors

Penny M. Byrne, broadcasting, media law

Brenda Cooper, media criticism, gender and mass communication

Michael S. Sweeney, print journalism, media history

Associate Professors Emeritus

Scott A. Chisholm, media management, literary journalism

James O. Derry, international mass communication development

Assistant Professors

Cathy Ferrand Bullock, mass communication theory and research methods

Les A. Roka, public relations

Nancy M. Williams, print journalism, Internet

Video Lab Supervisor

S. Dean Byrne, broadcast and electronic media

Lecturer

R. Troy Oldham, public relations, corporate communications

Adjunct Instructors

Cami Boehme, Internet

Tim Vitale, public relations

Jay C. Wamsley, print journalism

Course Descriptions

Journalism and Communication (JCOM), pages 652-655.

Department of Landscape Architecture and Environmental Planning

Department Head: Elizabeth A. Brabec

Location: Fine Arts Visual 230

Phone: (435) 797-0500

FAX: (435) 797-0503

E-mail: kathy.allen@usu.edu

(faculty e-mail addresses available on departmental website)

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

Undergraduate Program Director:

Michael L. Timmons, Fine Arts Visual 260, (435) 797-1510,
michael.timmons@usu.edu

Graduate Program Director:

John C. Ellsworth, Fine Arts Visual 238, (435) 797-0504,
john.ellsworth@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. Declared LAEP majors will be advised of their relative class standing at the mid-point of their sophomore year, to assist in their personal academic career planning. 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:

LAEP 1030 (BCA) Introduction to Landscape Architecture (F,Sp,Su)	3
LAEP 1200 Basic Graphics in Landscape Architecture (F)	4
LAEP 1350 Theory of Design (Sp)	4
LAEP 2300 History of Landscape Architecture (F)	3
LAEP 2600 (QI) Landscape Construction I (F)	4
LAEP 2650 Architecture and the Built Environment (Sp)	4
LAEP 2700 (CI) Site Analysis and Design (F)	5
LAEP 2720 Site Planning and Design (Sp)	5
ETE 1200 Computer-Aided Drafting and Design (F,Sp,Su) (3 cr) or	
ETE 2270 Computer Engineering Drafting (F,Sp,Su) (2 cr)	2 or 3
PLSC 2620 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.usu.edu/laep/>. 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 entering the upper division of the BLA program must purchase, lease, or otherwise obtain continuing and uninterrupted access to a personal computer 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, and math through college algebra.

Department of Landscape Architecture and Environmental Planning

BLA Degree

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 3300 Advanced Computer Applications in Landscape Architecture (F).....	4
LAEP 3500 Planting Design (F).....	2-4
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 4920 (CI) Professional Practice (Sp).....	2

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.

ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (F,Sp) (3 cr) or	
ENGL 3080 (CI) Introduction to Technical Communication (F,Sp) (3 cr).....	3
GEO 3100 (DSC) Natural Disasters (Sp).....	3
AWER 1200 (BLS) Biodiversity: Its Conservation and Future (F,Sp) (3 cr) or	
FRWS 2200 (BLS) Ecology of Our Changing World (F,Sp) (3 cr).....	3
MATH 1010 Intermediate Algebra (F,Sp,Su).....	3
SOC 3610 (DSS) Rural Sociology (F) (3 cr) or	
SOC 4620 (DSS) Sociology of the Environment and Natural Resources (Sp) (3 cr).....	3
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F).....	3
ETE 1200 Computer-Aided Drafting and Design (F,Sp,Su) (3 cr) or	
ETE 2270 Computer Engineering Drafting (F,Sp,Su) (2 cr).....	2 or 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/ats/majorsheets/>

Required Courses—Four-year Sequence

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 major courses

This is a sample plan. It outlines 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.

Freshman Year (31-32 credits)

Fall Semester (16 credits)

LAEP 1030 (BCA) Introduction to Landscape Architecture.....	3
LAEP 1200 Basic Graphics in Landscape Architecture.....	4
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape.....	3
Breadth Physical Sciences (BPS) course.....	3
Elective course(s).....	3

Spring Semester (15-16 credits)

LAEP 1350 Theory of Design.....	4
GEO 3100 (DSC) Natural Disasters.....	3
ETE 1200 Computer-Aided Drafting and Design (3 cr) or	
ETE 2270 Computer Engineering Drafting (2 cr).....	2 or 3
University Studies ¹ and elective courses.....	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

LAEP 2300 History of Landscape Architecture.....	3
LAEP 2600 (QI) Landscape Construction I.....	4
LAEP 2700 (CI) Site Analysis and Design.....	5
University Studies ² or elective course(s).....	3

Spring Semester (15 credits)

LAEP 2650 Architecture and the Built Environment.....	4
LAEP 2720 Site Planning and Design.....	5
University Studies ³ and elective courses.....	6

Junior Year (31 credits)

Fall Semester (16 credits)

LAEP 3100 Recreation/Open Space.....	5
LAEP 3300 Advanced Computer Applications in Landscape Architecture.....	4
LAEP 3500 Planting Design.....	4
University Studies or elective course(s).....	3

Spring Semester (15 credits)

LAEP 3120 Residential Planning and Design.....	5
LAEP 3610 Landscape Construction II.....	4
LAEP 3700 City and Regional Planning.....	3
ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture.....	3

Senior Year (30 credits)

Fall Semester (15 credits)

LAEP 4100 Urban Theory, Systems, and Design.....	5
LAEP 4110 Construction Document Preparation.....	4
SOC 3610 (DSS) Rural Sociology (3 cr) or	
SOC 4620 (DSS) Sociology of the Environment and Natural Resources (3 cr).....	3
Breadth American Institutions (BAI) course.....	3

Spring Semester (15 credits)

LAEP 4120 Emerging Areas in Landscape Architecture I.....	2
LAEP 4130 Emerging Areas in Landscape Architecture II.....	2
LAEP 4920 (CI) Professional Practice.....	2
University Studies and elective courses.....	9

¹Recommended: MATH 1010, Intermediate Algebra; ENGL 1010 (CL1), Introduction to Writing: Academic Prose.

²Recommended: ENGL 2010 (CL2), Intermediate Writing: Research Writing in a Persuasive Mode.

³Recommended: AWER 1200 (BLS), Biodiversity: Its Conservation and Future; or FRWS 2200 (BLS), Ecology of Our Changing World.

Department of Landscape Architecture and Environmental Planning

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 more 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 4120 Emerging Areas in Landscape Architecture I (F,Sp,Su).....	2
LAEP 4130 Emerging Areas in Landscape Architecture II (F,Sp,Su)....	2
LAEP 4350 Travel Course (F,Sp,Su).....	1-3
LAEP 4900 Special Problems (F,Sp,Su).....	1-5

Study Abroad

The department currently has cooperative agreements with the University of Ljubljana, Slovenia, and the Czech Agricultural University in Prague, Czech Republic, 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 already 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—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—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 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@cc.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/ats/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.usu.edu/laep/>

Department of Landscape Architecture and Environmental Planning

Master of Landscape Architecture

The program for the Master of Landscape Architecture (MLA) emphasizes both traditional site scale planning and design, as well as broader areas of the profession, such as large-scale regional landscape analysis and planning, and computer-aided design and planning techniques. 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: *Land Rehabilitation/Revegetation*—Ellsworth and Johnson; *Regional Landscape Planning*—Brabec, Kumble, Nicholson, and Shapiro; *Visual Resources Management*—Ellsworth; *Urban Wildlife/Refuge Planning*—Johnson; *Riparian Systems*—Bell and Johnson; *Community Planning*—Bell, Lavoie, Nicholson, and Timmons; *Public Lands/Recreation*—Borecki, Timmons; *Urban Design/Theory*—Lavoie; *Historic Landscapes and Preservation*—Borecki, Brabec, and Timmons; *Land Use Law*—Brabec; *Open Space Conservation and Greenways Development*—Brabec, Johnson, Kumble, and Shapiro; *Site Planning*—Bell, Johnson, Lavoie, and Timmons.

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.

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 second year of the First Professional Degree MLA program and all students entering the first year of the Advanced Professional Degree MLA program must purchase, lease, or otherwise obtain continuing and uninterrupted access to a personal computer 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; however, all incoming students are assigned a faculty mentor 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* above and *Areas of Concentration* below) 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 below.

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.**

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

Department of Landscape Architecture and Environmental Planning

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.

Primary Courses

LAEP 6100 Regional Landscape Analysis and Planning (F)	5
LAEP 6110 Landscape Planning for Wildlife (Sp)	3
LAEP 6310 Recreation and Open Space Planning and Design (F).....	5
LAEP 6320 Residential Planning and Design (Sp)	5
LAEP 6750 Implementation and Regulatory Techniques in Planning (F,Sp)	3
LAEP 6900 Special Problems (F,Sp,Su)	1-5
LAEP 6960 Master's Project (F,Sp,Su) (1-6 cr) or	
LAEP 6970 Thesis Research (F,Sp,Su) (1-6 cr)	1-6

Supporting Coursework

LAEP 2300 History of Landscape Architecture (F).....	3
LAEP 2720 Site Planning and Design (Sp).....	5
LAEP 4900 Special Problems: Site Analysis and Design (F).....	2
LAEP 6350 Planting Design for Sustainability (F).....	4
LAEP 6740 Planning Theory and Implementation Issues (F)	3

Electives

ECON 5560 Natural Resource and Environmental Economics (Sp).....	3
ECON 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
FRWS 4600 Conservation Biology (Sp)	3
FRWS 6510 Topics in Spatial Ecology (Sp)	1-3
FRWS 7220 Community-based Conservation Partnerships (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

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.cr.nps.gov/habshaer/hals/>)

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.

Primary Courses

LAEP 2300 History of Landscape Architecture (F).....	3
LAEP 6250 Internship and Cooperative Education Program (F,Sp,Su).....	1-5
LAEP 6550 Travel Course (International Field Study)	1-3
LAEP 6900 Special Problems (F,Sp,Su)	1-5
LAEP 6960 Master's Project (F,Sp,Su) (1-6 cr) or	
LAEP 6970 Thesis Research (F,Sp,Su) (1-6 cr)	1-6

Supporting Coursework

LAEP 6100 Regional Landscape Analysis and Planning (F)	5
LAEP 6740 Planning Theory and Implementation Issues (F)	3
LAEP 6750 Implementation and Regulatory Techniques in Planning (Sp)	3

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.

Primary Courses

LAEP 6100 Regional Landscape Analysis and Planning (F)	5
LAEP 6370 City and Regional Planning (Sp).....	3
LAEP 6410 Redefining the Urban Landscape (F).....	5
LAEP 6740 Planning Theory and Implementation Issues (F)	3
LAEP 6750 Implementation and Regulatory Techniques in Planning (F,Sp)	3
LAEP 6900 Special Problems (F,Sp,Su)	1-5

Supporting Coursework

LAEP 2720 Site Planning and Design (Sp).....	5
LAEP 4900 Special Problems: Site Analysis and Design (F).....	2
LAEP 6900 Special Problems: Geographic Information Systems (GIS) (F)	2

Electives

ECON 5560 Natural Resource and Environmental Economics (Sp).....	3
ECON 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

Department of Landscape Architecture and Environmental Planning

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.

Primary Courses

LAEP 6100 Regional Landscape Analysis and Planning (F) 5
LAEP 6110 Landscape Planning for Wildlife (Sp) 3
LAEP 6350 Planting Design for Sustainability (F) 4
LAEP 6400 Low Water Landscaping (F) 3
LAEP 6900 Special Problems (F,Sp,Su) 1-5
LAEP 6960 Master's Project (F,Sp,Su) (1-6 cr) or
LAEP 6970 Thesis Research (F,Sp,Su) (1-6 cr) 1-6

Supporting Coursework

BIOL 2220 General Ecology (F,Sp) 3
LAEP 2600 (QI) Landscape Construction I (F) 4
LAEP 6310 Recreation and Open Space Planning and Design (F) 5
LAEP 3610 Landscape Construction II (Sp) 4
LAEP 6750 Implementation and Regulatory Techniques in
Planning (F,Sp) 3

Electives

AWER 5490 Small Watershed Hydrology (F) 4
AWER 6530 Water Quality and Pollution (Sp) 3
AWER 7640 Riparian Ecology and Management (Sp) 3
ENVS 4000 (DSS) Human Dimensions of Natural Resource
Management (F) 3
FRWS 7300/5300 Wildlife Damage Management Principles (Sp) 3
FRWS 7400 Plant Population Ecology (F) 3
GEO 3100 (DSC) Natural Disasters (Sp) 3
NR 6510 Biophysical and Human Dimensions
of Ecosystems (F,Sp,Su) 3
NR 6520 Structure and Function of Ecological and
Social Systems (F,Sp,Su) 3
NR 6530 Integrated Inventory, Analysis, and Assessment
of Ecosystems (F,Sp,Su) 3
NR 6540 Ecosystem Management Implementation (F,Sp,Su) 3
SOC 6620 Environment, Technology, and Social Change (Sp) 3
SOC 6640 Conflict Management in Natural Resources (Sp) 3
SOC 7640 Population and Environment (Sp) 3
SOIL 4000 Soil and Water Conservation (F) 4

Certificate Programs

Interdisciplinary Graduate Certificate Program in Natural Resource and Environmental Policy: Program goals are to provide students with a more comprehensive educational framework for understanding complex natural resource and environmental concerns and to develop the critical thinking and analytical skills needed to address these issues. Students will become familiar with concepts and principles of social, natural, and physical science approaches to natural resource policy.

Interdisciplinary Certificate Program in Landscape Restoration (program currently being developed): This certificate program is designed to prepare resource managers and landscape architects to meet the growing demand for professionals who can plan, design, and construct restoration projects in uplands or streams. This program is interdisciplinary, designed to train students for careers in government, education, and private consulting practice.

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 more of the following courses:

LAEP 6550 Travel Course (F,Sp,Su) 1-3
LAEP 6900 Special Problems (F,Sp,Su) 1-5

Study Abroad

The department currently has cooperative agreements with the University of Ljubljana, Slovenia, and the Czech Agricultural University in Prague, Czech Republic, 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 already 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 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—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—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.usu.edu/laep/>

Department of Landscape Architecture and Environmental Planning

Master of Science in Bioregional Planning (joint degree program with Environment and Society)

Good 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.

This program consists of a two-year period of study with a required thesis or paper/project. To maintain a program focus, the student selects from three clusters of coursework (research methods/case studies, biophysical, and social/economic policy). A minimum of 36 graduate-level credits, including 3-6 credits of thesis or paper/project is required. A capstone course is required for all LAEP students. The program contains a total of nine elective credits from which the candidate and his or her committee can formulate an area of concentration.

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. 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: FRWS 6500, SOC 6100, 6150.

Biophysical (3-4 credits)

One of the following courses is required: FRWS 6710, AWER 6330. For those students without a background in ecology, FRWS 4600 is also required. Credits earned for FRWS 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.

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 may participate. The Environmental Field Service program offers students the opportunity to interact with community leaders and citizens and to test 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 department, student, and government agency or private firm, make 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.

Department of Landscape Architecture and Environmental Planning

Landscape Architecture and Environmental Planning Faculty

Sumner Margetts Swaner Professor

Tamara F. Shapiro, regional landscape planning

Professors

Elizabeth A. Brabec, cultural landscapes, landscape and open space conservation and management, land use law and policy

John C. Ellsworth, visual resources management, computer applications, disturbed lands rehabilitation

Craig W. Johnson, planting design, land rehabilitation, wildlife habitat planning and design, site planning

Associate Professors

David L. Bell, residential design, landscape construction, community planning and design

Caroline Lavoie, urban design and cultural landscapes, design theory, landscape planning theory

John K. Nicholson, urban and regional planning, computer applications, transportation

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

Peter Kumble, regional landscape planning, professional practice, open space preservation

Margie Borecki, basic graphics, landscape construction, sustainability practices

Course Descriptions

Landscape Architecture and Environmental Planning (LAEP), pages 656-657.

Department of Languages, Philosophy, and Speech Communication

Department Head: To be appointed

Location: Main 204

Phone: (435) 797-1209

FAX: (435) 797-1329

E-mail: langphil@cc.usu.edu

WWW: http://www.usu.edu/langphil

Undergraduate Advisors:

Asian Languages:

Atsuko O. Neely, Main 306, (435) 797-1365, akko@cc.usu.edu

Foreign Language Education:

Maria Luisa Spicer-Escalante, Main 002F, (435) 797-0788, mlspicer@cc.usu.edu

French:

Anne F. Carlson, Main 002K, (435) 797-3262, anne.carlson@usu.edu

Susan J. Dudash, Main 002J, (435) 797-8215, sdudash@cc.usu.edu

Sarah Gordon, Main 002L, (435) 797-8215, sgordon@cc.usu.edu

German:

Xenia Srebrianski Harwell, Main 002H, (435) 797-7483, xsharwell@cc.usu.edu

Renate Posthofen, Main 212, (435) 797-1336, posthofr@cc.usu.edu

Felix W. Tweraser, Barn 103, (435) 797-7439, twerfeli@cc.usu.edu

Linguistics:

Karin de Jonge-Kannan, Main 002D, (435) 797-8318, karin.dejongekan@usu.edu

John E. Lackstrom, Main 211, (435) 797-1210, fat88@cc.usu.edu

Maria Luisa Spicer-Escalante, Main 002F, (435) 797-0788, mlspicer@cc.usu.edu

Philosophy:

Charlie Huenemann, Main 204A, (435) 797-0254, hueneman@cc.usu.edu

Charles W. Johnson, Main 308, (435) 797-1215, ludwig@cc.usu.edu

Kent E. Robson, Main 208, (435) 797-1214, kerobson@cc.usu.edu

Richard Sherlock, Main 202E, (435) 797-1244, ruffie@cc.usu.edu

Gordon Steinhoff, Main 202D, (435) 797-3688, hannibal@cc.usu.edu

Spanish:

Maria-de Jesús Cordero, Main 210, (435) 797-1423, mcordero@cc.usu.edu

M. Isela Chiu-Olivares, Main 202G, (435) 797-1213, isela@cc.usu.edu

Javier Domínguez-García, Main 002G, (435) 797-7451, javierd@cc.usu.edu

Kevin L. Krogh, Barn 107, (435) 797-1589, kkrogh@cc.usu.edu

John E. Lackstrom, Main 211, (435) 797-1210, fat88@cc.usu.edu

Mark D. Larsen, Main 202C, (435) 797-1212, marcos@cc.usu.edu

J. P. Spicer-Escalante, Main 002F, (435) 797-0709, jpspicer@cc.usu.edu

Speech:

Harold J. Kinzer, Barn 202, (435) 797-3610, kinzer@cc.usu.edu

Jennifer A. Peebles, Barn 119, (435) 797-7440, jpeebles@cc.usu.edu

John S. Seiter, Main 213, (435) 797-0138, jsseiter@cc.usu.edu

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, 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 16-20). 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.

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 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. For more details, contact the department office.

Department of Languages, Philosophy, and Speech Communication

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@cc.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/ats/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 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://www.usu.edu/langphil/mslt>

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

Total Credits:

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...2.0 Career GPA
and 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 4100⁵ The Study of Language (F,Sp).....3

B. Elective Courses (30 credits minimum)

Students must complete at least 30 credits of upper-division coursework selected from the following list.

FREN 3030 ⁷ Advanced French for Everyday Communication (Su)	3
FREN 3060 (CI) ² French Conversation (F)	3
FREN 3070 ⁷ Advanced French Language Study Abroad I (Su)	4
FREN 3080 ⁷ Advanced French Language Study Abroad II (Su)	4
FREN 3090 (CI) ³ French Intermediate Written Communication (F)	3
FREN 3500 (DHA) Topics in French Literature in Translation (F,Sp,Su)	3
FREN 3510 (CI) Business French (F)	3
FREN 3550 (DHA) French Civilization (F).....	3
FREN 3570 France Today (Sp)	3

Department of Languages, Philosophy, and Speech Communication

FREN 3600 ⁶ Textual Analysis (F)	3
FREN 3820 ⁷ Advanced Independent Study: Experiencing Paris (Su)...	2
FREN 3880 Individual Readings (F,Sp,Su)	1-4
FREN 3900 ¹ Topics in French and Francophone Studies (F)	3
FREN 4060 (CI) ² Advanced French Conversation (Sp)	3
FREN 4090 (CI) ³ Advanced Written Communication (F).....	3
FREN 4200 ⁵ Applied French Linguistics and Phonetics (Sp).....	3
FREN 4520 Information Technologies in French (F)	3
FREN 4610 (DHA) ¹ Period Studies in French Literature (Sp).....	3
FREN 4620 (DHA) ¹ Genre Studies in French Literature (F)	3
FREN 4880 Individual Readings (F,Sp).....	1-4
FREN 4900 ¹ Seminar in French and Francophone Studies (Sp).....	3
FREN 4920 ^{1,4} French Language Tutoring (F,Sp,Su)	1-2
LING 4900 Analysis of Cross-Cultural Difference (Sp).....	3

Students should note that *no more than two* upper-division French courses taught in English can be applied toward the French majors.

Sample Four-year Plan for French Major

Minimum GPA for Admission: 2.5, USU; 2.5, Career
Minimum GPA for Graduation: 2.5, major courses; 2.0, Career
Minimum Grade Accepted: C- in major courses

This is a sample plan. It outlines 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.

Freshman Year (32 credits)

Fall Semester (16 credits)	
FREN 1010 French First Year I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth courses	9
Spring Semester (16 credits)	
FREN 1020 French First Year II	4
University Studies Quantitative Literacy (QL) course	3
University Studies Breadth courses	9

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)	
FREN 2010 French Second Year I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Elective courses	9

Spring Semester (16 credits)

FREN 2020 French Second Year II	4
Depth Life and Physical Sciences (DSC) course	3
Depth Social Sciences (DSS) course	3
Quantitative Intensive (QI) course	3
Elective course(s).....	3

Junior Year (28 credits)

Fall Semester (14 credits)	
LING 4100 The Study of Language.....	3
Communications Intensive (CI) course	3
FREN upper-division courses.....	6
Upper-division elective course	1
Elective course	1

Spring Semester (14 credits)

FREN upper-division courses.....	9
Communications Intensive (CI) course	3
Elective course(s).....	2

Senior Year (28 credits)

Fall Semester (14 credits)	
FREN upper-division courses.....	9
Elective courses	5

Spring Semester (14 credits)

FREN upper-division courses.....	6
Elective courses	8

French Major—Teaching Emphasis with Secondary School Licensure (62 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 Department of Secondary Education. For more information, please contact the Department of Secondary Education, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on pages 373-374. Information is also provided on the Web at: <http://www.coe.usu.edu/seced/>

I. French and Linguistics Courses (31 credits)

A. Required Courses (25 credits)

LING 4100 ⁵ The Study of Language (F,Sp).....	3
FREN 4200 ^{5,9} Applied French Linguistics and Phonetics (Sp).....	3
FREN 3060 (CI) French Conversation (F) (3 cr) or	
FREN 4060 (CI) ² Advanced French Conversation (Sp) (3 cr).....	3
FREN 3090 (CI) French Intermediate Written Communication (F) (3 cr) or	
FREN 4090 (CI) ³ Advanced Written Communication (F) (3 cr)	3
FREN 3550 (DHA) French Civilization (F) (3 cr) or	
FREN 3570 France Today (Sp) (3 cr).....	3
FREN 3600 ⁶ Textual Analysis (F)	3
FREN 4610 (DHA) ¹ Period Studies in French Literature (Sp).....	3
FREN 4620 (DHA) ¹ Genre Studies in French Literature (F)	3
FREN 4920 ^{1,4} French Language Tutoring (F,Sp,Su)	1-2

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 (F,Sp,Su)	3
FREN 3510 (CI) Business French (F)	3
FREN 3900 ¹ Topics in French and Francophone Studies (F)	3
FREN 4520 Information Technologies in French (F)	3
FREN 4900 ¹ Seminar in French and Francophone Studies (Sp).....	3
LING 4900 Analysis of Cross-Cultural Difference (Sp).....	3
FREN 3030 ⁷ Advanced French for Everyday Communication (Su)	3
FREN 3070 ⁷ Advanced French Language Study Abroad I (Su)	4
FREN 3080 ⁷ Advanced French Language Study Abroad II (Su).....	4
FREN 3820 ⁷ Advanced Independent Study: Experiencing Paris (Su)...	2
FREN 3880 Individual Readings (F,Sp,Su)	1-4

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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 pages 373-374.

Suggested Four-year Plan for French Major, French Teaching Emphasis

Minimum GPA for Admission: 2.5, USU; 2.5, Career
Minimum GPA for Graduation: 2.5, major courses; 2.0, Career
Minimum Grade Accepted: C- in major courses

This is a sample plan. It outlines 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.

Freshman Year (32 credits)

Fall Semester (16 credits)

FREN 1010 French First Year I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth courses	9

Spring Semester (16 credits)

FREN 1020 French First Year II	4
University Studies Quantitative Literacy (QL) course	3
University Studies Breadth courses	9

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (29 credits)

Fall Semester (16 credits)

FREN 2010 French Second Year I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Depth Life and Physical Sciences (DSC) course	3
Quantitative Intensive (QI) course	3
Teaching Minor course	3

Spring Semester (13 credits)

FREN 2020 French Second Year II	4
Teaching Minor courses	9

Junior Year (30 credits)

Fall Semester (15 credits)

LING 4100 The Study of Language	3
Communications Intensive (CI) course	3
FREN upper-division courses	9

Spring Semester (15 credits)

FREN upper-division courses	9
Teaching Minor courses	6

Senior Year (26 credits)

Fall Semester (12 credits)

FREN upper-division courses	9
Teaching Minor course	3

Spring Semester (14 credits)

LING 3300 Clinical Experience I	1
LING 4400 Teaching Modern Languages	3

SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
FREN upper-division course	3
STEP course(s)	4

Teaching Certification Year (27 credits)

Fall Semester (15 credits)

FREN upper-division course	3
STEP courses	12

Spring Semester (12 credits)

LING 5500 Student Teaching Seminar	2
LING 5630 Student Teaching in Secondary Schools	10

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 Department of Secondary Education. For more information, please contact the Department of Secondary Education, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on pages 373-374. Information is also provided on the Web at: <http://www.coe.usu.edu/seced/>

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 (15 credits)

A. Required Courses (12 credits)

FREN 3090 (CI) ³ French Intermediate Written Communication (F) (3 cr) or	
FREN 4090 (CI) ³ Advanced Written Communication (F) (3 cr)	3
FREN 3550 (DHA) French Civilization (F) (3 cr) or	
FREN 3570 France Today (Sp) (3 cr)	3
FREN 3600 ⁶ Textual Analysis (F)	3
FREN 4200 ⁹ Applied French Linguistics and Phonetics (Sp)	3

B. Elective Courses (3 credits)

Students must complete an additional three credits in coursework selected from the following list:

FREN 4610 (DHA) ¹ Period Studies in French Literature (Sp)	3
FREN 4620 (DHA) ¹ Genre Studies in French Literature (F)	3
LING 4900 Analysis of Cross-Cultural Difference (Sp)	3
FREN 3030 ⁷ Advanced French for Everyday Communication (Su)	3
FREN 3070 ⁷ Advanced French Language Study Abroad I (Su)	4
FREN 3080 ⁷ Advanced French Language Study Abroad II (Su)	4
FREN 3500 (DHA) Topics in French Literature in Translation (F,Sp,Su)	3

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FREN 3510 (CI) Business French (F)	3
FREN 3820⁷ Advanced Independent Study: Experiencing Paris (Su)...	2
FREN 3880 Individual Readings (F,Sp,Su)	1-4
FREN 4900¹ Seminar in French and Francophone Studies (Sp).....	3
FREN 4920^{1,8} French 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 pages 373-374.

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 3300¹⁰ or 4300¹⁰ (1 credit) and LING 4400¹⁰ (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 3300¹⁰ or 4300¹⁰ (1 credit) and LING 4400¹⁰ (3 credits), for a total of 19 credits.

¹This course requires FREN 3600 or instructor's permission. FREN 3900, 4900, and 4920 may be repeated for credit with different content.

²Students 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.

³Students 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.

⁴Only two credits of FREN 4920 may count toward the French Major or French Minor—Teaching Emphasis.

⁵It is recommended that LING 4100 be taken before FREN 4200.

⁶This course may be repeated one time for credit with different content.

⁷Offered only through USU's Summer Study Abroad program in France.

⁸Only one credit of FREN 4920 may count toward the French Minor or French Minor—Teaching Emphasis.

⁹Students should take FREN 4200 near the end of their coursework. Please note that FREN 4200 is offered every other year.

¹⁰LING 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...2.0 Career GPA
and 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)

GERM 3000 (DHA) Introduction to German Studies (F)	3
GERM 3040 (CI) Advanced German Grammar and Composition (F) ...	3
LING 4100 The Study of Language (F,Sp).....	3

B. Elective Courses (24 credits)

Students must complete at least 24 credits of upper-division coursework from the following list.

GERM 3050 (CI) Advanced German Grammar and Composition (Sp).....	3
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 3800¹¹ German III Study Abroad (Su).....	3
GERM 3880¹¹ Individual Readings (F,Sp)	1-4
GERM 4200 Applied German Linguistics and Phonetics (Sp)	3
GERM 4610 German Narratives (Sp)	3
GERM 4650 (DHA) Trends in Modern German Literature (F).....	3
GERM 4800¹¹ German IV Study Abroad (Su).....	1-4
GERM 4880¹¹ Individual Readings (F,Sp)	1-4
GERM 4900¹¹ Special Topics (Sp).....	3
GERM 4910 German for Special Purposes (Sp).....	3
GERM 4920^{11,12} German Language Tutoring (F,Sp,Su)	1
LING 4900 Analysis of Cross-Cultural Difference (Sp).....	3

Note: Credits obtained in lower-division German courses *cannot* be applied toward the German major programs.

Sample Four-year Plan for German Major

Minimum GPA for Admission: 2.5, USU; 2.5, Career

Minimum GPA for Graduation: 2.5, major courses; 2.0, Career

Minimum Grade Accepted: C- in major courses

This is a sample plan. It outlines 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.

Freshman Year (32 credits)

Fall Semester (16 credits)

GERM 1010 German First Year I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth courses	9

Spring Semester (16 credits)

GERM 1020 German First Year II	4
University Studies Quantitative Literacy (QL) course.....	3
University Studies Breadth courses	9

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Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

GERM 2010 German Second Year I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Depth Life and Physical Sciences (DSC) course	3
Depth Social Sciences (DSS) course	3
Quantitative Intensive (QI) course	3

Spring Semester (16 credits)

GERM 2020 German Second Year II	4
Elective courses	12

Junior Year (28 credits)

Fall Semester (14 credits)

LING 4100 The Study of Language	3
Communications Intensive (CI) course	3
GERM upper-division courses	6
Upper-division elective course	1
Elective course	1

Spring Semester (14 credits)

Communications Intensive (CI) course	3
GERM upper-division courses	9
Elective course(s)	2

Senior Year (28 credits)

Fall Semester (14 credits)

GERM upper-division courses	9
Elective courses	5

Spring Semester (14 credits)

GERM upper-division courses	6
Elective courses	8

German Major—Teaching Emphasis with Secondary School Licensure (62 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 Department of Secondary Education. For more information, please contact the Department of Secondary Education, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on pages 373-374. Information is also provided on the Web at: <http://www.coe.usu.edu/seced/>

I. German and Linguistics Courses (31 credits)

A. Required Courses (18 credits)

LING 4100 ¹³ The Study of Language (F,Sp)	3
LING 4900 Analysis of Cross-Cultural Difference (Sp)	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 ¹⁴ 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 ¹¹ German III Study Abroad (Su)	1-4
GERM 3880 ¹¹ Individual Readings (F,Sp)	1-4
GERM 4610 German Narratives (Sp)	3
GERM 4650 (DHA) Trends in Modern German Literature (F)	3
GERM 4800 ¹¹ German IV Study Abroad (Su)	1-4
GERM 4880 ¹¹ Individual Readings (F,Sp)	1-4
GERM 4900 ¹¹ Special Topics (Sp)	3
GERM 4910 German for Special Purposes (Sp)	3
GERM 4920 ^{11,12} 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 pages 373-374.

Sample Four-year Plan for German Major, German Teaching Emphasis

Minimum GPA for Admission: 2.5, USU; 2.5, Career
Minimum GPA for Graduation: 2.5, major courses; 2.0, Career
Minimum Grade Accepted: C- in major courses

This is a sample plan. It outlines 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.

Freshman Year (32 credits)

Fall Semester (16 credits)

GERM 1010 German First Year I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth courses	9

Spring Semester (16 credits)

GERM 1020 German First Year II	4
University Studies Quantitative Literacy (QL) course	3
University Studies Breadth courses	9

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (29 credits)

Fall Semester (16 credits)

GERM 2010 German Second Year I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Depth Life and Physical Sciences (DSC) course	3
Quantitative Intensive (QI) course	3
Teaching Minor course	3

Spring Semester (13 credits)

GERM 2020 German Second Year II	4
Teaching Minor courses	9

Junior Year (30 credits)

Fall Semester (15 credits)

LING 4100 The Study of Language	3
Communications Intensive (CI) course	3
GERM upper-division courses	9

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Spring Semester (15 credits)

GERM upper-division courses.....	9
Teaching Minor courses	6

Senior Year (26 credits)

Fall Semester (12 credits)

GERM upper-division courses.....	9
Teaching Minor courses	3

Spring Semester (14 credits)

LING 3300 Clinical Experience I.....	1
LING 4400 Teaching Modern Languages.....	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
GERM upper-division courses.....	3
STEP course(s)	4

Teaching Certification Year (27 credits)

Fall Semester (15 credits)

GERM upper-division course	3
STEP courses.....	12

Spring Semester (12 credits)

LING 5500 Student Teaching Seminar.....	2
LING 5630 Student Teaching in Secondary Schools	10

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 (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 the Utah public secondary school system, students with a teaching emphasis must also complete additional courses (approximately 31 credits) required by the Department of Secondary Education. For more information, please contact the Department of Secondary Education, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on pages 373-374. Information is also provided on the Web at: <http://www.coe.usu.edu/seced/>

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 (15 credits)

A. Required Courses (12 credits)

LING 4900 Analysis of Cross-Cultural Difference (Sp).....	3
GERM 3040 (CI) Advanced German Grammar and Composition (F).....	3
GERM 3050 (CI) Advanced German Grammar and Composition (Sp).....	3
GERM 4200 ¹⁴ Applied German Linguistics and Phonetics (Sp).....	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 ¹¹ German III Study Abroad (Su).....	1-4
GERM 3880 ¹¹ Individual Readings (F,Sp)	1-4
GERM 4610 German Narratives (Sp)	3
GERM 4650 (DHA) Trends in Modern German Literature (F).....	3
GERM 4800 ¹¹ German IV Study Abroad (Su).....	1-4
GERM 4880 ¹¹ Individual Readings (F,Sp)	1-4
GERM 4900 ¹¹ Special Topics (Sp).....	3
GERM 4910 German for Special Purposes (Sp).....	3
GERM 4920 ^{11,12} 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 pages 373-374.

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.

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 3300¹⁵ or LING 4300¹⁵ (1 credit) and LING 4400¹⁵ (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 3300¹⁵ or 4300¹⁵ (1 credit) and LING 4400¹⁵ (3 credits) for a total of 19 credits.

¹¹This course may be repeated for credit.

¹²Only 2 credits of GERM 4920 may count toward the German major.

¹³LING 4100 should be taken at the beginning of the student's coursework.

¹⁴GERM 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.

¹⁵LING 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.

Spanish Major and Minor Requirements

Minimum Departmental Requirements

Total Credits:

Spanish Major	34
Spanish Major, Teaching Emphasis	34 SPAN/LING & 31 SCED
Spanish Minor	16
Spanish Minor, Teaching Emphasis	16 SPAN/LING & 31 SCED
Spanish Major, Teaching Emphasis without licensure.....	38
Spanish Minor, Teaching Emphasis without licensure.....	20
Grade Point Average to Declare a Major or Minor.....	2.75 Career GPA
Grade Point Average to Graduate with Major or Minor.....	2.75 Career GPA and 3.00 GPA within Major/Minor Classes

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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 3300²³, 4300²³, SPAN 3010, 3520, 4920). At least half (50 percent) of credits for degrees must be completed through USU or sponsored¹⁶ programs.

Spanish Major (34 credits) (3.00 GPA)

A. Required Courses (22 credits)

LING 4100 The Study of Language (F,Sp)..... 3

Select at least one of the following two courses:

SPAN 3040 Advanced Spanish Grammar (F,Sp)..... 3

SPAN 3800¹⁷ Spanish III Study Abroad (Su)..... 1-4

Select at least one of the following three courses:

SPAN 3550 (DHA) Spanish Culture and Civilization (F)..... 3

SPAN 3570 (DHA) Latin American Culture and Civilization (Sp)..... 3

SPAN 4800¹⁷ 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 3650¹⁷ Spanish Literature—Study Abroad (Su)..... 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 3660¹⁷ Latin American Literature—Study Abroad (Su)..... 1-4

Select at least one of the following two courses:

SPAN 4900¹⁷ Topics of Spanish Literature (F,Sp)..... 3

SPAN 4910¹⁷ Topics of Latin American Literature (F,Sp)..... 3

SPAN 4990 Spanish Degree Assessment (F,Sp,Su)^{18,24}..... 1

B. Elective Courses (12 credits)

Students must complete 12 additional credits in courses either *not taken above* or *selected from the following list*:

SPAN 3010^{17,18,19} Hispanic Outreach Practicum (P/F only)
(F,Sp,Su)..... 1-4

SPAN 3060 (CI) Advanced Spanish Conversation
and Composition (F)..... 3

SPAN 3510 Business Spanish (F)..... 3

SPAN 3520^{17,18,19} Business Spanish Practicum (P/F only)
(F,Sp,Su)..... 1-4

SPAN 4200²⁰ Applied Spanish Linguistics and Phonetics (Sp)..... 3

SPAN 4880^{17,18,21} Individual Readings (F,Sp)..... 1-4

SPAN 4920^{17,18,19,22} Spanish Language Tutoring (P/F only) (F,Sp,Su) .. 1

LING 4900 Analysis of Cross-Cultural Difference (Sp)..... 3

Sample Four-year Plan for Spanish Major

Minimum GPA for Admission: 2.75, Career

Minimum GPA for Graduation: 3.0, major courses; 2.75, Career

Minimum Grade Accepted: C- in major courses

This is a sample plan. It outlines 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.

Freshman Year (32 credits)

Fall Semester (16 credits)

SPAN 1010 Spanish First Year I..... 4

ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3

University Studies Breadth courses 9

Spring Semester (16 credits)

SPAN 1020 Spanish First Year II..... 4

University Studies Quantitative Literacy (QL) course..... 3

University Studies Breadth courses 9

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (29 credits)

Fall Semester (16 credits)

SPAN 2010 Spanish Second Year I 4

ENGL 2010 (CL2) Intermediate Writing: Research Writing
in a Persuasive Mode 3

Depth Social Sciences (DSS) course 3

Quantitative Intensive (QI) course 3

Elective course(s)..... 3

Spring Semester (13 credits)

SPAN 2020 Spanish Second Year II 4

Depth Life and Physical Sciences (DSC) course 3

Communications Intensive (CI) course 3

Elective Course(s) 3

Junior Year (30 credits)

Fall Semester (15 credits)

LING 4100 The Study of Language..... 3

SPAN 3040 Advanced Spanish Grammar..... 3

SPAN 3060 (CI) Advanced Spanish Conversation and Composition..... 3

SPAN 3550 Spanish Culture and Civilization 3

Elective course(s)..... 3

Spring Semester (15 credits)

SPAN 3570 Latin American Culture and Civilization 3

SPAN 3600 Survey of Spanish Literature I 3

SPAN 3620 Survey of Latin American Literature I..... 3

Elective courses 6

Senior Year (30 credits)

Fall Semester (15 credits)

SPAN 3610 Survey of Spanish Literature II 3

SPAN 3630 Survey of Latin American Literature II..... 3

SPAN 4200 Applied Spanish Linguistics and Phonetics 3

Elective courses 6

Spring Semester (15 credits)

SPAN 4900 Topics of Spanish Literature (3 cr) or

SPAN 4910 Topics of Latin American Literature (3 cr) 3

SPAN 4990 Spanish Degree Assessment..... 1

Elective courses 11

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,

Department of Languages, Philosophy, and Speech Communication

students with a teaching emphasis must also complete additional courses (approximately 31 credits) required by the Department of Secondary Education. For more information, please contact the Department of Secondary Education, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on pages 373-374. Information is also provided on the Web at: <http://www.coe.usu.edu/seced/>

I. Spanish and Linguistics Courses (34 credits)

A. Required Courses (26 credits)

LING 4100	The Study of Language (F,Sp)	3
SPAN 4200 ²⁰	Applied Spanish Linguistics and Phonetics (Sp)	3
SPAN 4920 ^{17,18,19,22}	Spanish Language Tutoring (P/F only) (F,Sp,Su)	1

Select at least one of the following two courses:

SPAN 3040	Advanced Spanish Grammar (F,Sp)	3
SPAN 3800 ¹⁷	Spanish III Study Abroad (Su)	1-4

Select at least one of the following three courses:

SPAN 3550 (DHA)	Spanish Culture and Civilization (F)	3
SPAN 3570 (DHA)	Latin American Culture and Civilization (Sp)	3
SPAN 4800 ¹⁷	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 ¹⁷	Spanish Literature—Study Abroad (Su)	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 ¹⁷	Latin American Literature—Study Abroad (Su)	1-4

Select at least one of the following two courses:

SPAN 4900 ¹⁷	Topics of Spanish Literature (F,Sp)	3
SPAN 4910 ¹⁷	Topics of Latin American Literature (F,Sp)	3

SPAN 4990	Spanish Degree Assessment (F,Sp,Su) ^{18,24}	1
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B. Elective Courses (8 credits)

Students must complete 8 additional credits in courses either *not taken above or selected from the following list*:

SPAN 3010 ^{17,18,19}	Hispanic Outreach Practicum (P/F only) (F,Sp,Su)	1-4
SPAN 3060 (CI)	Advanced Spanish Conversation and Composition (F)	3
SPAN 3510	Business Spanish (F)	3
SPAN 3520 ^{17,18,19}	Business Spanish Practicum (P/F only) (F,Sp,Su)	1-4
SPAN 4880 ^{17,18,21}	Individual Readings (F,Sp)	1-4
LING 4900	Analysis of Cross-Cultural Difference (Sp)	3

Sample Four-year Plan for Spanish Major, Spanish Teaching Emphasis

Minimum GPA for Admission: 2.75, Career

Minimum GPA for Graduation: 3.0, major courses; 2.75, Career

Minimum Grade Accepted: C- in major courses

This is a sample plan. It outlines 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.

Freshman Year (26 credits)

Fall Semester (13 credits)

SPAN 1010	Spanish First Year I	4
ENGL 1010 (CL1)	Introduction to Writing: Academic Prose	3
	University Studies Breadth courses	6

Spring Semester (13 credits)

SPAN 1020	Spanish First Year II	4
	University Studies Quantitative Literacy (QL) course	3
	University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

SPAN 2010	Spanish Second Year I	4
ENGL 2010 (CL2)	Intermediate Writing: Research Writing in a Persuasive Mode	3
	Teaching Minor course	3
	University Studies Breadth courses	6

Spring Semester (16 credits)

SPAN 2020	Spanish Second Year II	4
	Depth Life and Physical Sciences (DSC) course	3
	Quantitative Intensive (QI) course	3
	Teaching Minor courses	6

Junior Year (28 credits)

Fall Semester (15 credits)

LING 4100	The Study of Language	3
SPAN 3040	Advanced Spanish Grammar	3
SPAN 3060 (CI)	Advanced Spanish Conversation and Composition	3
SPAN 3550	Spanish Culture and Civilization	3
	Teaching Minor course	3

Spring Semester (13 credits)

LING 3300	Clinical Experience I	1
LING 4400	Teaching Modern Languages	3
SPAN 3570	Latin American Culture and Civilization	3
SPAN 3600	Survey of Spanish Literature I	3
SPAN 3620	Survey of Latin American Literature I	3

Senior Year (28 credits)

Fall Semester (16 credits)

SPAN 3610	Survey of Spanish Literature II	3
SPAN 3630	Survey of Latin American Literature II	3
SPAN 4200	Applied Spanish Linguistics and Phonetics	3
SPAN 4920	Spanish Language Tutoring	1
	Teaching Minor courses	6

Spring Semester (12 credits)

SCED 3100	Motivation and Classroom Management	3
SCED 3210 (CI/DSS)	Educational and Multicultural Foundations	3
SCED 4200 (CI)	Reading, Writing, and Technology	3
SCED 4210	Cognition and Evaluation of Student Learning	3

Certification Year (25 credits)

Fall Semester (12 credits)

INST 3500	Technology Tools for Secondary Teachers	1
SPAN 4900	Topics of Spanish Literature (3 cr) or	
SPAN 4910	Topics of Latin American Literature (3 cr)	3
SPED 4000	Education of Exceptional Individuals	2
	Teaching Minor Certification courses	6

Department of Languages, Philosophy, and Speech Communication

Spring Semester (13 credits)

LING 5500 Student Teaching Seminar	2
LING 5630 Student Teaching in Secondary Schools	10
SPAN 4990 Spanish Degree Assessment	1

Spanish Minor (16 credits) (3.00 GPA)

A. Required Courses (13 credits)

Select at least *one* of the following two courses:

SPAN 3040 Advanced Spanish Grammar (F,Sp)	3
SPAN 3800 ¹⁷ Spanish III Study Abroad (Su)	1-4

Select at least *three* of the following nine courses:

Select *one or two* courses from this group:

SPAN 3550 (DHA) Spanish Culture and Civilization (F)	3
SPAN 3570 (DHA) Latin American Culture and Civilization (Sp)	3
SPAN 4800 ¹⁷ Hispanic Culture and Civilization— Study Abroad (Su)	1-4

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 3620 (DHA) Survey of Latin American Literature I (F,Sp)	3
SPAN 3630 (DHA) Survey of Latin American Literature II (F,Sp)	3
SPAN 3650 ¹⁷ Spanish Literature—Study Abroad (Su)	1-4
SPAN 3660 ¹⁷ Latin American Literature—Study Abroad (Su)	1-4

SPAN 4990 Spanish Degree Assessment (F,Sp,Su) ^{18,24}	1
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B. Elective Courses (3 credits)

Students must complete 3 additional credits in courses either *not taken above or selected from the following list*:

SPAN 3010 ^{17,18,19} Hispanic Outreach Practicum (P/F only) (F,Sp,Su)	1-4
SPAN 3060 (CI) Advanced Spanish Conversation and Composition (F)	3
SPAN 3510 Business Spanish (F)	3
SPAN 3520 ^{17,18,19} Business Spanish Practicum (P/F only) (F,Sp,Su)	1-4
SPAN 4200 ²⁰ Applied Spanish Linguistics and Phonetics (Sp)	3
SPAN 4920 ^{17,18,19,22} Spanish Tutoring Practicum (P/F only) (F,Sp,Su)	1
LING 4100 The Study of Language (F,Sp)	3
LING 4900 Analysis of Cross-Cultural Difference (Sp)	3

Spanish Minor—Teaching Emphasis (16 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 Department of Secondary Education. For more information, please contact the Department of Secondary Education, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on pages 373-374. Information is also provided on the Web at: <http://www.coe.usu.edu/seced/>

Required Courses (16 credits)

SPAN 4200 ²⁰ Applied Spanish Linguistics and Phonetics (Sp)	3
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Select at least *one* of the following two courses:

SPAN 3040 Advanced Spanish Grammar (F,Sp)	3
SPAN 3800 ¹⁷ Spanish III Study Abroad (Su)	1-4

Select at least *three* of the following nine courses:

Select *one or two* courses from this group:

SPAN 3550 (DHA) Spanish Culture and Civilization (F)	3
SPAN 3570 (DHA) Latin American Culture and Civilization (Sp)	3
SPAN 4800 ¹⁷ Hispanic Culture and Civilization—Study Abroad (F,Sp,Su)	1-4

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 3620 (DHA) Survey of Latin American Literature I (F,Sp)	3
SPAN 3630 (DHA) Survey of Latin American Literature II (F,Sp)	3
SPAN 3650 ¹⁷ Spanish Literature—Study Abroad (F,Sp,Su)	1-4
SPAN 3660 ¹⁷ Latin American Literature—Study Abroad (F,Sp,Su)	1-4

SPAN 4990 Spanish Degree Assessment (F,Sp,Su) ^{18,24}	1
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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 pages 373-374.

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 3300²³ or LING 4300²³ (1 credit) and LING 4400²³ (3 credits), for a total of 38 credits.

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 (16 credits), plus either LING 3300²³ or 4300²³ (1 credit) and LING 4400²³ (3 credits) for a total of 20 credits.

¹⁶A program is considered "sponsored" if students pay the fees to participate directly to USU.

¹⁷This course may be repeated for additional credit.

¹⁸Enrollment in this course is by permission of instructor only.

¹⁹Only 3 credits maximum in practicum courses may count toward a Spanish major or minor.

²⁰This course is required for a teaching emphasis in the Spanish major or minor.

²¹This course is only open to those who have first completed 45 credits in the program.

²²This practicum is required for a teaching emphasis in the Spanish major or minor.

²³LING 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.

²⁴SPAN 4990 is the *final* requirement for all Spanish majors and minors, and should be completed during the *last semester* before graduation.

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.

Department of Languages, Philosophy, and Speech Communication

A. Level 1 (first semester in program)

SCED 3100 Motivation and Classroom Management (F,Sp)	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp)	3
LING 3300/4300^{25,27} Clinical Experience I and II (F,Sp) (P/F only)	1
LING 4400^{26,27} Teaching Modern Languages (F,Sp)	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

²⁵The Clinical Experience II course is taught under course number 4300 in various departments. Course title varies among departments.

²⁶The Special Methods II course is taught under course number 4400.

²⁷LING 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 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 3050²⁸ Japanese Calligraphy (Sp)	1

JAPN 3100 Readings in Contemporary Japanese Culture (F)	3
JAPN 3510 Japanese for the Business Environment (Sp)	3
JAPN 4920²⁸ Japanese Language Tutoring (F,Sp)	1

Portuguese Minor

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 Brazilian Culture and Civilization (must be completed at USU) (F)	3
PORT 3630 Survey of Brazilian Literature (must be completed at USU) (Sp)	3

²⁸This course is repeatable for credit, and may be taken a *maximum* of three times.

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

Linguistics Minor

Select 3 credits from the following courses:

LING 4100 The Study of Language (F,Sp)	3
ENGL 3020 (DHA) Perspectives in Linguistics (Sp)	3
ENGL 4200 Linguistic Structures (F,Sp,Su)	3

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 4230 Language and Society (F)	3
ENGL 5210 Topics in Linguistics (F)	3

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.

Department of Languages, Philosophy, and Speech Communication

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, and Spanish) 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. For program information, contact the USU Study Abroad Office, Student Center 313, or visit their website at: <http://www.usu.edu/stdyabrd>

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.

9Sigma 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), page 592.

French (FREN), pages 628-629.

German (GERM), pages 638-639.

Italian (ITAL), page 652.

Japanese (JAPN), page 652.

Korean (KOR), page 655.

Language (LANG), pages 657-658.

Linguistics (LING), pages 658-659.

Navajo (NAV), pages 675-676.

Portuguese (PORT), pages 696-697.

Russian (RUSS), page 705.

Spanish (SPAN), pages 713-714.

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 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.

Courses for Philosophy Majors and Minors *may not* be taken on a *Pass/Fail* basis.

Department of Languages, Philosophy, and Speech Communication

Bachelor of Arts (BA) degree additional requirements include two years of language, or same as University Requirement (see *Bachelor of Arts* section, page 58).

Bachelor of Science (BS) degree additional requirements include PHIL 2200 and 4310 and 12 credits of Math and/or Science.

Course Requirements

Bachelor of Arts in Philosophy (30 credits) (2.5 GPA)

All philosophy majors must complete 30 credits of philosophy. PHIL 3100, 3120, 4300, and 4400 may *not* be taken on a *pass/fail* basis for the philosophy major. The requirements are distributed as follows:

A. Required Courses (21 credits)

PHIL 1120 (BHU) Social Ethics (F) (3 cr) or	
PHIL 2400 (BHU) Ethics (Sp) (3 cr)	3
PHIL 1200 (BHU) ²⁹ Practical Logic (Sp) (3 cr) or	
PHIL 2200 (QI) Deductive Logic (F,Sp) (3 cr)	3
PHIL 3100 (CI) ³⁰ Ancient Philosophy (F)	3
PHIL 3120 (CI) ³⁰ Early Modern Philosophy (F)	3

Choose one course from the following:

PHIL 3500 Medical Ethics (F)	3
PHIL 3510 ²⁹ Environmental Ethics (F,Sp)	3
PHIL 3520 ²⁹ Business Ethics (Sp)	3
PHIL 4500 ²⁹ Contemporary Ethical Theory (Sp)	3
PHIL 4530 (DSC) ²⁹ Ethics and Biotechnology (Sp)	3
PHIL 4540 (DHA) ²⁹ Human Values and Information Technology (Sp) ..	3
PHIL 4610 (DHA) ²⁹ Social and Political Philosophy (Sp)	3

Choose two of the following courses, at least one of which must be PHIL 4300 or 4400:

PHIL 4300 (DHA) ³⁰ Epistemology (F)	3
PHIL 4310 (DHA) Philosophy of Science (Sp)	3
PHIL 4400 ³⁰ Metaphysics (F)	3
PHIL 4410 (DHA) Philosophy of Mind (F)	3
PHIL 4420 ²⁹ Philosophy of Language (Sp)	3

B. Elective Courses (9 credits)

Choose three other upper-division philosophy courses from the following list of courses:

PHIL 3110 ²⁹ Medieval Philosophy (Sp)	3
PHIL 3150 (CI) ²⁹ Kant and His Successors (Sp)	3
PHIL 3160 (CI) ³⁰ Contemporary Philosophy (F)	3
PHIL 3180 (CI) ³⁰ Contemporary European Philosophy (F)	3
PHIL 3500 Medical Ethics (F)	3
PHIL 3510 (DHA) Environmental Ethics (F,Sp)	3
PHIL 3520 (DHA) Business Ethics (Sp)	3
PHIL 3700 Philosophy of Religion (F)	3
PHIL 3710 ³⁰ Philosophies of East Asia (F)	3
PHIL 3720 ³⁰ Philosophical Theology After Kant (F)	3
PHIL 3730 (CI) ²⁹ Philosophy of the New Testament (Sp)	3
PHIL 3750 Religion and Science in the Modern World (Sp)	3
PHIL 3800 (DHA) Philosophy in Literature (F)	3
PHIL 3810 (DHA) Aesthetics (Sp)	3
PHIL 4300 (DHA) ³⁰ Epistemology (F)	3
PHIL 4310 (DHA) Philosophy of Science (Sp)	3
PHIL 4320 (DHA) ²⁹ History of Scientific Thought (Sp)	3
PHIL 4400 ³⁰ Metaphysics (F)	3
PHIL 4410 (DHA) Philosophy of Mind (F)	3
PHIL 4420 ²⁹ Philosophy of Language (Sp)	3
PHIL 4500 ²⁹ Contemporary Ethical Theory (Sp)	3
PHIL 4530 (DSC) Ethics and Biotechnology (Sp)	3
PHIL 4540 (DHA) ²⁹ Human Values and Information Technology (Sp) ..	3

PHIL 4600 ³⁰ Philosophy of Law (F)	3
PHIL 4610 (DHA) ²⁹ Social and Political Philosophy (Sp)	3
PHIL 4900 ³¹ Special Topics (F,Sp)	3
PHIL 4910 ³¹ Readings and Research (F,Sp)	1-4
PHIL 4920H Senior Honors Seminar (Sp)	1
PHIL 4930H ³¹ Senior Honors Thesis (F,Sp,Su)	1-4
PHIL 4990 Philosophy Seminar (Sp)	3
PHIL 5200 ²⁹ Symbolic Logic (Sp)	3
PHIL 5510 ³⁰ Ethics and the Environment (F)	3
PHIL 5600 Legal Ethics (F)	3

In addition, other University Studies courses, as required by the University, must be completed. To receive a Bachelor of Arts (BA) degree, students must also complete the foreign language requirement.

²⁹This course is taught spring semester, alternate years.

³⁰This course is taught fall semester, alternate years.

³¹This course is repeatable for credit.

Bachelor of Science in Philosophy (30 credits) (2.5 GPA)

The requirements for the Bachelor of Science (BS) in Philosophy are the same as those for the Bachelor of Arts (BA), with these additional limitations: (1) no foreign language instruction is necessary, (2) PHIL 2200 and 4310 must be taken, and (3) 12 credits in Mathematics and/or Science courses beyond the University Studies requirements must be completed.

Sample Four-year Plan for Philosophy Major

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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
PHIL 1200 (BHU) Practical Logic	3
University Studies Breadth courses	6
Degree Requirement (BS or BA) course	3

Spring Semester (15 credits)

Quantitative Literacy (QL) course	3
University Studies Breadth courses	6
Degree Requirement (BS or BA) course	3
Elective course(s)	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
PHIL 1120 (BHU) Social Ethics (3 cr) or	
PHIL 2400 (BHU) Ethics (3 cr)	3

Department of Languages, Philosophy, and Speech Communication

PHIL 2200 (QI) Deductive Logic.....	3
Degree Requirement (BS or BA) course	3
Elective course(s).....	3

Spring Semester (15 credits)

PHIL upper-division courses ³²	6
Degree Requirement (BS or BA) course	3
Depth Life and Physical Sciences (DSC) course	3
Depth Social Sciences (DSS) course	3

Junior Year (30 credits)

Fall Semester (15 credits)

PHIL upper-division courses ³²	6
Elective courses	9

Spring Semester (15 credits)

PHIL upper-division courses ³²	6
Elective courses	9

Senior Year (30 credits)

Fall Semester (15 credits)

PHIL upper-division course ³²	3
Upper-division elective courses.....	10
Elective course(s).....	2

Spring Semester (15 credits)

Upper-division elective course	3
Elective courses	12

³²These courses should be selected from the upper-division philosophy courses (numbered 3000 or higher) shown under A. *Required Courses* and B. *Elective Courses* on page 376.

Philosophy Minor (18 credits) (2.5 GPA)

Six courses in Philosophy, at least four of which must be at the upper-division level, must be completed for a philosophy minor.

Philosophy Course Descriptions

Philosophy (PHIL), pages 687-689.

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.

The **speech major** emphasizes organizational communication. Organizational communication is the study of how communication creates organizations and of how organizations shape communication. Coursework in the program addresses the theories and analytical skills enabling students to identify common communication problems arising in organizational contexts and to develop appropriate communication policies and practices. The program also teaches important aspects of intercultural and interpersonal communication theory.

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.

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.

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...	2.5 Career GPA and 2.5 GPA within Major/Minor Classes

Note:

As many as 15 credits for the Major and 6 credits for the Minor completed at other colleges or universities may be used to partially satisfy these requirements, with advisor permission only.

Course Requirements

Speech Major (30 credits) (2.5 GPA in 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. Organizational Communication Theory (9-12 credits)

SPCH 3250 (CI) Organizational Communication (F).....	3
SPCH 3330 (DSS) Intercultural Communication (F)	3

Department of Languages, Philosophy, and Speech Communication

SPCH 3400 (CI) Persuasion (F).....	3
SPCH 5000 Studies in Speech Communication (repeatable) (F,Sp)	3
SPCH 5090 Small Group Theory (Sp).....	3
SPCH 5250 Environmental Rhetoric (Sp)	3
SPCH 5280 Communication Education Theory (Sp).....	3
JCOM 3400 (DSS) Gender and Communication (F,Sp).....	3

D. Organizational Communication Application (9-12 credits)

SPCH 2270 Argumentation and Debate (F)	3
SPCH 2280 Listening (Sp)	2
SPCH 3000 Speech Communication Teaching Practicum (repeatable) (Sp)	1
SPCH 3050 (DSS) Technical and Professional Communication (Sp) ...	3
SPCH 3600 Communication and Conflict (F).....	3
SPCH 4800 (CI) Nonverbal Communication (F)	3
LING 4900 Analysis of Cross-Cultural Difference (Sp).....	3
BIS 4350 Introduction to Training and Development (Sp).....	3
BIS 5660 The Adult Business Learner	3
MHR 3710 Developing Team and Interpersonal Skills (F,Sp).....	3
MHR 3820 (DSS) International Management (F,Sp)	3
HASS 2250 ³³ Introductory Internship/Co-op (F,Sp,Su)	1-5
HASS 4250 ³³ Advanced Internship/Co-op (F,Sp,Su).....	1-15

³³Internship project and number of credits must be approved by advisor.

Sample Four-year Plan for Speech Major

Minimum GPA for Admission: 2.5, Career
Minimum GPA for Graduation: 2.5, major courses; 2.5, USU; 2.0, Career
Minimum Grade Accepted: C- in major courses

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)	
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
SPCH 1020 (CI) Public Speaking.....	3
Quantitative Literacy (QL) course.....	3
University Studies Breadth courses	6

Spring Semester (15 credits)

University Studies Breadth courses	9
Elective courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)	
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
SPCH 2110 (CI) Interpersonal Communication.....	3
University Studies Breadth course	3
Elective courses	6

Spring Semester (15 credits)

Organizational Communication Application course ³⁴	3
Quantitative Intensive (QI) course.....	3
Elective courses	9

Junior Year (30 credits)

Fall Semester (15 credits)	
Organizational Communication Theory upper-division course ³⁴	3
Depth Social Sciences (DSS) course	3
Elective courses	9

Spring Semester (15 credits)

Organizational Communication Application course ³⁴	3
Organizational Communication Theory upper-division course ³⁴	3
Depth Life and Physical Sciences (DSC) course	3
Elective courses	6

Senior Year (30 credits)

Fall Semester (15 credits)	
Organizational Communication Application upper-division course ³⁴	3
Organizational Communication Theory upper-division course ³⁴	3
Upper-division elective courses.....	9

Spring Semester (15 credits)

SPCH 5100 (CI) Theories of Speech Communication	3
Organizational Communication Application upper-division course ³⁴ (3 cr) or Organizational Communication Theory upper-division course ³⁴ (3 cr).....	3
Upper-division elective course	7
Elective course(s).....	2

³⁴See sections C. *Organizational Communication Theory* and D. *Organizational Communication Application* for approved courses (page 378).

Speech Communication Minor Programs

Organizational Communication Minor (15 credits) (2.5 GPA)

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.

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 Department of Secondary Education. SPCH 5370 and *either* SPCH 3300 or 4300 are part of the STEP requirements. For more information, please contact the Department of Secondary Education, Education Building 330, or review the supplementary section, entitled *Secondary Teacher Education Program (STEP) Level Outline* on pages 373-374. Information is also provided on the Web at: <http://www.coe.usu.edu/seced/>

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.

Department of Languages, Philosophy, and Speech Communication

I. 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

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 pages 373-374.

Speech Communication Course Descriptions

Speech Communication (SPCH), pages 714-715.

Languages, Philosophy, and Speech Communication Faculty

Professors

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
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

M. Isela Chiu, Spanish, Portuguese, Latin American literature
María-de Jesús Cordero, colonial Spanish-American literature
Charlie Huenemann, history of modern philosophy, Kant, metaphysics
Harold J. Kinzer, organizational communication
Taira Koybaeva, Russian, Linguistics, intercultural relationships
Renate Posthofen, German language and literature, contemporary culture and film
John S. Seiter, interpersonal communication, intercultural relations, social influence
Gordon Steinhoff, philosophy of science, logic, metaphysics

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
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

Anne F. Carlson, Francophone literature and culture
Javier Domínguez-García, Spanish medieval and golden age
Susan J. Dudash, late medieval French literature
Sarah Gordon, medieval French
Xenia Srebrianski Harwell, German and Russian literature
Jennifer A. Peeples, environmental rhetoric
J. P. Spicer-Escalante, 19th century Latin American literature
María Luisa Spicer-Escalante, Hispanic applied linguistics
Felix W. Tweraser, 20th century Austrian literature

Assistant Professor Emeritus

Valentine Suprunowicz, Russian literature

Principal Lecturer Emeritus

Viva L. Lynn, Spanish literature

Lecturers

Karin de Jonge-Kannan, second language acquisition
Kevin L. Krogh, Spanish
Atsuko O. Neely, Japanese, second language acquisition

Latin American Studies Minor

Coordination:

M. Isela Chiu-Olivares, Associate Professor of Spanish and Portuguese, Department of Languages, Philosophy, and Speech Communication, isela@cc.usu.edu

William L. Furlong, Professor, Department of Political Science, bill.furlong@usu.edu

Bonnie Glass-Coffin, Associate Professor, Department of Sociology, Social Work and Anthropology, glasscob@cc.usu.edu

James Sanders, Assistant Professor, History Department, jsanders@hass.usu.edu

J.P. Spicer-Escalante, Assistant Professor of Spanish, Department of Languages, Philosophy, and Speech Communication, jpspicer@cc.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*.

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 Brazilian Culture and Civilization (F) 3
 PORT 3630¹ Survey of Brazilian Literature (Sp) 3
 PORT 3800¹ Portuguese III Study Abroad (Su) 3

SPAN 3570 (DHA) Latin American Culture and Civilization (Sp) 3
 SPAN 3620 (DHA)¹ Survey of Latin American Literature I (F,Sp) 3
 SPAN 3630 (DHA)¹ Survey of Latin American Literature II (F,Sp) 3
 SPAN 3800¹ Spanish III Study Abroad (Su) 1-4
 SPAN 4800² Hispanic Culture and Civilization—Study Abroad (Su) .. 1-4
 SPAN 4910¹ Topics of Latin American Literature (F,Sp) 3

D. 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

¹Requires a proficiency in Spanish or Portuguese at the 3000 level or above.

²Requires a proficiency in Spanish at the 2000 level or above.

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/ats/majorsheets/>

Course Description

Latin American Studies (LATS), page 658.

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: mary.leavitt@usu.edu or lynne.slade@usu.edu
WWW: http://www.usu.edu/chac

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 2.3 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 49-57 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. 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 *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

3. 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

Minimum GPA for Admission: 2.3, Career
Minimum GPA for Graduation: 2.0, major courses; 2.3, USU
Minimum Grade Accepted: C in major courses

This is a sample plan. It outlines 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.

Freshman Year (32 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
Foreign Language 1010-level course	4
University Studies Breadth courses	6
Elective course(s)	3

Spring Semester (16 credits)

Foreign Language 1020-level course	4
University Studies Breadth courses	6
Quantitative Literacy (QL) course	3
Elective course(s)	3

Complete the CIL exams by the end of the Freshman Year.

Liberal Arts Major

Sophomore Year (32 credits)

Fall Semester (16 credits)

Goal Three—Arts or Literature Course ¹	3
Foreign Language 2010-level course	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing	
in a Persuasive Mode	3
University Studies Breadth course	3
Elective course(s)	3

Spring Semester (16 credits)

Goal One—Historical/Cultural Traditions course ¹	3
Goal Two—Social Sciences course ¹	3
Goal Four—Critical/Ethical Inquiry course ¹	3
Foreign Language 2020-level course	4
Quantitative Intensive (QI) course	3

Junior Year (30 credits)

Fall Semester (15 credits)

University Studies Breadth course	3
Goal Two—Social Sciences course ¹	3
Goal Four—Critical/Ethical Inquiry course ¹	3
Communications Intensive (CI) course	3
Upper-division elective course	3

Spring Semester (15 credits)

Goal One—Historical/Cultural Traditions course ¹	3
Goal Three—Arts or Literature course ¹	3
Goal Four—Critical/Ethical Inquiry course ¹	3
Upper-division elective courses	6

Senior Year (26 credits)

Fall Semester (12 credits)

Goal One—Historical/Cultural Traditions course ¹	3
Depth Social Sciences (DSS) course	3
Communications Intensive (CI) course	3
Upper-division elective course	3

Spring Semester (14 credits)

Goal Two—Social Sciences course ¹	3
Goal Three—Arts or Literature course ¹	3
Depth Life and Physical Sciences (DSC) course	3
Upper-division elective courses	4
Elective course	1

¹Of the 36 credits required for the major, 18 credits must be completed in upper-division courses numbered 3000 or higher.

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/ats/majorsheets/>

Course Description

Liberal Arts (LAS), page 658.

Department of Management and Human Resources

Department Head: Gaylen N. Chandler
Location: Business 415
Phone: (435) 797-1789
FAX: (435) 797-1091
E-mail: mhr@usu.edu
WWW: <http://www.usu.edu/cob/mhr/>

Undergraduate Advisor:
Megen Ralphs, Business 309, (435) 797-2272,
megen.ralphs@usu.edu

Graduate Program Director:
Glenn M. McEvoy, Business 807, (435) 797-2375,
glenn.mcevoy@usu.edu

Graduate Program Advisor:
Mary Jo Blahna, Business 809, (435) 797-2360,
maryjo.blahna@usu.edu

Degrees offered: Bachelor of Science (BS) and Bachelor of Arts (BA) in Entrepreneurship; BS and BA in Human Resource Management; Master of Science (MS) in Human Resources

The department also participates in the College of Business Master of Business Administration (MBA) Degree. A description of the MBA degree and program requirements can be found on pages 197-198. 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 programs in the Department of Management and Human Resources are designed to prepare students for administrative and leadership positions in business, government, and other institutions. Specialized training is provided in Entrepreneurship and Human Resource Management, as well as training directed at understanding the broader aspects of business as it functions within a national and international environment.

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.

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.

Departmental Honors

See *Honors in Business* description in the College of Business section of this catalog (page 112).

Learning Objectives and Assessment

Assessment information for the Management and Human Resources Department can be found online at:
http://www.usu.edu/cob/mhr/dept_info/assess.htm

College of Business Admission Requirements

All students majoring in entrepreneurship or human resource management must satisfy the College of Business admission requirements, provided on pages 112-113. Academic advising about these requirements is available in the College of Business Career and Education Opportunities 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 49-57 of this catalog.

Matriculation Requirement and Transfer Limitation

No more than 15 USU College of Business credits (ACCT, BA, BIS, BUS, MHR), numbered 2000 and above, earned as a nonbusiness major (before acceptance into the College of Business) can be applied to a College of Business degree. More than 15 business credits can be transferred from other accredited institutions. However, additional USU College 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 College of Business major, at least 50 percent of the required College of Business credits must be earned from coursework taken from the Utah State University College of Business.

USU Credits and Business Credits

At least 30 of the last 60 semester credits must be taken from Utah State University, 10 of which must be included within the last 40 credits presented for the degree. At least 50 percent of the College of Business credits required for a College of Business degree must be taken from the Utah State University College of Business or its departments, which include: School of Accountancy, Business Administration, Business Information Systems, Economics, and Management and Human Resources.

College of Business Core

All majors in the Department of Management and Human Resources 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 College of Business.

Pre-Business Course Requirements (13 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp)	3
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
STAT 2300 (QL) Business Statistics (F,Sp,Su)	4
PSY 1010 (BSS) General Psychology (F,Sp,Su) (3 cr) or	
SOC 1010 (BSS) Introductory Sociology (F,Sp) (3 cr)	3

Department of Management and Human Resources

All 3000-, 4000-, and 5000-level courses in the College of Business are restricted to students admitted to the College of Business or another USU major with an overall GPA of at least 2.67 and completion of at least 40 credits.

College 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
BA 3400 (QI) Corporate Finance (F,Sp,Su)	3
BA 3500 Fundamentals of Marketing (F,Sp,Su)	3
BA 3700 Operations Management (F,Sp,Su)	3
BIS 2100 Principles of Management Information Systems (F,Sp,Su)	3
BIS 2200 (CI) Business Communication (F,Sp,Su)	3
BUS 3250 Discussions With Business Leaders (F,Sp)	1
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp)	3
ECON 3400 International Economics for Business (F,Sp,Su)	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su)	3
MHR 3110 Managing Organizations and People (F,Sp,Su)	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context (F,Sp,Su) (3 cr) or	
MHR 4890 (CI) Business Strategy in a Global Context (F,Sp,Su) (3 cr)	3

Requirements for Majors

Entrepreneurship (15 credits)

MHR 3510 Fundamentals of Entrepreneurship (F)	3
MHR 3520 Relationship and Organizational Competencies for Entrepreneurs (Sp)	3
MHR 3710 Developing Team and Interpersonal Skills (F,Sp)	3
MHR 3820 International Management (F,Sp)	3
MHR 4510 Senior Seminar in Entrepreneurship (F)	3

Students completing the Entrepreneurship major requirements must take **MHR 4880** as their senior capstone course in the Business Core requirements. Students should also note that **MHR 3510 and 3520** must be taken prior to **MHR 4510**.

Human Resource Management (15 credits)

Required Courses (9 credits)

MHR 3710 Developing Team and Interpersonal Skills (F,Sp)	3
MHR 3820 International Management (F,Sp)	3
MHR 4630 Human Resource Management (F,Sp)	3

Elective Courses (select 6 credits)

Students must complete at least **two** of the following:

MHR 3810 (DSS) Employment Law and Policy Development (F,Sp)	3
BIS 4350 Introduction to Training and Development (Sp) (3 cr) or	
ECON 5660 Training and Organizational Development (Sp) (2 cr)	2 or 3
ECON 5680 Labor Economics (Sp)	3
PUBH 3310 Occupational Health and Safety (F)	3
ANTH 3200 (DSS/CI) Perspectives on Race (Sp)	3
SOC 3500 Social Psychology (F,Sp)	3
SPCH 3250 (CI) Organizational Communication (F) (3 cr) or	
SPCH 3330 (DSS) Intercultural Communication (F) (3 cr) or	
SPCH 3600 Communication and Conflict (F) (3 cr)	3
PHIL 3520 (DHA) Business Ethics (Sp) (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 College of Business student elects to take a minor, he or she is encouraged to select one from outside the College of Business.

Four-Year Degree Plans (8 Semesters)

Four-year degree plans for majors in the Management and Human Resources Department can be found on pages 385-386 and at: <http://www.usu.edu/cobssc/web/fouryeardegreeplans.htm>

Requirements for Minors

A minor in Management and a minor in 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 2.50 GPA in the minor courses is required.

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:

MHR 3110 Managing Organizations and People (F,Sp,Su)	3
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Select three courses from the following:

MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su)	3
MHR 3510 Fundamentals of Entrepreneurship (F)	3
MHR 3520 Relationship and Organizational Competencies for Entrepreneurs (Sp)	3
MHR 3710 Developing Team and Interpersonal Skills (F,Sp)	3
MHR 3810 Employment Law and Policy Development (Prerequisite: MHR 2050) (F,Sp)	3
MHR 3820 International Management (F,Sp)	3
MHR 4510 Senior Seminar in Entrepreneurship (Prerequisites: MHR 3510 and 3520) (F)	3
MHR 4630 Human Resource Management (F,Sp)	3
PHIL 3520 (DHA) Business Ethics (Sp)	3
BIS 4350 Introduction to Training and Development (Sp) (3 cr) or	
ECON 5660 Training and Organizational Development (Sp) (2 cr)	2 or 3
ECON 5680 Labor Economics (Sp)	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:

MHR 3110 Managing Organizations and People (F,Sp,Su)	3
MHR 4630 Human Resource Management (F,Sp)	3

Select two courses from the following:

MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su)	3
MHR 3710 Developing Team and Interpersonal Skills (F,Sp)	3
MHR 3810 Employment Law and Policy Development (Prerequisite: MHR 2050) (F,Sp)	3
MHR 3820 International Management (F,Sp)	3
PHIL 3520 (DHA) Business Ethics (Sp)	3

Department of Management and Human Resources

BIS 4350 Introduction to Training and Development (Sp) (3 cr) or ECON 5660 Training and Organizational Development (Sp) (2 cr)	2 or 3
ECON 5680 Labor Economics (Sp)	3
PUBH 3310 Occupational Health and Safety (F)	3
ANTH 3200 (DSS/CI) Perspectives on Race (Sp)	3
SOC 3500 Social Psychology (F,Sp)	3
SPCH 3250 (CI) Organizational Communication (F) (3 cr) or SPCH 3330 (DSS) Intercultural Communication (F) (3 cr) or SPCH 3600 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.

Graduation Requirements

To be recommended by the department for graduation, majors in the Department of Management and Human Resources must have a grade point average of at least 2.50 in their upper-division College 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 Human Resources and the College of Business award scholarships in addition to those available through the University Financial Aid Office. Information and application forms are available from the College of Business Career and Education Opportunities 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.

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 and Human Resources Department, can be found online at: <http://www.usu.edu/ats/majorsheets/>

Further information about undergraduate programs in the College of Business can be obtained from the Career and Education Opportunities Center, Business 309, or found on the Web at: <http://www.usu.edu/cobceo>

Four-Year Degree Plans (8 Semesters)

The following are suggested four-year plans for majors offered by the Department of Management and Human Resources.

Suggested Four-year Course of Study for Entrepreneurship Major

The following curriculum is required for the BS degree in entrepreneurship. Students enrolled in the entrepreneurship major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
MATH 1050 (QL) College Algebra	4
USU 1010 University Connections	2
OSS 1400² Microcomputer Applications (3 cr) or Passing scores on Computer and Information Literacy (CIL) exams (0 cr)	0-3
(Note: Although OSS 1400 includes the CIL exams, the CIL requirement is met <i>only</i> by passing all six exams, <i>not</i> by simply passing OSS 1400.)	
Breadth Creative Arts (BCA) course ¹	3
Elective course(s) ²	0-3

Spring Semester (15 credits)

ECON 2010 (BSS) Introduction to Microeconomics	3
ENGL 1010 (CL) Introduction to Writing: Academic Prose	3
MATH 1100 (QL) Calculus Techniques	3
PSY 1010 (BSS) General Psychology (3 cr) or SOC 1010 (BSS) Introductory Sociology (3 cr)	3
Breadth Humanities (BHU) course ¹	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I	3
BIS 2100 Principles of Management Information Systems	3
MHR 2050 Legal and Ethical Environment of Business	3
STAT 2300 (QL) Business Statistics	4
Breadth Life Sciences (BLS) course ¹	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II	3
BIS 2200 (CI) Business Communication	3
MHR 3110 Managing Organizations and People	3
Breadth Physical Sciences (BPS) course ¹	3
Elective course(s)	3

Junior Year (29 credits)

Fall Semester (15 credits)

BA 3400 (QI) Corporate Finance	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MHR 3510 Fundamentals of Entrepreneurship	3
Elective courses	6

Spring Semester (14 credits)

BA 3700 Operations Management	3
BUS 3250 Discussions With Business Leaders	1
ECON 3400 International Economics for Business	3
MHR 3520 Relationship and Organizational Competencies for Entrepreneurs	3
Elective courses	4

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Senior Year (30 credits)

Fall Semester (15 credits)

BA 3500 Fundamentals of Marketing.....	3
MHR 3710 Developing Team and Interpersonal Skills.....	3
MHR 4510 Senior Seminar in Entrepreneurship.....	3
Depth Humanities and Creative Arts (DHA) course.....	3
Elective course(s).....	3

Spring Semester (15 credits)

MHR 3820 International Management.....	3
MHR 4880 (CI) Business Strategy in an Entrepreneurial Context.....	3
Depth Life and Physical Sciences (DSC) course.....	3
Elective courses.....	6

Suggested Four-year Course of Study for Human Resource Management Major

The following curriculum is required for the BS degree in human resource management. Students enrolled in the human resource management major should consult with their advisor to determine which breadth, depth, and elective courses they should complete. Each student should also consult with his or her advisor to develop an individualized plan of study that is applicable to his or her own interests.

Freshman Year (30 credits)

Fall Semester (15 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles.....	3
MATH 1050 (QL) College Algebra.....	4
USU 1010 University Connections.....	2
OSS 1400 ² Microcomputer Applications (3 cr) or Passing scores on Computer and Information Literacy (CIL) exams (0 cr).....	0-3
(Note: Although OSS 1400 includes the CIL exams, the CIL requirement is met <i>only</i> by passing all six exams, <i>not</i> by simply passing OSS 1400.)	
Breadth Creative Arts (BCA) course ¹	3
Elective course(s) ²	0-3

Spring Semester (15 credits)

ECON 2010 (BSS) Introduction to Microeconomics.....	3
ENGL 1010 (CL) Introduction to Writing: Academic Prose.....	3
MATH 1100 (QL) Calculus Techniques.....	3
PSY 1010 (BSS) General Psychology (3 cr) or SOC 1010 (BSS) Introductory Sociology (3 cr).....	3
Breadth Humanities (BHU) course ¹	3

Sophomore Year (31 credits)

Fall Semester (16 credits)

ACCT 2010 Survey of Accounting I.....	3
BIS 2100 Principles of Management Information Systems.....	3
MHR 2050 Legal and Ethical Environment of Business.....	3
STAT 2300 (QL) Business Statistics.....	4
Breadth Life Sciences (BLS) course ¹	3

Spring Semester (15 credits)

ACCT 2020 Survey of Accounting II.....	3
BIS 2200 (CI) Business Communication.....	3
MHR 3110 Managing Organizations and People.....	3
Breadth Physical Sciences (BPS) course ¹	3
Elective course(s).....	3

Junior Year (29 credits)

Fall Semester (15 credits)

BA 3400 (QI) Corporate Finance.....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
MHR 3710 Developing Team and Interpersonal Skills.....	3
Elective courses.....	6

Spring Semester (14 credits)

BA 3700 Operations Management.....	3
BUS 3250 Discussions With Business Leaders.....	1
ECON 3400 International Economics for Business.....	3
MHR 3820 International Management.....	3
Elective courses.....	4

Senior Year (30 credits)

Fall Semester (15 credits)

BA 3500 Fundamentals of Marketing.....	3
MHR 4630 Human Resource Management.....	3
Human Resource Management approved elective ³	3
Depth Humanities and Creative Arts (DHA) course.....	3
Elective course(s).....	3

Spring Semester (15 credits)

MHR 4880 (CI) Business Strategy in an Entrepreneurial Content (3 cr) or MHR 4890 (CI) Business Strategy in a Global Context (3 cr).....	3
Depth Life and Physical Sciences (DSC) course.....	3
Human Resource Management approved elective ³	3
Elective courses.....	6

¹At least two of the required Breadth courses *must* be University Studies courses having a USU prefix.

²If opting out of OSS 1400, students must take an extra 3 elective credits.

³For approved courses, students should contact the Human Resource Management advisor.

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 instruction is designed to teach students to assume a strategic role in helping organizations gain competitive advantage by building employee commitment, competence, and effectiveness. Required subject areas include human resource planning, recruiting, performance management, selection, placement, compensation and benefits, career planning, training and organizational development, labor and employee relations, ethical/legal employment practices, statistical methods, and program evaluation.

Admission Requirements

See Admission Procedures on pages 99-100. Students are required to submit scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Prospective students may request information on the expected test performance standards for acceptance. Applicants are expected to have strong written and oral communication skills.

Students without sufficient relevant work experience are required to complete an approved internship. The executive in residence in the MHR Department and/or the MS in Human Resources

Department of Management and Human Resources

steering committee will serve as facilitators to help secure internship opportunities. The Human Resource Certification Institute (HRCI) exam will be included as part of coursework.

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 credits beyond the Business Core taken as part of an AACSB-International accredited undergraduate business degree. The total number of credits is typically 50 for students without an undergraduate business degree or commensurate work experience. See *Accelerated Business Core* (in Master of Business Administration section, page 197) for information about satisfying the Business Core requirements. Coursework beyond the Business Core includes MHR 6310, 6330; MHR 6510 or 6680; MHR 6550, 6620, 6630, 6650, 6670, 6690, 6760; BUS 6250; and one 3-credit elective approved by the steering committee. Students with applicable and relevant work experience may substitute MHR 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 or equivalent work experience will not be required to take the business core. Students will take the HRCI (Human Resource Certification Institute) exam as part of coursework.

Additional information about the MS in Human Resources degree may be obtained by contacting the Department of Management and Human Resources.

Financial Assistance and Assistantships

A limited number of graduate assistantships, scholarships, and other departmental awards are provided to outstanding on-campus students on a competitive basis. Acceptance to the program does not guarantee financial assistance. Application forms are available from the MHR Department. The deadline for financial aid assistance is March 15.

Master of Business Administration (MBA)

The department also participates with other departments in the College 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 197-198 of this catalog.

Management and Human Resources Faculty

Professors

Gaylen N. Chandler, entrepreneurship, management
Glenn M. McEvoy, human resources, organizational behavior, management
David B. Stephens, business strategy and labor relations

Professors Emeritus

Vernon M. Buehler
Howard M. Carlisle
John R. Cragun
Gary B. Hansen
Leon R. McCarrey
Y. Krishna Shetty

Associate Professors

Ronda R. Callister, management, organizational behavior, international management
Ross E. Robson, lean manufacturing, management

Adjunct Associate Professor

Steven H. Hanks, business strategy, management, and entrepreneurship

Assistant Professors

Alison Cook, organizational behavior, human resource management
Konrad S. Lee, employment law, business law
Troy V. Mumford, organizational behavior, human resource management, compensation
Jeremy Short, business strategy

Adjunct Senior Lecturer

Mary Jo Blahna, organizational behavior, management, human resources

Principal Lecturer

Alan P. Warnick, human resource management

Lecturers

David G. Herrmann, management and entrepreneurship
Henry Nowak, entrepreneurship

Course Descriptions

Management and Human Resources (MHR), pages 665-667.

Department of Mathematics and Statistics

Department Head: Russell C. Thompson

Location: Lund Hall 211

Phone: (435) 797-2809

FAX: (435) 797-1822

E-mail: mathstat@cc.usu.edu

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

Assistant Department Head:

Daniel C. Coster, Lund Hall 301, (435) 797-2815,

coster@math.usu.edu

Undergraduate Program Coordinator:

Ian M. Anderson, Lund Hall 318, (435) 797-2822,

anderson@math.usu.edu

Graduate Program Coordinator:

D. Richard Cutler, Lund Hall 302C, (435) 797-2699,

richard@math.usu.edu

Mathematics Education Program Director:

James S. Cangelosi, Lund Hall 325C, (435) 797-1415,

jcang@math.usu.edu

Undergraduate Advisors:

Mathematics:

Daniel C. Coster, Lund Hall 301, (435) 797-2815,

coster@math.usu.edu

Statistics:

Christopher D. Corcoran, Lund Hall 204, (435) 797-4012,

corcoran@math.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

The mathematics ACT score, math placement exam, and Advanced Placement (AP) calculus and statistics scores are used for placement in 1000-level and 2000-level mathematics and statistics courses. New students and students who are registering for a math class at USU for the first time should have a math ACT score of at least 18 to register for MATH 1010 (Intermediate Algebra), a score of at least 19 to register for STAT 1040, and a score of at least 23 to register for MATH 1030

(Quantitative Reasoning), MATH 1050 (College Algebra), and MATH 1060 (Trigonometry). The alternative is to take the math placement exam through the Mathematics and Statistics Department. **A student who has already taken a math class at USU may register for the next higher level course, providing he or she received a grade of C- or better in the prerequisite course. Equivalent transfer courses must also have a C- or better grade.** Entering students with math ACT scores of less than 18 should register for MATH 0900 (Elements of Algebra) or take the math placement exam to qualify for a higher-level course. The math placement exam requires a small fee.

A math ACT score of at least 25 is needed to begin in MATH 1100, and an ACT score of at least 27 is needed to begin in MATH 1210.

Entering students with passing scores on AP calculus or statistics exams will be given 8 semester credits in mathematics for passing either one of the calculus exams, and 4 semester credits for passing the statistics exam. Part of this credit may include specific USU courses. Students with an AP calculus AB score of 3 will generally be advised to start in MATH 1210 (Calculus I). Students with a score of 4 or 5 on the calculus AB exam or a score of 3 or 4 on the calculus BC exam will be given credit for MATH 1210, and will be advised to begin in MATH 1220 (Calculus II). Students with a score of 5 on the calculus BC exam will be given credit for MATH 1210 and 1220, and will be advised to begin in MATH 2210 (Multivariable Calculus). Students with a score of 3 or higher on the AP statistics exam will be given credit for STAT 2000. Students may also take the math placement exam through the Mathematics and Statistics Department to determine if MATH 1100 (Calculus Techniques) or MATH 1210 (Calculus I) is an appropriate place to start.

The calculus courses MATH 1210, 1220, and 2210 are designed for students in mathematics, the sciences, and engineering. MATH 1100 (Calculus Techniques) is designed primarily for students in business and a few other majors. 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 trigonometry (MATH 1060) and a graphics calculator.

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.

Department of Mathematics and Statistics

University Requirements

All students in the Department of Mathematics and Statistics must satisfy the requirements of USU's University Studies program, described on pages 49-57 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. Students may obtain from the department information about the exact requirements in effect at any given time. 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 2005 are given below.

Mathematics Major (44 credits)

A. Required Courses (29 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 5710 Introduction to Probability (F,Sp)3

B. Core Courses (6 credits)

Select at least two courses (6 credits) from the following:

MATH 5110 Differential Geometry (F)3
MATH 5220 Introduction to Analysis II (Sp).....3
MATH 5270 Complex Variables (Sp).....3
MATH 5310 Introduction to Modern Algebra (Sp) (3 cr) **or**
MATH 5340 Theory of Linear Algebra (Sp) (3 cr).....3
MATH 5510 Introduction to Topology (F).....3

C. Elective Courses (9 credits)

Select at least three courses (9 credits) in mathematics courses numbered above 5000, excluding MATH 5570 (Actuarial Math I) and 5580 (Actuarial Math II).

Note: MATH 2250 (Linear Algebra and Differential Equations) may substitute for both MATH 2270 (Linear Algebra) and MATH 2280 (Ordinary Differential Equations); however, MATH 2270 and 2280 are recommended. Several options in this major exist (e.g., Actuarial Science and Computational Mathematics). Contact the Mathematics and Statistics Department for details.

Suggested Four-year Course of Study for Mathematics Major

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (28-34 credits)

Fall Semester (14-17 credits)

MATH 1210 (QL) Calculus I4
 College of Science required course4
 University Studies courses6-9

Spring Semester (14-17 credits)

MATH 1220 (QL) Calculus II4
 College of Science required course4
 University Studies courses6-9

Sophomore Year (30-32 credits)

Fall Semester (15-16 credits)

MATH 2210 (QI) Multivariable Calculus3
MATH 2250 (QI) Linear Algebra and Differential Equations (4 cr) **or**
MATH 2270 (QI) Linear Algebra (3 cr).....3 or 4
 University Studies courses9

Spring Semester (15-16 credits)

MATH 2250 (QI) Linear Algebra and Differential Equations (4 cr) **or**
MATH 2280 (QI) Ordinary Differential Equations (3 cr).....3 or 4
MATH 5710 Introduction to Probability.....3
 University Studies or elective courses.....9

Junior Year (30 credits)

Fall Semester (15 credits)

MATH 4200 (CI) Foundations of Analysis3
MATH 4310 (CI) Introduction to Algebraic Structures3
 Math core or elective course not requiring MATH 42003
 University Studies courses6

Spring Semester (15 credits)

Math core or elective courses6
 University Studies courses9

Department of Mathematics and Statistics

Senior Year (24-30 credits)

Fall Semester (12-15 credits)

MATH 5210 Introduction to Analysis I	3
Math core or elective courses	3-6
University Studies Depth or elective courses	6

Spring Semester (12-15 credits)

Math core or elective courses	3-6
University Studies or elective courses	9

Mathematics Education Major (71 credits)

A. Mathematics and Statistics Courses (39 credits)

STAT 1040 (QL) Introduction to Statistics (F,Sp,Su)	3
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 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su) ..	4
MATH 3110 Modern Geometry (Sp)	3
MATH 4200 (CI) Foundations of Analysis (F,Sp)	3
MATH 4310 (CI) Introduction to Algebraic Structures (F,Sp)	3
MATH 4400 History of Mathematics and Number Theory (Sp)	3
MATH 4620 Computer Aided Math for Secondary Math Teachers (F) ..	3
MATH 5500 Capstone Mathematics and Statistics for Teachers (F)	3
MATH 5710 Introduction to Probability (F,Sp)	3

B. Secondary Teacher Education Program (STEP) (31 credits)

Level 1

SCED 3100 Motivation and Classroom Management (F,Sp)	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp)	3
MATH 3300 School Laboratory for Mathematics Teachers Level I (F,Sp)	1
MATH 4500 Methods of Secondary School Mathematics Teaching (F,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
MATH 4300 School Laboratory for Mathematics Teachers Level II (F,Sp)	1

Level 3

SCED 5500 Student Teaching Seminar (F,Sp)	2
SCED 5630 Student Teaching in Secondary Schools (F,Sp)	10

Note: Admission to the STEP requires a GPA of at least 3.00 in the equivalent of MATH 1210 (Calculus I), MATH 1220 (Calculus II), and MATH 2210 (Multivariable Calculus) and an overall GPA of at least 2.75. Graduation from this major 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 the degree program, and consequently nearly all the mathematics classes in the Mathematics Education Major must be completed before beginning the STEP.

Note: Beginning in 2006, 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.

Note: MATH 2270 (Linear Algebra) and MATH 2280 (Ordinary Differential Equations) may substitute for MATH 2250 (Linear Algebra and Differential Equations).

Suggested Four-year Course of Study for Mathematics Education Major

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (28-34 credits)

Fall Semester (14-17 credits)

STAT 1040 (QL) Introduction to Statistics	3
MATH 1210 (QL) Calculus I	4
College of Science required course	4
University Studies course(s)	3-6

Spring Semester (14-17 credits)

MATH 1220 (QL) Calculus II	4
College of Science required course	4
University Studies courses	6-9

Sophomore Year (28-31 credits)

Fall Semester (13-16 credits)

MATH 2210 (QI) Multivariable Calculus	3
MATH 2250 (QI) Linear Algebra and Differential Equations	4
University Studies and teaching minor courses	6-9

Spring Semester (15 credits)

MATH 3110 Modern Geometry	3
MATH 4200 (CI) Foundations of Analysis	3
MATH 4310 (CI) Introduction to Algebraic Structures	3
MATH 5710 Introduction to Probability	3
University Studies or teaching minor course	3

Junior Year (29-32 credits)

Fall Semester (15 credits)

MATH 4500 Methods of Secondary School Mathematics Teaching	3
MATH 4620 Computer Aided Math for Secondary Math Teachers	3
University Studies and teaching minor courses	9

Spring Semester (14-17 credits)

INST 3500 Technology Tools for Secondary Teachers	1
SCED 3100 Motivation and Classroom Management	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
MATH 3300 School Laboratory for Mathematics Teachers Level I	1
MATH 4400 History of Mathematics and Number Theory	3
University Studies and teaching minor course(s)	3-6

Senior Year (29 credits)

Fall Semester (17 credits)

SPED 4000 Education of Exceptional Individuals	2
SCED 4200 (CI) Reading, Writing, and Technology	3
SCED 4210 Cognition and Evaluation of Student Learning	3
MATH 4300 School Laboratory for Mathematics Teachers Level II	1
MATH 5500 Capstone Mathematics and Statistics for Teachers	3
University Studies or teaching minor courses	5

Spring Semester (12 credits)

SCED 5500 Student Teaching Seminar	2
SCED 5630 Student Teaching in Secondary Schools	10

Department of Mathematics and Statistics

Composite Mathematics-Statistics

Education Major (79-81 credits)

A. Mathematics and Statistics Courses (45-47 credits)

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su) (3 cr) or	
STAT 2000 (QI) Statistical Methods (F,Sp) (3 cr)	3
MATH 2210 (QI) Multivariable Calculus (F,Sp,Su)	3
MATH 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su)	4
OR (MATH 2250; or MATH 2270 and 2280)	
MATH 2270 (QI) Linear Algebra (F) (3 cr) and	
MATH 2280 (QI) Ordinary Differential Equations (Sp) (3 cr)	6
STAT 5100 (QI/CI) Linear Regression and Time Series (F)	3
MATH 3110 Modern Geometry (Sp)	3
MATH 4200 (CI) Foundations of Analysis (F,Sp)	3
MATH 4310 (CI) Introduction to Algebraic Structures (F,Sp)	3
MATH 4400 History of Mathematics and Number Theory (Sp)	3
MATH 4620 Computer Aided Math for Secondary Math Teachers (F) ..	3
MATH 5500 Capstone Mathematics and Statistics for Teachers (F)	3
MATH 5710 Introduction to Probability (F,Sp)	3
STAT 5200 Design of Experiments (Sp)	3

B. Secondary Teacher Education Program (STEP) (34 credits)

Level 1

SCED 3100 Motivation and Classroom Management (F,Sp)	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp)	3
MATH 3300 School Laboratory for Mathematics Teachers Level I (F,Sp)	1
MATH 4500 Methods of Secondary School Mathematics Teaching (F,Sp)	3
STAT 4500 Methods of Teaching Statistics in Secondary and Middle School (F,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
MATH 4300 School Laboratory for Mathematics Teachers Level II (F,Sp)	1

Level 3

SCED 5500 Student Teaching Seminar (F,Sp)	2
SCED 5630 Student Teaching in Secondary Schools (F,Sp)	10

Note: Admission to the STEP requires a GPA of at least 3.00 in the equivalent of MATH 1210 (Calculus I), MATH 1220 (Calculus II), and MATH 2210 (Multivariable Calculus); a cumulative GPA of at least 3.00 in STAT 1040 (Introduction to Statistics), and STAT 2000 (Statistical Methods) or STAT 3000 (Statistics for Scientists); and 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 the degree program, and consequently nearly all the mathematics and statistics classes in the Mathematics-Statistics Education Major must be completed before beginning the STEP.

Note: Beginning in 2006, 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 Course of Study for

Composite Mathematics-Statistics Education Major

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (31-34 credits)

Fall Semester (14-17 credits)

STAT 1040 (QL) Introduction to Statistics	3
MATH 1210 (QL) Calculus I	4
College of Science required course	4
University Studies course(s)	3-6

Spring Semester (17 credits)

STAT 2000 (QI) Statistical Methods (3 cr) or	
STAT 3000 (QI) Statistics for Scientists (3 cr)	3
MATH 1220 (QL) Calculus II	4
College of Science required course	4
University Studies courses	6

Sophomore Year (30-31 credits)

Fall Semester (15-16 credits)

MATH 2210 (QI) Multivariable Calculus	3
MATH 2250 (QI) Linear Algebra and Differential Equations (4 cr) or	
MATH 2270 (QI) Linear Algebra (3 cr)	3 or 4
(Note: Students selecting MATH 2270 must <i>also</i> complete MATH 2280.)	
STAT 5100 (CI/QI) Linear Regression and Time Series	3
University Studies courses	6

Spring Semester (15 credits)

MATH 3110 Modern Geometry	3
MATH 4200 (CI) Foundations of Analysis	3
MATH 5710 Introduction to Probability	3
STAT 5200 Design of Experiments	3
University Studies or teaching minor course	3

Junior Year (29-32 credits)

Fall Semester (15 credits)

MATH 4310 (CI) Introduction to Algebraic Structures	3
MATH 4500 Methods of Secondary School Mathematics Teaching	3
MATH 4620 Computer Aided Math for Secondary Math Teachers	3
STAT 4500 Methods of Teaching Statistics in Secondary and Middle School	3
University Studies course	3

Spring Semester (14-17 credits)

INST 3500 Technology Tools for Secondary Teachers	1
SCED 3100 Motivation and Classroom Management	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
MATH 3300 School Laboratory for Mathematics Teachers Level I	1
MATH 4400 History of Mathematics and Number Theory	3
University Studies course(s)	3-6

Senior Year (29 credits)

Fall Semester (17 credits)

SPED 4000 Education of Exceptional Individuals	2
SCED 4200 (CI) Reading, Writing, and Technology	3
SCED 4210 Cognition and Evaluation of Student Learning	3
MATH 4300 (CI) School Laboratory for Mathematics Teachers Level II	3
MATH 5500 Capstone Mathematics and Statistics for Teachers	3
University Studies or teaching minor course	3

Spring Semester (12 credits)

SCED 5500 Student Teaching Seminar	2
SCED 5630 Student Teaching in Secondary Schools	10

Department of Mathematics and Statistics

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	
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

Note: MATH 2250 (Linear Algebra and Differential Equations) may substitute for MATH 2270 (Linear Algebra).

Suggested Four-year Course of Study for Statistics Major

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (28-34 credits)

Fall Semester (14-17 credits)

CS 1400 Introduction to Computer Science—CS 1	3
MATH 1210 (QL) Calculus I	4
College of Science required course	4
University Studies course(s)	3-6

Spring Semester (14-17 credits)

MATH 1220 (QL) Calculus II	4
STAT 2000 (QI) Statistical Methods (3 cr) or	
STAT 3000 (QI) Statistics for Scientists (3 cr)	3
College of Science required course	4
University Studies course(s)	3-6

Sophomore Year (30 credits)

Fall Semester (15 credits)

MATH 2210 (QI) Multivariable Calculus	3
MATH 2270 (QI) Linear Algebra	3
University Studies courses	9

Spring Semester (15 credits)

MATH 4200 (CI) Foundations of Analysis	3
University Studies or elective courses	12

Junior Year (30 credits)

Fall Semester (15 credits)

MATH 5710 Introduction to Probability	3
STAT 5100 (CI/QI) Linear Regression and Time Series	3
Statistics elective course	3
University Studies courses	6

Spring Semester (15 credits)

MATH 5720 Introduction to Mathematical Statistics	3
Statistics elective course	3
University Studies courses	9

Senior Year (24-30 credits)

Fall Semester (12-15 credits)

Statistics elective course(s)	3-6
University Studies courses	9

Spring Semester (12-15 credits)

Statistics elective course(s)	3-6
University Studies courses	9

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) Software Engineering (F,Sp)	3

C. Mathematics Elective Courses (6 credits)

Select two courses (6 credits) in mathematics numbered above 4620, 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: Mathematics majors are strongly urged to take MATH 2270 (Linear Algebra) and MATH 2280 (Ordinary Differential Equations) *instead of* MATH 2250 (Linear Algebra and Differential Equations).

Note: Students who complete the Computer Science coursework with a GPA of at least 2.5 automatically earn a minor in Computer Science.

Suggested Four-year Course of Study for Mathematics Major, Computational Mathematics Emphasis

The suggested schedule shown below should be used in conjunction with the major requirement sheet.

Freshman Year (35-41 credits)

Fall Semester (18-21 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
College of Science required course	4
University Studies courses	6-9

Department of Mathematics and Statistics

Spring Semester (17-20 credits)

MATH 1220 (QL) Calculus II	4
CS 1410 (QI) Introduction to Computer Science—CS 2	3
College of Science required course	4
University Studies courses	6-9

Sophomore Year (36-38 credits)

Fall Semester (18-19 credits)

MATH 2210 (QI) Multivariable Calculus	3
MATH 2250 (QI) Linear Algebra and Differential Equations (4 cr) or	
MATH 2270 (QI) Linear Algebra (3 cr)	3 or 4
CS 2420 (QI) Algorithms and Data Structures—CS 3	3
University Studies courses	9

Spring Semester (18-19 credits)

MATH 2250 Linear Algebra and Differential Equations (4 cr) or	
MATH 2280 (QI) Ordinary Differential Equations (3 cr)	3 or 4
MATH 3310 Discrete Mathematics	3
CS 2450 (CI) Software Engineering	3
University Studies or elective courses	9

Junior Year (18-24 credits)

Fall Semester (9-12 credits)

MATH 4200 (CI) Foundations of Analysis	3
University Studies courses	6-9

Spring Semester (9-12 credits)

Math elective course(s)	3-6
Computer Science elective course(s)	3-6

Senior Year (33-39 credits)

Fall Semester (15-18 credits)

MATH 5210 Introduction to Analysis I	3
MATH 5610 Computational Linear Algebra and Solution of Systems of Equations	3
Math/Computer Science elective course(s)	3-6
University Studies Depth or elective courses	6

Spring Semester (18-21 credits)

MATH 5620 Numerical Solution of Differential Equations	3
MATH 5710 Introduction to Probability	3
Math/Computer Science elective course(s)	3-6
University Studies or elective courses	9

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	
STAT 2000 (QI) Statistical Methods (F,Sp) (3 cr)	3
STAT 5100 (QI/CI) Linear Regression and Time Series (F)	3

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:

MATH 4310 (CI) Introduction to Algebraic Structures (F,Sp)	3
MATH 5210 Introduction to Analysis I (F)	3

In addition, students must complete the following:

STAT 5200 Design of Experiments (Sp)	3
Elective STAT course numbered above 5000	3

C. Required Accounting, Business Administration, Economics, and Management and Human Resources Courses (15 credits)

ACCT 2010 Survey of Accounting I (F,Sp,Su)	3
BA 3400 (QI) Corporate Finance (F,Sp,Su)	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp)	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su)	3

Note: Mathematics majors are strongly urged to take MATH 2270 (Linear Algebra) and MATH 2280 (Ordinary Differential Equations) *instead of* MATH 2250 (Linear Algebra and Differential Equations).

Note: Admission to the Actuarial Science Emphasis requires explicit departmental approval.

Composite Major in Mathematics/Statistics (59 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 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 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	
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 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.

Note: Mathematics majors are strongly urged to take MATH 2270 and 2280 *instead of* MATH 2250, but MATH 2250 may substitute for MATH 2270 and 2280.

Department of Mathematics and Statistics

Minor Requirements

Mathematics Minor (23 credits)

A. Required Courses (17 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

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, 4620, 5570, and 5580.

Note: Mathematics minors are strongly urged to take MATH 2270 and 2280 *instead* of MATH 2250, but MATH 2250 may substitute for MATH 2270 and 2280.

Statistics Minor (15 credits)

A. Required Courses (9 credits)

STAT 3000 (QI) Statistics for Scientists (F,Sp,Su) (3 cr) or	
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 (6 credits)

Select two additional courses (6 credits) from statistics courses numbered above 5000, or from the following courses:

MATH 5710 Introduction to Probability (F,Sp)	3
MATH 5720 Introduction to Mathematical Statistics (Sp)	3
MATH 5760 Stochastic Processes (F)	3

Mathematics Education Minor (42 credits)

STAT 1040 (QL) Introduction to Statistics (F,Sp,Su)	3
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 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su)	4
MATH 3110 Modern Geometry (Sp)	3
MATH 4200 (CI) Foundations of Analysis (F,Sp)	3
MATH 4310 (CI) Introduction to Algebraic Structures (F,Sp)	3
MATH 4400 History of Mathematics and Number Theory (Sp)	3
MATH 4500 Methods of Secondary School Mathematics Teaching (F,Sp)	3
MATH 4620 Computer Aided Math for Secondary Math Teachers (F)	3
MATH 5500 Capstone Mathematics and Statistics for Teachers (F)	3
MATH 5710 Introduction to Probability (F,Sp)	3

Completion of the Secondary Teacher Education Program (STEP) for the student's Secondary Education major is also required. 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.

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

Note: MATH 2250 may substitute for *both* MATH 2270 and 2280.

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 (F)	3
BIOL 5620 Medical Physiology (Sp)	3
FRWS 3810 Plant and Animal Populations (Sp)	3
PUBH 5330 (QI) Industrial Hygiene Chemical Hazard Control (F)	3
BMET 5500 Land-Atmosphere Interactions (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@cc.usu.edu. Additional information can be found online at: <http://www.usu.edu/honors/>

Department of Mathematics and Statistics

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/ats/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/undergrad/application.html>, 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.

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 assistant department head and undergraduate research liaison, Daniel C. Coster, (435) 797-2815, coster@math.usu.edu.

Department of Mathematics and Statistics

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 99-100 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.

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

Department of Mathematics and Statistics

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.

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.

Students in all three options of the MS in Statistics must pass a written qualifying examination based on the material presented in STAT 3000 (Statistics for Scientists), MATH 5710 (Introduction to Probability), and MATH 5720 (Introduction to Mathematical Statistics). Students may take the exam before beginning any formal coursework in the MS program. Students must attempt the exam by the end of the first full year of matriculation. The exam is usually given in May and September each year. Matriculated students who fail the exam on their first try must pass the exam at the next scheduled opportunity. A detailed exam syllabus is available in the *Graduate Handbook*, available from the department.

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 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 College of Education and Human Services. MATH 4620 or an approved substitute must also be included. The GPA for the 36 credits and for the 21 math credits must be at least 3.0.

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.

Department of Mathematics and Statistics

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.

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. In most cases, a teaching assistant is responsible for teaching and grading a section of about 40 students in an introductory mathematics or statistics course during each semester. Stipends for teaching assistants are \$13,000 for MS students, \$14,000 for PhD students who have not been advanced to candidacy, and \$16,000 for PhD students who have been advanced to candidacy. In rare situations, a graduate student may be offered a paper grading and tutoring assistantship that pays half of the teaching assistantship stipend. 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 that pay \$3,000. Mathematics and Statistics faculty members who have research grants may choose to partially or fully support students that 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
D. Richard Cutler, environmental statistics, epidemiology
E. Robert Heal, analysis, statistics, mathematics education
Lance L. Littlejohn, differential equations, special functions
James Powell, applied mathematics, mathematical biology
David H. Sattinger, differential equations
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

Daniel C. Coster, experimental design, linear models
Christopher D. Corcoran, computational biostatistics
Adele Cutler, statistical computing
Mark E. Fels, differential geometry
Joseph V. Koebe, numerical analysis, applied mathematics
Piotr Kokoszka, probability and time series analysis
Michael C. Minnotte, nonparametric density estimation, statistical visualization
Xiaofeng Ren, partial differential equations, 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
James D. Watson, numerical analysis

Department of Mathematics and Statistics

Assistant Professors

David E. Brown, discrete mathematics, graph theory

Peg Howland, numerical linear algebra

Brynja R. Kohler, mathematics education, mathematical biology

John R. Stevens, bioinformatics, applied statistics, meta-analysis

M. K. Stephen Yeung, dynamical systems, gene network structures

Principal Lecturers

David D. Bregenzer, mathematics, statistics

Eric Rowley, mathematics, mathematics education

Lecturers

Bryan Bornholdt, mathematics, mathematics education

Claudia Mora, mathematics, mathematics education

Course Descriptions

Mathematics (MATH), pages 663-665.

Statistics (STAT), pages 719-721.

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: kbzobell@engineering.usu.edu

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

Undergraduate Advisor:

Kathleen E. Bayn, Engineering 308, (435) 797-2705,
kathy.bayn@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 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)

Fundamentals

Students will identify, formulate, and solve basic engineering problems utilizing:

1. linear algebra
2. calculus-based statistics
3. multivariable calculus
4. differential equations
5. calculus-based physics
6. chemistry
7. material science
8. solid mechanics
9. fluid mechanics
10. thermal science
11. manufacturing science

Communication

Students will develop and demonstrate the ability to communicate engineering information, including geometry, technical concepts, and results, by:

1. participating in oral presentations.
2. writing proposals and reports.
3. developing engineering drawings and specifications.
4. participating in team-based engineering projects.

Laboratory Experiences

Students will participate in laboratory experiences, which:

1. include experimental design, data collection, and data analyses.
2. incorporate the use of modern laboratory and data acquisition equipment.
3. utilize statistical analysis and interpretation of data.
4. develop basic manufacturing skills.
5. may include work-based learning experiences, such as internships.

Department of Mechanical and Aerospace Engineering

Computer-based Engineering

Students will demonstrate proficiency in the application of computer technology to engineering problem-solving through:

1. application of modern numerical methods and computational techniques.
2. design and development of engineering software.
3. integration of numerical solutions into the engineering process of design and analysis.
4. use of current commercial engineering software.

Humanities and Social Sciences

Students will acquire significant exposure to the humanities and social sciences, so as to:

1. gain an appreciation for the broad impact of engineering solutions on society.
2. demonstrate an understanding of the fundamentals of the history, principles, form of government, and economic system of the United States.
3. demonstrate a knowledge of contemporary global issues.
4. contribute to the development of the individual as a responsible well-rounded citizen.

Design and Synthesis

Students will participate in the design and realization process, in which they will:

1. develop a set of multidisciplinary engineering requirements.
2. synthesize material from mathematics, science, and engineering fundamentals to solve engineering problems.
3. design, develop, and verify software to solve engineering problems.
4. bring a system from requirements definition to concept development, then specification, prototype and testing, and production or fabrication using significant engineering analysis.
5. demonstrate the links between design, prototyping, testing, manufacturing, and other disciplines.
6. manage a project, including budgeting and detailed planning.

Independent Learning

Students will recognize the importance of, and demonstrate the skills required for, independent learning through:

1. independent study required in the engineering curriculum.
2. exposure to case studies in ethics and professional responsibility.
3. exposure to advanced topics in engineering science.
4. exposure to advanced topics in engineering research.
5. studying for and passing the Fundamentals of Engineering Examination.

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

Department of Mechanical and Aerospace Engineering

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 the Accreditation Board for Engineering and Technology (EAC/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.

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.

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 120-121) and the Undergraduate Graduation Requirements (pages 58-61) 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

Freshman Year (32 credits)

Fall Semester (15 credits)

MATH 1210 (QL) ² Calculus I	4
CHEM 1210 ² Principles of Chemistry I	4
CHEM 1215 ² Chemical Principles Laboratory I	1
University Studies Breadth courses	6

Spring Semester (17 credits)

MATH 1220 (QL) ² Calculus II	4
PHYS 2200 ² Elements of Mechanics	2
MAE 1200 ² Engineering Graphics	2
MAE 2650 ² Manufacturing Processes	3
University Studies Breadth courses	6

Sophomore Year (31 credits)

Fall Semester (16 credits)

MATH 2210 (QI) ² Multivariable Calculus	3
ENGR 2010 ² Engineering Mechanics Statics	2
ECE 2210 ² Electrical Engineering for Nonmajors	4
ENGL 2010 (CL2) ² Intermediate Writing: Research Writing in a Persuasive Mode	3
PHYS 2220 (BPS/QI) ² General Physics—Science and Engineering II ..	4

Spring Semester (15 credits)

MATH 2250 (QI) ² Linear Algebra and Differential Equations	4
MAE 2300 ² Thermodynamics I	3
ENGR 2030 ² Engineering Mechanics Dynamics	3
ENGR 2140 ² Strength of Materials	2
MAE 2160 ² 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

Department of Mechanical and Aerospace Engineering

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 ¹	3
University Studies Depth Humanities and Creative Arts (DHA) course	2-3
University Studies Breadth course	3

Spring Semester (15 credits)

Technical Elective courses ¹	12
University Studies Depth Social Sciences (DSS) course	3

¹Students must select 15 credits of technical elective courses from the list of approved MAE Technical Elective Courses shown below.

²These courses are required for admission to the Professional Engineering Program (PEP).

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 5020 Finite Element Methods in Solid Mechanics I (F)	3
MAE 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 (Sp)	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 Space System Design (Sp)	3
MAE 5580 Aircraft Design (F)	3
MAE 5600 Manufacturing Process Planning and Statistical Quality Control (F)	3
MAE 5610 Hydraulics and Pneumatics (Sp)	3
MAE 5620 Manufacturing Automation (F)	3
MAE 5630 Machining Theory and Applications (Sp)	3
MAE 5640 Design for Manufacturability (F)	3
MAE 5650 Nontraditional and Additive Manufacturing Processes (Sp)	3
MAE 5660 Transport Phenomena in Manufacturing Processes (Sp)	3
MAE 5680 Manufacturing Planning and Simulation (Sp)	3
MAE 5900 Cooperative Practice (F,Sp,Su)	3
MAE 5930 ST: Kinematics (F)	1-3
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
MHR 5350 Contemporary Manufacturing Management (F)	3

Students may choose *one* of their technical electives from the following courses:

MATH 4630 Computer Aided Math for Scientists and Engineers (Sp) ..	3
MATH 5270 Complex Variables (Sp)	3
MATH 5410 Methods of Applied Mathematics (F)	3
MATH 5420 Partial Differential Equations (Sp)	3
MATH 5620 Numerical Solution of Differential Equations (Sp)	3
MATH 5640 Optimization (Sp)	3
STAT 5200 Design of Experiments (Sp)	3
STAT 5300 (QI) Statistical Process Control (Sp)	3

Special Problems courses under MAE 5930 may be used as technical electives with prior approval.

Professional Program in Aerospace Engineering

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)

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 (17 credits)

MAE 4400 (CI) Fluids/Thermal Laboratory	2
MAE 5300 Vibrations	3
MAE 5500 Aerodynamics	3
MAE 5520 Elements of Space Flight	3
Aerospace Technical Course ³	3
University Studies Breadth course	3

Spring Semester (14-15 credits)

MAE 4800 (CI) Design II	3
Aerospace Technical courses ³	6
University Studies Depth Humanities and Creative Arts (DHA) and Depth Social Sciences (DSS) courses	5-6

³During their senior year, Aerospace Engineering students must take one of the following classes: MAE 5020, 5060, or 5440; and two of the following classes: MAE 5510, 5530, 5580, or 5930 (ST: Kinematics-Moonbuggy).

Professional Program in Manufacturing Engineering

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)

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

Department of Mechanical and Aerospace Engineering

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)

MAE 4400 (CI) Fluids/Thermal Laboratory (F)	2
MAE 4800 (CI) Design II (F,Sp)	3
MAE 5300 Vibrations (F)	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:

MAE 5020 Finite Element Methods in Solid Mechanics I (F)	3
MAE 5310 Dynamic Systems and Controls (F) (3 cr) or	
MAE 5620 Manufacturing Automation (F) (3 cr)	3
MAE 5600 Manufacturing Process Planning and Statistical Quality Control (F) (3 cr) or	
STAT 5300 (QI) Statistical Process Control (Sp) (3 cr)	3
MAE 5630 Machining Theory and Applications (Sp)	3
MAE 5640 Design for Manufacturability (F)	3
MAE 5650 Nontraditional and Additive Manufacturing Processes (Sp)	3
MAE 5660 Transport Phenomena in Manufacturing Processes (Sp)	3
MAE 5680 Manufacturing Planning and Simulation (Sp)	3
MHR 5350 Contemporary Manufacturing Management (F)	3
STAT 5200 Design of Experiments (Sp)	3

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)

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 (34-35 credits)

Fall Semester (17 credits)

MAE 4400 (CI) Fluids/Thermal Laboratory	2
MAE 5020 Finite Element Methods in Solid Mechanics I	3
MAE 5300 Vibrations	3
ENGR 5500 High Performance Computing for Engineers	3
University Studies Breadth course	3
University Studies Depth Social Sciences (DSS) course	3

Spring Semester (17-18 credits)

MAE 4800 (CI) Design II	3
MAE 5440 Computational Fluid Dynamics	3
MATH 5620⁴ 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

⁴MATH 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. 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. In order to qualify for the concurrent program, students must have a 3.4 GPA for the 60 credits completed most recently. 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 121-122.)

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 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@cc.usu.edu. Additional information can be found online at: <http://www.usu.edu/honors/>

Department of Mechanical and Aerospace Engineering

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/ats/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 99-100, 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 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 9 credits of graduate-level coursework in Mechanical Engineering fundamentals; 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 9 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 9 credits of graduate-level coursework in Mechanical Engineering fundamentals; 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 either 12 credits selected from any one of five declared areas of emphasis or 15 credits selected from any two of the areas. A minimum of 30 credits is required beyond the BS, which includes a 3-credit report written to thesis standards.

The **Plan C MS** Degree requires 9 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 12 credits selected from any one of five declared areas of emphasis, or 15 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 Joan Smith at joan.smith@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.

Department of Mechanical and Aerospace Engineering

The **PhD Degree** requires 24 credits of 6000-level (or above) engineering coursework, exclusive of MAE 6930, 6950, 6970, 6990, 7930, 7970, and 7990; a minimum of 6 credits of 5000-level (or above) coursework in approved mathematics; and 18 credits selected from any one of five declared areas of emphasis. 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 with the student as author or coauthor, submitted for publication in a refereed journal, is also required.

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: joan.smith@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 \$250 per month. Students interested in working part time as teaching or research assistants should apply to the department by March 31 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 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

Alma P. Moser, engineering mechanics, piping systems
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

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
Owen K. Shupe, nuclear, material science
Carl D. Spear, material science
Edward W. Vendell, Jr., cryogenics, heat transfer, thermal systems design

Associate Professors

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

Adjunct Associate Professor

Robert T. Pack, remote sensing, optoelectronics, lidar sensor systems

Assistant Professors

Ning Fang, manufacturing, micro and high-speed machining
David K. Geller, spacecraft guidance and navigation
Thomas Hauser, computational fluid dynamics, thermal/fluids, numerical methods, high-performance computing
Leijun Li, manufacturing, materials joining
Barton L. Smith, thermal/fluids, experimental fluid mechanics
Brent E. Stucker, advanced manufacturing and materials
Stephen A. Whitmore, high-speed aerodynamics, astrodynamics
Wenbin Yu, advanced structures, solid mechanics, computational solid mechanics (FEM)

Adjunct Assistant Professors

John Devitry, solid modeling, computer graphics
Angela Minichiello, heat transfer, thermodynamics
Steven R. Wassom, spacecraft instrumentation design

Principal Lecturer

Carl G. Wood, design, manufacturing

Course Descriptions

Mechanical and Aerospace Engineering (MAE), pages 659-662.

Department of Military Science

Department Head: Lt. Colonel S. Rand Curtis
Location: Military Science 106
Phone: (435) 797-3637
FAX: (435) 797-3330
E-mail: armyrotc@hass.usu.edu
WWW: http://armyrotc.usu.edu

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 \$900-per-year 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 leader development 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 (8 credits)

MS 1010 Introduction to Leadership	2
MS 1020 Leadership Skills	2
MS 2010 Leadership Development	2
MS 2020 Small Unit Leadership	2

Advanced Course Requirements (15 credits)

MS 3010 Organizational Leadership and Small Unit Tactics	3
MS 3020 Advanced Tactics and Operations	3
MS 4010 Command and Staff Functions	3
MS 4020 Officer Perspectives	3
MS 4610 Military History Seminar (3 cr) or	
HIST 4810 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 \$2,700-4,500 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 financial aid 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, 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 27 (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)

MS 3010 Organizational Leadership and Small Unit Tactics.....	3
MS 3020 Advanced Tactics and Operations.....	3
MS 4010 Command and Staff Functions.....	3
MS 4020 Officer Perspectives.....	3
HIST 4810 American Military History (3 cr) or	
MS 4610 Military History Seminar (3 cr).....	3
Electives (must be approved by department head).....	6

Elective Course Offerings

MS 2400 Physical Readiness (repeatable; take 1 credit per semester)	1
MS 2420 Ranger Preparation.....	2
MS 2430 Air Assault	2
MS 2440 Airborne Operations	2
MS 2510 ROTC Basic Camp	1-6
MS 3110 Staff Organization and Operations.....	1-3
MS 3210 Independent Study.....	1-3
MS 4110 Advanced Staff Operations.....	1-3
MS 4400 Advanced Physical Readiness.....	1
MS 4510 ROTC Advanced Camp	1-10
MS 4520 Cadet Troop Leadership Training.....	2
MS 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/ats/majorsheets/>

Military Science Faculty

Assistant Professors

Captain Jeff Bruce
Lt. Colonel S. Rand Curtis
Major John Olson
Lt. Colonel Tanya Olson

Instructors

Sergeant First Class LaWrell D. Cook
Sergeant First Class Jason K. Myers

Course Descriptions

Military Science (MS), page 668.

Department of Music

Department Head: Bruce M. Saperston

Location: Fine Arts 107

Phone: (435) 797-3000

FAX: (435) 797-1862

E-mail: bsaperston@hass.usu.edu

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

Assistant Department Heads:

Gary Amano, Fine Arts 201, (435) 797-3028,
gamano@hass.usu.edu

Cindy J. Dewey, Fine Arts 208B, (435) 797-3055,
cdewey@hass.usu.edu

Undergraduate Advisors:

Music Education/Choral:

Lane M. Cheney, Fine Arts 215, (435) 797-3052,
lcheney@hass.usu.edu

R. Cory Evans, Fine Arts 204, (435) 797-3035,
cevens@hass.usu.edu

Music Therapy:

Maureen Heams, Fine Arts 220B, (435) 797-3009,
mheams@cc.usu.edu

Music Therapy Office, Fine Arts 219, (435) 797-3030

Guitar:

Michael K. Christiansen, Fine Arts 124, (435) 797-3011,
mchristiansen@hass.usu.edu

High Brass/Director of Education:

Thomas Rohrer, Fine Arts 104, (435) 797-3004,
rohrer@hass.usu.edu

Low Brass:

Todd L. Fallis, Fine Arts 120, (435) 797-3005, tfallis@hass.usu.edu

Percussion:

Dennis D. Griffin, Fine Arts 114, (435) 797-3008,
dgriffin@cc.usu.edu

Organ:

James M. Drake, Fine Arts 210, (435) 797-3029,
septerz@yahoo.com

Piano:

Gary Amano, Fine Arts 201, (435) 797-3028,
gamano@hass.usu.edu

R. Dennis Hirst, Fine Arts 101, (435) 797-3257,
dennis.hirst@usu.edu

Ralph H. van der Beek, Fine Arts 203, (435) 797-3033,
rvanderbeek@cc.usu.edu

Strings:

Sergio Bernal, Fine Arts 218B, (435) 797-0487,
sergio.bernal@usu.edu

Violin:

Jessica Guideri, Fine Arts 104C, (435) 797-0083, jesgd@cs.com

Rebecca J. McFaul, University Reserve 9, (435) 797-3597,
rebecca@frystreetquartet.com

Viola:

Russell Fallstad, University Reserve 21, (435) 797-3092,
russell@frystreetquartet.com

Cello/String Bass:

Anne Francis, Fine Arts Visual 129, (435) 797-3086,
anne@frystreetquartet.com

Clarinet/Oboe:

Nicholas E. Morrison, Fine Arts 103, (435) 797-3506,
nicholas.morrison@usu.edu

Flute:

Leslie Timmons, Fine Arts 105, (435) 797-3699,
ltimmons@hass.usu.edu

Saxophone:

Jon Gudmundson, Fine Arts 212, (435) 797-3003,
gudmundson@hass.usu.edu

Bassoon:

R. Dennis Hirst, Fine Arts 101, (435) 797-3257,
dennis.hirst@usu.edu

Voice:

Cindy J. Dewey, Fine Arts 208B, (435) 797-3055,
cdewey@hass.usu.edu

Opera:

Lynn Jemison-Keisker, Fine Arts 206, (435) 797-3038,
lkeisker@hass.usu.edu

Music (Undecided):

Bruce M. Saperston, Fine Arts 107, (435) 797-3000,
bsaperston@hass.usu.edu

Degrees offered: Bachelor of Music (BM) in Music; Bachelor of Science (BS) in Music Therapy

Undergraduate emphases: *BM degree in Music*—Music Education (Band), Music Education (Orchestra), Music Education (Choral), Music Education (General); Piano Performance, Organ Performance, String Performance, Vocal Performance, Wind/Brass/Percussion Performance, Guitar Performance; Piano 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.

Department of Music

Requirements

Admission Requirements

Admission requirements for the Department of Music include those described for the University in this catalog (see pages 16-20). 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 (32-37 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 ¹ Keyboard Harmony I	(1)

Spring Semester

MUSC 1120 Music Theory II	3
MUSC 1140 Aural Skills II	1
MUSC 1180 ¹ Keyboard Harmony II	(1)

Sophomore Year

Fall Semester

MUSC 2110 Music Theory III	3
MUSC 2130 Aural Skills III	1
MUSC 2170 Keyboard Harmony III	1
MUSC 2180 Computer Applications in Music	2

Spring Semester

MUSC 2140 ² 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 3130 (CI) Music Theory IV	3
MUSC 3180 ³ Scoring and Arranging	(2)
MUSC 3190 Music History III: Music of the Twentieth Century	3

Students should note that MUSC 2180, 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.

¹MUSC 1170 and 1180 are *not required* for the Music Education (General) Emphasis, nor for the Guitar Performance Emphasis.

²MUSC 2140 is *not required* for the Composite Major in Music Education, nor for the Guitar Performance Emphasis or the Wind/Brass/Percussion Performance Emphasis.

³MUSC 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) or	
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) or	
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
MUSC 3800 Trombone Ensemble (F,Sp)	1
MUSC 3850 Brass Ensemble (F,Sp)	1
MUSC 3870 Percussion Ensemble (F,Sp)	1

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Individual Instruction (7 credits)

Students should complete 7 credits from the following on their major instrument.

MUSC 3710 Individual Flute Instr for Music Majors (F,Sp,Su)	1-2
MUSC 3720 Individual Oboe Instr for Music Majors (F,Sp,Su)	1-2
MUSC 3730 Individual Clarinet Instr for Music Majors (F,Sp,Su)	1-2
MUSC 3740 Individual Bassoon Instr for Music Majors (F,Sp,Su)	1-2
MUSC 3750 Individual Saxophone Instr for Music Majors (F,Sp,Su)	1-2
MUSC 3810 Individual Trumpet Instr for Music Majors (F,Sp)	1-2
MUSC 3820 Individual Trombone Instr for Music Majors (F,Sp)	1-2
MUSC 3830 Individual French Horn Instr for Music Majors (F,Sp)	1-2
MUSC 3840 Individual Tuba/Euphonium Instr for Music Majors (F,Sp)	1-2
MUSC 3860 Individual Percussion Instr for Music Majors (F,Sp,Su)	1-2

Music Education (Orchestra) (39-44 credits)

MUSC 1500 String Techniques I (F,Sp)	1
MUSC 1600 Voice Techniques (F,Sp)	1
MUSC 1800 Percussion Techniques (F)	1
MUSC 2140 Aural Skills IV (Sp)	1
MUSC 2600 Women's Choir (F,Sp) (1 cr) or	
MUSC 4600 University Chorale (F,Sp) (1 cr)	1
MUSC 2700 Woodwind Techniques I: Flute, Clarinet (F)	1
MUSC 2800 Brass Techniques I: Trumpet, French Horn (F)	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 3500 Symphony Orchestra (F,Sp)	7
MUSC 3510 Orchestra Literature (Sp)	2
MUSC 3520 String Pedagogy and Solo Literature (F,Sp)	2
MUSC 4240 Advanced Conducting (F)	2
MUSC 4500 String Ensemble (F,Sp)	4
MUSC 4920 Individual Recital (F,Sp,Su)	1-6

Individual String Instruction (7 credits)

Select 7 credits from the following:

MUSC 4510 Individual Violin Instr for Music Majors (F,Sp,Su)	1-2
MUSC 4520 Individual Viola Instr for Music Majors (F,Sp,Su)	1-2
MUSC 4530 Individual Cello Instr for Music Majors (F,Sp,Su)	1-2
MUSC 4540 Individual String Bass Instr for Music Majors (F,Sp,Su)	1-2

Music Education (Choral) (34-39 credits)

MUSC 1500 String Techniques I (F,Sp)	1
MUSC 1800 Percussion Techniques (F)	1
MUSC 2140 Aural Skills IV (Sp)	1
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (F,Sp,Su)	3
MUSC 2600 Women's Choir (F,Sp) (1 cr, repeatable) or	
MUSC 4600 University Chorale (F,Sp) (1 cr, repeatable) or	
MUSC 4650 Chamber Singers (F,Sp) (1 cr, repeatable)	7
MUSC 2700 Woodwind Techniques I: Flute, Clarinet (F)	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 3100 Motivation and Classroom Management Strategies in Secondary Classroom Music (Sp)	3
MUSC 3220 Choral Methods and Materials (F)	2
MUSC 3230 Choral Literature (Sp)	2
MUSC 3240 Instrumental Methods and Materials (Sp)	2
MUSC 3630 Vocal Pedagogy I (F)	2
MUSC 3670 Individual Vocal Instruction for Music Majors (F,Sp,Su)	7
MUSC 4920 Individual Recital (F,Sp,Su)	1-6

Music Education (General) (36 credits)

MUSC 1150 Beginning Group Piano (Sp) (1 cr) or	
MUSC 1160 Intermediate Group Piano (Sp) (1 cr) or	
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (F,Sp,Su) (1 cr, repeatable)	2
MUSC 1500 String Techniques I (F,Sp)	1
MUSC 1600 Voice Techniques (F,Sp)	1
MUSC 1800 Percussion Techniques (F)	1
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 2600 Women's Choir (F,Sp) (1 cr) or	
MUSC 4600 University Chorale (F,Sp) (1 cr)	1
MUSC 2700 Woodwind Techniques I: Flute, Clarinet (F)	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 3550 Individual Guitar Instruction for Music Majors (F,Sp,Su)	6
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 (F,Sp) (1 cr, repeatable)	4

Secondary Teacher Education Program (STEP) (26 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 (7 credits)

SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp)	3
SCED 3300 Clinical Experience I (F,Sp) (Arranged)	1
SPED 4000 Education of Exceptional Individuals (F,Sp,Su) (may be taken anytime)	2
INST 3500 Technology Tools for Secondary Teachers (F,Sp,Su)	1

Level 2 Courses (7 credits)

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) (Arranged)	1

Level 3 Courses (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

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.

PSY 1100 Developmental Psychology: Infancy and Childhood (F,Sp) (3 cr) or	
FCHD 1500 (BSS)⁴ Human Development Across the Lifespan (F,Sp) (3 cr)	3
MUSC 3260⁵ Elementary School Music (F,Sp,Su)	2
MUSC 3270⁵ Teaching Strategies and Practicum in Elementary Music (Sp)	3

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⁴Will fulfill the University Studies Breadth Social Sciences (BSS) requirement.

⁵Two credits are given for MUSC 3260. Two additional credits may be obtained by arranging for a two-hour-a-week practicum experience in the elementary schools. Scheduling arrangements for the practicum are made through the MUSC 3260 instructor. Orff Schulwerk course (taught summer semester *only*) may be substituted for both MUSC 3260 and 3270.

Sample Four-year Plan for Music Major, Music Education (Band) Emphasis

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (34 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I	3
MUSC 1130 Aural Skills I	1
MUSC 1170 Keyboard Harmony I	1
MUSC 1800 Percussion Techniques	1
MUSC 2700 Woodwind Techniques I: Flute, Clarinet.....	1
MUSC 2720 Marching Band.....	2
Individual Music Instruction (3700-level)	1
University Studies Breadth course	3

Spring Semester (18 credits)

MUSC 1120 Music Theory II.....	3
MUSC 1140 Aural Skills II	1
MUSC 1180 Keyboard Harmony II	1
MUSC 1500 String Techniques I	1
MUSC 2710 Woodwind Techniques II: Saxophone, Oboe, Bassoon	1
MUSC Large Ensemble course	1
Individual Music Instruction (3700-level)	1
University Studies Breadth courses	9

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (35 credits)

Fall Semester (19 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 2110 Music Theory III.....	3
MUSC 2130 Aural Skills III	1
MUSC 2180 Computer Applications in Music.....	2
MUSC 2720 Marching Band.....	2
MUSC 2800 Brass Techniques I: Trumpet, French Horn	1
MUSC 3100 Motivation and Classroom Management Strategies in Secondary Classroom Music	3
Individual Music Instruction (3700-level)	1
University Studies Breadth course	3

Spring Semester (16 credits)

MUSC 2350 Conducting.....	2
MUSC 2600 Women's Choir (1 cr) or	
MUSC 4600 University Chorale (1 cr)	1

MUSC 2810 Brass Techniques II: Trombone, Tuba, Euphonium	1
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	2
MUSC 3900 Jazz Improvisation	2
MUSC Large Ensemble course	1
Individual Music Instruction (3700-level)	1
University Studies Quantitative Literacy (QL) course	3

Junior Year (33 credits)

Fall Semester (17 credits)

MUSC 2720 Marching Band.....	2
MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 4240 Advanced Conducting.....	2
SPED 4000 Education of Exceptional Individuals	2
MUSC Small Ensemble course	1
Individual Music Instruction (3700-level)	1
Depth Life and Physical Sciences (DSC) course	3
Quantitative Intensive (QI) course	3

Spring Semester (16 credits)

MUSC 1600 Voice Techniques	1
MUSC 3130 (CI) Music Theory IV	3
MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3240 Instrumental Methods and Materials.....	2
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
SCED 3300 Clinical Experience I	1
MUSC Large Ensemble course	1
MUSC Small Ensemble course	1
Individual Music Instruction (3700-level)	1

Senior Year (27 credits)

Fall Semester (15 credits)

MUSC 2720 Marching Band.....	2
MUSC 3180 Scoring and Arranging	2
MUSC 3220 Choral Methods and Materials.....	2
MUSC 4920 Individual Recital.....	1
SCED 4200 (CI) Reading, Writing, and Technology	3
SCED 4210 Cognition and Evaluation of Student Learning	3
SCED 4300 Clinical Experience II	1
Individual Music Instruction (3700-level)	1

Spring Semester (12 credits)

SCED 5500 Student Teaching Seminar	2
SCED 5630 Student Teaching in Secondary Schools	10

Sample Four-year Plan for Music Major, Music Education (Orchestra) Emphasis

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (32 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I.....	3

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MUSC 1130 Aural Skills I	1
MUSC 1170 Keyboard Harmony I	1
MUSC 1800 Percussion Techniques	1
MUSC 2700 Woodwind Techniques I: Flute, Clarinet.....	1
MUSC 3500 Symphony Orchestra	1
MUSC 4500 String Ensemble	1
Individual Music Instruction (3700-level)	1
University Studies Breadth course	3

Spring Semester (16 credits)

MUSC 1120 Music Theory II.....	3
MUSC 1140 Aural Skills II	1
MUSC 1180 Keyboard Harmony II	1
MUSC 1500 String Techniques I	1
MUSC 1600 Voice Techniques	1
MUSC 3500 Symphony Orchestra	1
MUSC 4500 String Ensemble	1
Individual Music Instruction (3700-level)	1
University Studies Breadth course	3
University Studies Quantitative Literacy (QL) course.....	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (34 credits)

Fall Semester (16 credits)

MUSC 2110 Music Theory III.....	3
MUSC 2130 Aural Skills III	1
MUSC 2170 Keyboard Harmony III	1
MUSC 2350 Conducting.....	2
MUSC 3500 Symphony Orchestra	1
MUSC 4500 String Ensemble	1
Individual Music Instruction (3700-level)	1
University Studies Breadth courses	6

Spring Semester (18 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 2140 Aural Skills IV	1
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3500 Symphony Orchestra	1
MUSC 4240 Advanced Conducting	2
MUSC 4500 String Ensemble	1
Individual Music Instruction (3700-level)	1
University Studies Breadth course	3

Junior Year (29 credits)

Fall Semester (16 credits)

MUSC 2180 Computer Applications in Music.....	2
MUSC 2800 Brass Techniques I: Trumpet, French Horn	1
MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3220 Choral Methods and Materials	2
MUSC 3500 Symphony Orchestra	1
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
SCED 3300 Clinical Experience I.....	1
SPED 4000 Education of Exceptional Individuals	2
Individual Music Instruction (4500-level)	1

Spring Semester (13 credits)

MUSC 3130 (CI) Music Theory IV.....	3
MUSC 3180 Scoring and Arranging	2
MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3240 Instrumental Methods and Materials.....	2
MUSC 3500 Symphony Orchestra	1
SCED 4300 Clinical Experience II.....	1
Individual Music Instruction (4500-level)	1

Senior Year (29 credits)

Fall Semester (17 credits)

MUSC 2720 Marching Band.....	2
MUSC 3520 String Pedagogy and Solo Literature.....	2
SCED 4200 (CI) Reading, Writing, and Technology.....	3
SCED 4210 Cognition and Evaluation of Student Learning	3
Individual Music Instruction (4500-level)	1
Depth Life and Physical Sciences (DSC) course	3
Quantitative Intensive (QI) course	3

Spring Semester (12 credits)

SCED 5500 Student Teaching Seminar	2
SCED 5630 Student Teaching in Secondary Schools	10

**Sample Four-year Plan for Music Major,
Music Education (Choral) Emphasis**

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I.....	3
MUSC 1130 Aural Skills I	1
MUSC 1170 Keyboard Harmony I	1
MUSC 1800 Percussion Techniques	1
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors.....	1
MUSC 3670 Individual Vocal Instruction for Music Majors	1
Large Choral Music Ensemble (4600-level)	1
University Studies Breadth course	3

Spring Semester (15 credits)

MUSC 1120 Music Theory II.....	3
MUSC 1140 Aural Skills II	1
MUSC 1180 Keyboard Harmony II	1
MUSC 1500 String Techniques I	1
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors.....	1
MUSC 3670 Individual Vocal Instruction for Music Majors	1
Large Choral Music Ensemble (4600-level)	1
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (34 credits)

Fall Semester (16 credits)

MUSC 2110 Music Theory III.....	3
MUSC 2130 Aural Skills III	1
MUSC 2180 Computer Applications in Music.....	2
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors.....	1
MUSC 2700 Woodwind Techniques I: Flute, Clarinet.....	1

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MUSC 3100 Motivation and Classroom Management Strategies in Secondary Classroom Music	3
MUSC 3670 Individual Vocal Instruction for Music Majors	1
Large Choral Music Ensemble (4600-level)	1
University Studies Quantitative Literacy (QL) course	3

Spring Semester (18 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 2140 Aural Skills IV	1
MUSC 2350 Conducting	2
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors	1
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3670 Individual Vocal Instruction for Music Majors	1
Large Choral Music Ensemble (4600-level)	1
University Studies Breadth course	3

Junior Year (35 credits)

Fall Semester (17 credits)

MUSC 2800 Brass Techniques I: Trumpet, French Horn (1 cr) or	
MUSC 2810 Brass Techniques II: Trombone, Tuba, Euphonium (1 cr)	1
MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3670 Individual Vocal Instruction for Music Majors	1
SPED 4000 Education of Exceptional Individuals	2
Large Choral Music Ensemble (4600-level)	1
University Studies Breadth course	3
Depth Life and Physical Sciences (DSC) course	3
Quantitative Intensive (QI) course	3

Spring Semester (18 credits)

MUSC 3130 (CI) Music Theory IV	3
MUSC 3180 Scoring and Arranging	2
MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3230 Choral Literature	2
MUSC 3240 Instrumental Methods and Materials	2
MUSC 3670 Individual Vocal Instruction for Music Majors	1
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
SCED 3300 Clinical Experience I	1
Large Choral Music Ensemble (4600-level)	1

Senior Year (26 credits)

Fall Semester (14 credits)

MUSC 3220 Choral Methods and Materials	2
MUSC 3630 Vocal Pedagogy I	2
MUSC 3670 Individual Vocal Instruction for Music Majors	1
MUSC 4920 Individual Recital	1
SCED 4200 (CI) Reading, Writing, and Technology	3
SCED 4210 Cognition and Evaluation of Student Learning	3
SCED 4300 Clinical Experience II	1
Large Choral Music Ensemble (4600-level)	1

Spring Semester (12 credits)

SCED 5500 Student Teaching Seminar	2
SCED 5630 Student Teaching in Secondary Schools	10

Sample Four-year Plan for Music Major, Music Education (General) Emphasis

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I	3
MUSC 1130 Aural Skills I	1
MUSC 2570 Fingerboard Theory I	2
MUSC 2700 Woodwind Techniques I: Flute, Clarinet	1
MUSC 3550 Individual Guitar Instruction for Music Majors	1
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
University Studies Breadth course	3

Spring Semester (15 credits)

MUSC 1120 Music Theory II	3
MUSC 1140 Aural Skills II	1
MUSC 1600 Voice Techniques	1
MUSC 2580 Fingerboard Theory II	2
MUSC 3550 Individual Guitar Instruction for Music Majors	1
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
University Studies Breadth course	3
University Studies Quantitative Literacy (QL) course	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (17 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 1800 Percussion Techniques	1
MUSC 1150 Beginning Group Piano (1 cr) or	
MUSC 1160 Intermediate Group Piano (1 cr) or	
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr)	1
MUSC 2110 Music Theory III	3
MUSC 2130 Aural Skills III	1
MUSC 3100 Motivation and Classroom Management Strategies in Secondary Classroom Music	3
MUSC 3550 Individual Guitar Instruction for Music Majors	1
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
University Studies Breadth course	3

Spring Semester (15 credits)

MUSC 1150 Beginning Group Piano (1 cr) or	
MUSC 1160 Intermediate Group Piano (1 cr) or	
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr)	1
MUSC 1500 String Techniques I	1
MUSC 2180 Computer Applications in Music	2
MUSC 2350 Conducting	2
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3550 Individual Guitar Instruction for Music Majors	1
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
MUSC 2600 Women's Choir (1 cr) or	
MUSC 4600 University Chorale (1 cr)	1

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Junior Year (33 credits)

Fall Semester (17 credits)

MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3220 Choral Methods and Materials	2
MUSC 3550 Individual Guitar Instruction for Music Majors	1
MUSC 3570 Guitar Pedagogy I	2
SCED 3300 Clinical Experience I	1
SPED 4000 Education of Exceptional Individuals	2
University Studies Breadth courses	6

Spring Semester (16 credits)

MUSC 3130 (CI) Music Theory IV	3
MUSC 2560 Guitar Styles (Jazz/Classical)	2
MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3240 Instrumental Methods and Materials	2
MUSC 3580 Guitar Pedagogy II	2
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
SCED 4300 Clinical Experience II	1

Senior Year (28 credits)

Fall Semester (16 credits)

MUSC 2550 Guitar Styles (Blue/Bluegrass)	2
MUSC 3180 Scoring and Arranging	2
SCED 4200 (CI) Reading, Writing, and Technology	3
SCED 4210 Cognition and Evaluation of Student Learning	3
Depth Life and Physical Sciences (DSC) course	3
Quantitative Intensive (QI) course	3

Spring Semester (12 credits)

SCED 5500 Student Teaching Seminar	2
SCED 5630 Student Teaching in Secondary Schools	10

Bachelor of Music Degree (Performance Emphases) (2.75 cumulative GPA; 3.0 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 (35 credits)

All of the Music Core Curriculum courses (shown on page 410) 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)

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)	6
MUSC 3420 Keyboard Skills I (F)	3
MUSC 3430 Keyboard Skills II (Sp)	3
MUSC 4210 Advanced Music Form and Analysis (F)	3
MUSC 4410 Advanced Piano Pedagogy I (F)	3
MUSC 4420 Advanced Piano Pedagogy II (Sp)	3
MUSC 4920 Individual Recital (F,Sp,Su)	3-6

Organ Performance (52 credits)

MUSC 1460 (CI) Organ Literature I (F)	3
MUSC 1470 (CI) Organ Literature II (Sp)	3
MUSC 1600 Voice Techniques (F,Sp)	1
MUSC 2600 Women's Choir (F,Sp) (1 cr) or MUSC 4600 University Chorale (F,Sp) (1 cr)	1
MUSC 3230 Choral Literature (Sp)	2
MUSC 3460 Church Music for Organists I (F)	3
MUSC 3470 Church Music for Organists II (Sp)	3
MUSC 3480 Individual Organ Instruction for Music Majors (F,Sp,Su)	16
MUSC 4900 Baroque Counterpoint (F)	2
MUSC 4920 Individual Recital (F,Sp,Su)	4
Music Electives	14

String Performance (46 credits)

MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (F,Sp,Su)	2
MUSC 3500 Symphony Orchestra (F,Sp)	8
MUSC 4500 String Ensemble (F,Sp)	8
MUSC 4920 Individual Recital (Sophomore) (F,Sp,Su)	2
MUSC 4920 Individual Recital (Junior) (F,Sp,Su)	2
MUSC 4920 Individual Recital (Senior) (F,Sp,Su)	2
Music Electives	6

Individual String Instruction⁶ (16 credits)

Students must complete credits from *one* of the following:

MUSC 4510 Individual Violin Instr for Music Majors (F,Sp,Su)	1-2
MUSC 4520 Individual Viola Instr for Music Majors (F,Sp,Su)	1-2
MUSC 4530 Individual Cello Instr for Music Majors (F,Sp,Su)	1-2
MUSC 4540 Individual String Bass Instr for Music Majors (F,Sp,Su)	1-2

Vocal Performance (56-62 credits)

MUSC 1610 Introduction to Musical Theatre (Sp) (2 cr) or MUSC 1620 Introduction to Opera (F) (2 cr)	2
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (F,Sp,Su)	0-6
MUSC 2660 Italian Diction for Singers (Sp)	2
MUSC 2670 German Diction for Singers (F)	2
MUSC 2680 French Diction for Singers (Sp)	2
MUSC 3600 Opera Workshop (F,Sp)	6
MUSC 3610 Vocal Repertory I (F)	2
MUSC 3620 (CI) Vocal Repertory II (Sp)	2
MUSC 3630 Vocal Pedagogy I (F)	2
MUSC 3640 Vocal Pedagogy II (Sp)	2
MUSC 3670 Individual Vocal Instruction for Music Majors (F,Sp,Su)	16
MUSC 4920 Individual Recital (F,Sp,Su)	4
Major Performance Group (MUSC 4600, 4650, 2610, or 2600)	8
Italian or German or French (2 semesters)	6

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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 Instruction⁶ (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

MUSC 3710 Individual Flute Instr for Music Majors (F,Sp,Su)	1-2
MUSC 3720 Individual Oboe Instr for Music Majors (F,Sp,Su)	1-2
MUSC 3730 Individual Clarinet Instr for Music Majors (F,Sp,Su)	1-2
MUSC 3740 Individual Bassoon Instr for Music Majors (F,Sp,Su)	1-2
MUSC 3750 Individual Saxophone Instr for Music Majors (F,Sp,Su)	1-2

Individual Brass Instruction

MUSC 3810 Individual Trumpet Instr for Music Majors (F,Sp)	1-2
MUSC 3820 Individual Trombone Instr for Music Majors (F,Sp)	1-2
MUSC 3830 Individual French Horn Instr for Music Majors (F,Sp)	1-2
MUSC 3840 Individual Tuba/Euphonium Instr for Music Majors (F,Sp)	1-2

Individual Percussion Instruction

MUSC 3860 Individual Percussion Instr for Music Majors (F,Sp,Su)	1-2
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Large Ensembles⁷ (8 credits)

Select 8 credits from the following:

MUSC 3500 Symphony Orchestra (repeatable) (F,Sp)	1
MUSC 3790 Symphonic Band (repeatable) (F,Sp)	1
MUSC 4700 Wind Orchestra (repeatable) (F,Sp)	1

Small Ensembles (4 credits)

Select 4 credits from the following five 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

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 4920 Individual Recital (Junior) (F,Sp,Su)	1-2
MUSC 4920 Individual Recital (Senior) (F,Sp,Su)	3-6
Secondary Instrument Course ⁸	2
Electives (at least 4 credits in Music) ⁹	11-15

⁶A student in this program will study privately each semester of residency.

⁷A student in this program will participate in a large ensemble for each semester of residency.

⁸Choose 2 credits from: MUSC 2470, 2490, 2750, 2760, 2770, 2780, 2790, 2850, 2860, 2870, 2880, 2890.

⁹At 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, such as ECE 3260, Science of Sound.

Guitar Performance (54 credits)

MUSC 1150 Beginning Group Piano (Sp) (1 cr) or	
MUSC 1160 Intermediate Group Piano (Sp) (1 cr) 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

Sample Four-year Plan for Music Major, Piano Performance Emphasis

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (31 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I	3
MUSC 1130 Aural Skills I	1
MUSC 1170 Keyboard Harmony I	1
MUSC 1430 Piano Pedagogy I	3
MUSC 2180 Computer Applications in Music	2
MUSC 3400 Individual Piano Instruction for Music Majors	2

Spring Semester (16 credits)

MUSC 1120 Music Theory II	3
MUSC 1140 Aural Skills II	1
MUSC 1180 Keyboard Harmony II	1
MUSC 1420 Pedagogy Practicum	3
MUSC 1440 Piano Pedagogy II	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
University Studies Quantitative Literacy (QL) course	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (36 credits)

Fall Semester (17 credits)

MUSC 1420 Pedagogy Practicum	3
MUSC 2110 Music Theory III	3
MUSC 2130 Aural Skills III	1
MUSC 2420 Piano Literature I	3

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MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 3410 Ensemble and Accompanying	1
MUSC 4410 Advanced Piano Pedagogy I	1
University Studies Breadth course	3

Spring Semester (19 credits)

MUSC 1420 Pedagogy Practicum	3
MUSC 2140 Aural Skills IV	1
MUSC 2430 Piano Literature II	3
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 4420 Advanced Piano Pedagogy II	1
University Studies Breadth course	3

Junior Year (36 credits)

Fall Semester (20 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 2440 Piano Literature III	3
MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 3410 Ensemble and Accompanying	2
MUSC 4410 Advanced Piano Pedagogy I	1
University Studies Breadth courses	6

Spring Semester (16 credits)

MUSC 2450 Piano Literature IV	3
MUSC 3130 (CI) Music Theory IV	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 3410 Ensemble and Accompanying	1
MUSC 4420 Advanced Piano Pedagogy II	1
University Studies Breadth course	3
Depth Social Sciences (DSS) course	3

Senior Year (34-36 credits)

Fall Semester (16 credits)

MUSC 3180 Scoring and Arranging	2
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 3410 Ensemble and Accompanying	1
MUSC 3420 Keyboard Skills I	3
MUSC 4410 Advanced Piano Pedagogy I	1
MUSC 4920 Individual Recital	1
Quantitative Intensive (QI) course	3
Communications Intensive (CI) course	3

Spring Semester (18-20 credits)

MUSC 2350 Conducting	2
MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 3410 Ensemble and Accompanying	1
MUSC 3430 Keyboard Skills II	3
MUSC 4420 Advanced Piano Pedagogy II	1
MUSC 4210 Advanced Music Form and Analysis (3 cr) or	
MUSC 4910 Music Composition (2 cr)	2 or 3
MUSC 4920 Individual Recital	1-2
Depth Life and Physical Sciences (DSC) course	3

Sample Four-year Plan for Music Major, Organ Performance Emphasis

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (30 credits)

Fall Semester (14 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I	3
MUSC 1130 Aural Skills I	1
MUSC 1170 Keyboard Harmony I	1
MUSC 1460 (CI) Organ Literature I	3
MUSC 1600 Voice Techniques	1
MUSC 3480 Individual Organ Instruction for Music Majors	2

Spring Semester (16 credits)

MUSC 1120 Music Theory II	3
MUSC 1140 Aural Skills II	1
MUSC 1180 Keyboard Harmony II	1
MUSC 1470 (CI) Organ Literature II	3
MUSC 3480 Individual Organ Instruction for Music Majors	2
University Studies Breadth course	3
University Studies Quantitative Literacy (QL) course	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (34 credits)

Fall Semester (16 credits)

MUSC 2110 Music Theory III	3
MUSC 2130 Aural Skills III	1
MUSC 2170 Keyboard Harmony III	1
MUSC 2180 Computer Applications in Music	2
MUSC 2600 Women's Choir (1 cr) or	
MUSC 4600 University Chorale (1 cr)	1
MUSC 3460 Church Music for Organists I	3
MUSC 3480 Individual Organ Instruction for Music Majors	2
University Studies Breadth course	3

Spring Semester (18 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 2140 Aural Skills IV	1
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3470 Church Music for Organists II	3
MUSC 3480 Individual Organ Instruction for Music Majors	2
University Studies Breadth course	3

Junior Year (30 credits)

Fall Semester (16 credits)

MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3480 Individual Organ Instruction for Music Majors	2
MUSC 4900 Baroque Counterpoint	2
MUSC elective course(s)	3
University Studies Breadth courses	6

Spring Semester (14 credits)

MUSC 2350 Conducting	2
MUSC 3130 (CI) Music Theory IV	3
MUSC 3180 Scoring and Arranging	2
MUSC 3230 Choral Literature	2
MUSC 3480 Individual Organ Instruction for Music Majors	2
MUSC elective course(s)	3

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Senior Year (30 credits)

Fall Semester (15 credits)

MUSC 3220 Choral Methods and Materials	2
MUSC 3480 Individual Organ Instruction for Music Majors.....	2
MUSC 4920 Individual Recital	2
MUSC elective course(s).....	3
Quantitative Intensive (QI) course.....	3
Depth Life and Physical Sciences (DSC) course	3

Spring Semester (15 credits)

MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3480 Individual Organ Instruction for Music Majors.....	2
MUSC 4910 Music Composition	2
MUSC 4920 Individual Recital	2
MUSC elective course(s).....	3
Depth Social Sciences (DSS) course.....	3

Sample Four-year Plan for Music Major, String Performance Emphasis

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (31 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I.....	3
MUSC 1130 Aural Skills I	1
MUSC 1170 Keyboard Harmony I	1
MUSC 1800 Percussion Techniques.....	1
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors	1
MUSC 3500 Symphony Orchestra	1
MUSC 4500 String Ensemble	1
Individual Music Instruction course (4500-level)	1
University Studies Breadth course	3

Spring Semester (15 credits)

MUSC 1120 Music Theory II.....	3
MUSC 1140 Aural Skills II	1
MUSC 1180 Keyboard Harmony II	1
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors	1
MUSC 3500 Symphony Orchestra	1
MUSC 4500 String Ensemble	1
Individual Music Instruction course (4500-level)	1
University Studies Breadth course	3
University Studies Quantitative Literacy (QL) course.....	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

MUSC 1500 String Techniques I	1
MUSC 2110 Music Theory III.....	3

MUSC 2130 Aural Skills III	1
MUSC 2170 Keyboard Harmony III	1
MUSC 3500 Symphony Orchestra	1
MUSC 4500 String Ensemble	1
Individual Music Instruction course (4500-level)	1
University Studies Breadth courses	6

Spring Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 2140 Aural Skills IV	1
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3500 Symphony Orchestra	1
MUSC 4500 String Ensemble	1
MUSC 4920 Individual Recital.....	2
Individual Music Instruction course (4500-level)	1

Junior Year (31 credits)

Fall Semester (17 credits)

MUSC 2180 Computer Applications in Music.....	2
MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3500 Symphony Orchestra	1
MUSC 4500 String Ensemble	1
Individual Music Instruction course (4500-level)	1
University Studies Breadth course	3
Depth Social Sciences (DSS) course.....	3
Quantitative Intensive (QI) course	3

Spring Semester (14 credits)

MUSC 3130 (CI) Music Theory IV	3
MUSC 3180 Scoring and Arranging	2
MUSC 3500 Symphony Orchestra	1
MUSC 4500 String Ensemble	1
MUSC 4920 Individual Recital.....	2
MUSC 4600 University Chorale	1
Individual Music Instruction course (4500-level)	1
Depth Life and Physical Sciences (DSC) course	3

Senior Year (29 credits)

Fall Semester (12 credits)

MUSC 3500 Symphony Orchestra	1
MUSC 3510 Orchestra Literature	2
MUSC 4500 String Ensemble	1
Individual Music Instruction course (4500-level)	1
MUSC elective course(s).....	4
Communications Intensive (CI) course	3

Spring Semester (17 credits)

MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3500 Symphony Orchestra	1
MUSC 3520 String Pedagogy and Solo Literature	2
MUSC 4500 String Ensemble	1
MUSC 4920 Individual Recital.....	2
Individual Music Instruction course (4500-level)	1
MUSC elective course(s).....	2
Elective course(s).....	5

Sample Four-year Plan for Music Major, Vocal Performance Emphasis

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: C- in major courses

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This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (31 credits)

Fall Semester (14 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I	3
MUSC 1130 Aural Skills I	1
MUSC 1170 Keyboard Harmony I	1
MUSC 1620 Introduction to Opera	2
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors	1
MUSC 3670 Individual Vocal Instruction for Music Majors	2
MUSC Major Ensemble	1

Spring Semester (17 credits)

MUSC 1120 Music Theory II	3
MUSC 1140 Aural Skills II	1
MUSC 1180 Keyboard Harmony II	1
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors	1
MUSC 2660 Italian Diction for Singers	2
MUSC 3670 Individual Vocal Instruction for Music Majors	2
MUSC Major Ensemble	1
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

MUSC 2110 Music Theory III	3
MUSC 2130 Aural Skills III	1
MUSC 2170 Keyboard Harmony III	1
MUSC 2180 Computer Applications in Music	2
MUSC 2670 German Diction for Singers	2
MUSC 3600 Opera Workshop	1
MUSC 3670 Individual Vocal Instruction for Music Majors	2
MUSC Major Ensemble	1
University Studies Quantitative Literacy (QL) course	3

Spring Semester (16 credits)

MUSC 2140 Aural Skills IV	1
MUSC 2680 French Diction for Singers	2
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3600 Opera Workshop	1
MUSC 3670 Individual Vocal Instruction for Music Majors	2
MUSC Major Ensemble	1
University Studies Breadth course	3

Junior Year (33 credits)

Fall Semester (18 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 2350 Conducting	2
MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3600 Opera Workshop	1
MUSC 3610 Vocal Repertory I (2 cr) or	
MUSC 3630 Vocal Pedagogy I (2 cr)	2

MUSC 3670 Individual Vocal Instruction for Music Majors	2
MUSC Major Ensemble	1
Foreign Language course(s) (French, German, or Italian)	4

Spring Semester (15 credits)

MUSC 3130 (CI) Music Theory IV	3
MUSC 3600 Opera Workshop	1
MUSC 3620 (CI) Vocal Repertory II (2 cr) or	
MUSC 3640 Vocal Pedagogy II (2 cr)	2
MUSC 3670 Individual Vocal Instruction for Music Majors	2
MUSC Major Ensemble	1
University Studies Breadth courses	6

Senior Year (32 credits)

Fall Semester (15 credits)

MUSC 3600 Opera Workshop	1
MUSC 3610 Vocal Repertory I (2 cr) or	
MUSC 3630 Vocal Pedagogy I (2 cr)	2
MUSC 3670 Individual Vocal Instruction for Music Majors	2
MUSC 4920 Individual Recital	2
MUSC Major Ensemble	1
Foreign Language course(s) (French, German, or Italian)	4
Depth Social Sciences (DSS) course	3

Spring Semester (17 credits)

MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3600 Opera Workshop	1
MUSC 3620 (CI) Vocal Repertory II (2 cr) or	
MUSC 3640 Vocal Pedagogy II (2 cr)	2
MUSC 3670 Individual Vocal Instruction for Music Majors	2
MUSC 4920 Individual Recital	2
MUSC Major Ensemble	1
Quantitative Intensive (QI) course	3
Depth Life and Physical Sciences (DSC) course	3

Sample Four-year Plan for Music Major, Wind/Brass/Percussion Performance Emphasis

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I	3
MUSC 1130 Aural Skills I	1
MUSC 1170 Keyboard Harmony I	1
MUSC 3500 Symphony Orchestra (1 cr) or	
MUSC 3790 Symphonic Band (1 cr) or	
MUSC 4700 Wind Orchestra (1 cr)	1
Individual Music Instruction course (3700-level or 3800-level)	1
University Studies Breadth course	3
Elective course(s)	2

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Spring Semester (15 credits)

MUSC 1120 Music Theory II.....	3
MUSC 1140 Aural Skills II	1
MUSC 1180 Keyboard Harmony II	1
MUSC 3500 Symphony Orchestra (1 cr) or	
MUSC 3790 Symphonic Band (1 cr) or	
MUSC 4700 Wind Orchestra (1 cr)	1
Individual Music Instruction course (3700-level or 3800-level).....	1
University Studies Quantitative Literacy (QL) course	3
University Studies Breadth course	3
Elective course(s).....	2

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (31 credits)

Fall Semester (15 credits)

MUSC 2110 Music Theory III.....	3
MUSC 2130 Aural Skills III	1
MUSC 2700 Woodwind Techniques I: Flute, Clarinet (1 cr) or	
MUSC 2740 Recorder Techniques (1 cr).....	1
MUSC 3500 Symphony Orchestra (1 cr) or	
MUSC 3790 Symphonic Band (1 cr) or	
MUSC 4700 Wind Orchestra (1 cr)	1
Individual Music Instruction course (3700-level or 3800-level).....	1
Individual Music Instruction course (Second Instrument).....	1
University Studies Breadth courses	6
Elective course	1

Spring Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 2140 Aural Skills IV	1
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3500 Symphony Orchestra (1 cr) or	
MUSC 3790 Symphonic Band (1 cr) or	
MUSC 4700 Wind Orchestra (1 cr)	1
Individual Music Instruction course (3700-level or 3800-level).....	1
Individual Music Instruction course (Second Instrument).....	1
University Studies Breadth course	3

Junior Year (30 credits)

Fall Semester (15 credits)

MUSC 2180 Computer Applications in Music.....	2
MUSC 2350 Conducting.....	2
MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3500 Symphony Orchestra (1 cr) or	
MUSC 3790 Symphonic Band (1 cr) or	
MUSC 4700 Wind Orchestra (1 cr)	1
Small Ensemble Music course	1
Individual Music Instruction course (3700-level or 3800-level).....	2
Depth Social Sciences (DSS) course	3
Elective course	1

Spring Semester (15 credits)

MUSC 3130 (CI) Music Theory IV	3
MUSC 3180 Scoring and Arranging	2
MUSC 3500 Symphony Orchestra (1 cr) or	
MUSC 3790 Symphonic Band (1 cr) or	
MUSC 4700 Wind Orchestra (1 cr)	1
MUSC 4920 Individual Recital.....	2
Small Ensemble Music course	1
Individual Music Instruction course (3700-level or 3800-level).....	2
Quantitative Intensive (QI) course.....	3
Elective course	1

Senior Year (30 credits)

Fall Semester (15 credits)

MUSC 3500 Symphony Orchestra (1 cr) or	
MUSC 3790 Symphonic Band (1 cr) or	
MUSC 4700 Wind Orchestra (1 cr)	1
MUSC 3900 Jazz Improvisation	2
MUSC 4920 Individual Recital.....	3
Individual Music Instruction course (3700-level or 3800-level).....	2
Small Ensemble music course	1
Depth Life and Physical Sciences (DSC) course	3
Music elective course(s).....	3

Spring Semester (15 credits)

MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3500 Symphony Orchestra (1 cr) or	
MUSC 3790 Symphonic Band (1 cr) or	
MUSC 4700 Wind Orchestra (1 cr)	1
MUSC 3240 Instrumental Methods and Materials (2 cr) or	
MUSC 4930 Readings and Conference (2 cr).....	2
MUSC 4920 Individual Recital.....	3
Small Ensemble music course	1
Individual Music Instruction course (3700-level or 3800-level).....	2
Communications Intensive (CI) course	3

Sample Four-year Plan for Music Major, Guitar Performance Emphasis

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I.....	3
MUSC 1130 Aural Skills I	1
MUSC 1150 Beginning Group Piano (1 cr) or	
MUSC 1160 Intermediate Group Piano (1 cr) or	
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr)	1
MUSC 2570 Fingerboard Theory I	2
MUSC 3550 Individual Guitar Instruction for Music Majors	1
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
University Studies Breadth course	3

Spring Semester (15 credits)

MUSC 1120 Music Theory II.....	3
MUSC 1140 Aural Skills II	1
MUSC 1150 Beginning Group Piano (1 cr) or	
MUSC 1160 Intermediate Group Piano (1 cr) or	
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr)	1
MUSC 2580 Fingerboard Theory II	2
MUSC 3550 Individual Guitar Instruction for Music Majors	1

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MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (14 credits)

MUSC 2110 Music Theory III.....	3
MUSC 2130 Aural Skills III	1
MUSC 2550 Guitar Styles (Blues/Bluegrass).....	2
MUSC 3550 Individual Guitar Instruction for Music Majors.....	1
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
University Studies Breadth course	3
University Studies Quantitative Literacy (QL) course.....	3

Spring Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 2560 Guitar Styles (Jazz/Classical).....	2
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3550 Individual Guitar Instruction for Music Majors.....	1
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
University Studies Breadth course	3

Junior Year (30 credits)

Fall Semester (15 credits)

MUSC 2180 Computer Applications in Music.....	2
MUSC 2350 Conducting.....	2
MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3550 Individual Guitar Instruction for Music Majors.....	1
MUSC 3570 Guitar Pedagogy I.....	2
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
Depth Social Sciences (DSS) course	3
Elective course	1

Spring Semester (15 credits)

MUSC 3130 (CI) Music Theory IV.....	3
MUSC 3180 Scoring and Arranging	2
MUSC 3550 Individual Guitar Instruction for Music Majors.....	1
MUSC 3560 Guitar History and Literature.....	3
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
MUSC 3580 Guitar Pedagogy II.....	2
Quantitative Intensive (QI) course.....	3

Senior Year (30 credits)

Fall Semester (15 credits)

MUSC 3550 Individual Guitar Instruction for Music Majors.....	2
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1
MUSC 3900 Jazz Improvisation	2
MUSC 4920 Individual Recital.....	3
MUSC elective course(s).....	3
Depth Life and Physical Sciences (DSC) course	3
Elective course	1

Spring Semester (15 credits)

MUSC 3190 Music History III: Music of the Twentieth Century.....	3
MUSC 3550 Individual Guitar Instruction for Music Majors.....	2
MUSC 3590 Electric Guitar Ensemble (1 cr) or	
MUSC 4550 Acoustic Guitar Ensemble (1 cr)	1

MUSC 4920 Individual Recital.....	3
MUSC 4930 Reading and Conference.....	2
Communications Intensive (CI) course	3
Elective course	1

Bachelor of Music Degree (Piano Pedagogy Emphasis) (2.75 cumulative GPA; 3.0 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 3.0 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*.

Music Core Curriculum Requirements (35 credits)

Students in the Piano Pedagogy emphasis must complete the 35-credit music core curriculum as listed on page 410.

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

Sample Four-year Plan for Music Major, Piano Pedagogy Emphasis

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (31 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I.....	3
MUSC 1130 Aural Skills I	1
MUSC 1170 Keyboard Harmony I	1

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MUSC 1430 Piano Pedagogy I	3
MUSC 2180 Computer Applications in Music.....	2
MUSC 3400 Individual Piano Instruction for Music Majors	2

Spring Semester (16 credits)

MUSC 1120 Music Theory II.....	3
MUSC 1140 Aural Skills II	1
MUSC 1180 Keyboard Harmony II	1
MUSC 1420 Pedagogy Practicum.....	3
MUSC 1440 Piano Pedagogy II	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
University Studies Quantitative Literacy (QL) course.....	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (36 credits)

Fall Semester (17 credits)

MUSC 1420 Pedagogy Practicum.....	3
MUSC 2110 Music Theory III.....	3
MUSC 2130 Aural Skills III	1
MUSC 2420 Piano Literature I	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 3410 Ensemble and Accompanying	1
MUSC 4410 Advanced Piano Pedagogy I.....	1
University Studies Breadth course	3

Spring Semester (19 credits)

MUSC 1420 Pedagogy Practicum.....	3
MUSC 2140 Aural Skills IV	1
MUSC 2430 Piano Literature II	3
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 4420 Advanced Piano Pedagogy II.....	1
University Studies Breadth course	3

Junior Year (35 credits)

Fall Semester (19 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 2440 Piano Literature III	3
MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 3410 Ensemble and Accompanying	1
MUSC 4410 Advanced Piano Pedagogy I	1
University Studies Breadth courses	6

Spring Semester (16 credits)

MUSC 2450 Piano Literature IV	3
MUSC 3130 (CI) Music Theory IV	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 3410 Ensemble and Accompanying	1
MUSC 4420 Advanced Piano Pedagogy II.....	1
University Studies Breadth course	3
Depth Social Sciences (DSS) course.....	3

Senior Year (33-35 credits)

Fall Semester (16-18 credits)

MUSC 3180 Scoring and Arranging	2
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 3410 Ensemble and Accompanying	1
MUSC 3420 Keyboard Skills I	3
MUSC 4410 Advanced Piano Pedagogy I.....	1
MUSC 4920 Individual Recital.....	1
MUSC 1460 (CI) Organ Literature I (3 cr) or MUSC 4900 Baroque Counterpoint (2 cr)	2 or 3

Quantitative Intensive (QI) course	3
Communications Intensive (CI) course (not needed if taking MUSC 1460)	(3)

Spring Semester (17 credits)

MUSC 2350 Conducting.....	2
MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3400 Individual Piano Instruction for Music Majors	2
MUSC 3430 Keyboard Skills II	3
MUSC 4420 Advanced Piano Pedagogy II	1
MUSC 4910 Music Composition	2
MUSC 4920 Individual Recital.....	1
Depth Life and Physical Sciences (DSC) course	3

Bachelor of Music Degree (Individualized Program)

(2.75 cumulative GPA; 3.0 GPA in Music courses)

The Individualized Bachelor of Music Degree is intended for persons whose musical goals are not met by USU's other bachelor of music programs in music education, performance/pedagogy, or music therapy. The individualized program is also appropriate for those who wish to combine music with another discipline, such as business, electrical engineering, computer science, etc. A grade of C- or better must be earned in all classes applied toward the degree.

All individualized curricula must meet criteria established by the National Association of Schools of Music. Students in the individualized program are expected to complete at least the minimum jury performance level required for their major instrument or voice, and to complete a senior recital appropriate to their emphasis. All proposed individualized curricula must be approved by an appropriate advisor, the Individualized Bachelor of Music Degree Committee, and the Head of the Department of Music.

University Studies Requirements

Music Core Curriculum (35 credits) (see page 410)

Music Performance (16 credits)

Individual Instruction (8 credits)

Individual Instruction should be taken in either the major instrument or voice.

Large and Small Ensembles (8 credits)

As part of the 8 required credits, a minimum of 4 credits must be taken in a large ensemble.

Emphasis Area (37 credits)

The curriculum for the emphasis area must be developed in consultation with an appropriate advisor and approved by the Individualized Bachelor of Music Degree Program Committee and by the Head of the Department of Music. It must form a coherent plan leading to the fulfillment of specific objectives. Student transcripts will show Individualized Program, *not* the emphasis area approved by the committee.

If the plan involves relating music to other fields, it must meet appropriate criteria as outlined in the *Handbook of the National Association of Schools of Music* for the degree of Bachelor of Music in Combinations with an Outside Field. Such a plan must also be developed and approved in consultation with an advisor in the other field, in addition to the appropriate advisor in the Department of Music.

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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 3.0 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 (34-35 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 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 2180 Computer Applications in Music (F,Sp)	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 3130 (CI) Music Theory IV (Sp)	3
MUSC 3140 Musical Form and Analysis (Sp)	3
MUSC 3190 Music History III: Music of the Twentieth Century (Sp)	3

Additional Music Coursework (4 credits)

MUSC 1800 Percussion Techniques (F)	1
MUSC 2740 Recorder Techniques (Sp)	1
MUSC 3260 Elementary School Music (F,Sp,Su)	2

Ensemble Performance (2 credits)

Select 2 credits from the following:

MUSC 1320 Music Therapy Ensemble (F,Sp)	1
MUSC 3500 Symphony Orchestra (F,Sp)	1
MUSC 3700 Woodwind Ensemble (F,Sp)	1-2
MUSC 3780 Flute Ensemble (F)	1
MUSC 3790 Symphonic Band (F,Sp)	1
MUSC 3800 Trombone Ensemble (F,Sp)	1
MUSC 3850 Brass Ensemble (F,Sp)	1
MUSC 3870 Percussion Ensemble (F,Sp)	1
MUSC 4500 String Ensemble (F,Sp)	1
MUSC 4600 University Chorale (F,Sp)	1
MUSC 4650 Chamber Singers (F,Sp)	1

Individual Instruction (Major Instrument) (4 credits)

Guitar Requirements (with advisor approval) (1-4 credits)

Select 1-4 credits from the following:

MUSC 1550 Beginning Group Guitar (F,Sp)	1
MUSC 1560 Intermediate Group Guitar (F,Sp)	1
MUSC 2550 Guitar Styles (Blues/Bluegrass) (F)	2
MUSC 2560 Guitar Styles (Jazz/Classical) (Sp)	2
MUSC 2590 Individual Guitar Instruction (Second Instrument) for Music Majors (F,Sp,Su)	1
MUSC 3550 Individual Guitar Instruction for Music Majors (F,Sp,Su)	1-2

Piano Requirements (with advisor approval) (1-4 credits)

Select 1-4 credits from the following:

MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (repeatable) (F,Sp,Su)	1
MUSC 3400 Individual Piano Instruction for Music Majors (repeatable) (F,Sp,Su)	1

Vocal Requirements (with advisor approval) (2 credits)

Select 2 credits from the following:

MUSC 2640 Individual Vocal Instruction (Second Instrument) for Music Majors (repeatable) (F,Sp,Su)	1
MUSC 3670 Individual Vocal Instruction for Music Majors (repeatable) (F,Sp,Su)	1-2

Music Therapy Core Courses (29-31 credits)

MUSC 1310 Introduction to Music Therapy (F)	2
MUSC 2310 Introduction to Observational and Behavioral Methods in Music Therapy (F)	2
MUSC 2320 Music Therapy Methods and Materials (Sp)	2
MUSC 3310 Music Therapy and the Exceptional Child (F)	3
MUSC 3320 Psychology of Music I (Sp)	2
MUSC 3330 Music Therapy Practicum (F,Sp)	9-11
MUSC 4310 Music Therapy with Adult Populations (F)	3
MUSC 4320 (CI) Psychology of Music II (Sp)	2
MUSC 4330 Clinical and Professional Issues in Music Therapy (Sp)	2
MUSC 4340 Internship in Music Therapy (taken only after all academic coursework has been completed) (F,Sp,Su)	2

Behavioral Health/Natural Sciences (20 credits)

PSY 1010 (BSS) General Psychology (F,Sp,Su)	3
PSY 3210 (DSS) Abnormal Psychology (F,Sp)	3
BIOL 2320 Human Anatomy (Sp,Su)	4
SPED 4000 Education of Exceptional Individuals (F,Sp,Su)	2
Electives (must be approved by student's advisor)	8

Sample Four-year Plan for Music Therapy Major

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: C- in major courses

This is a sample plan. It outlines 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. In addition, students should refer to the Music Department's *Student Handbook* and *Music Therapy Addendum to the Handbook*. To make an appointment with a professional advisor, call (435) 797-3883.

Freshman Year (34 credits)

Fall Semester (18 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MUSC 1110 Music Theory I	3
MUSC 1130 Aural Skills I	1
MUSC 1170 Keyboard Harmony I	1
MUSC 1310 Introduction to Music Therapy	2
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr) or	
MUSC 2590 Individual Guitar Instruction (Second Instrument) for Music Majors (1 cr)	1
PSY 1010 (BSS) General Psychology	3
MUSC Ensemble course	1
University Studies Breadth course	3

Spring Semester (16 credits)

MUSC 1120 Music Theory II	3
MUSC 1140 Aural Skills II	1
MUSC 1180 Keyboard Harmony II	1
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr) or	

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MUSC 2590 Individual Guitar Instruction (Second Instrument) for Music Majors (1 cr)	1
MUSC 2640 Individual Vocal Instruction (Second Instrument) for Music Majors	1
SPED 4000 Education of Exceptional Individuals	2
STAT 1040 (QL) Introduction to Statistics	3
MUSC Ensemble course	1
University Studies Breadth course	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (33 credits)

Fall Semester (16 credits)

MUSC 1800 Percussion Techniques	1
MUSC 2110 Music Theory III	3
MUSC 2130 Aural Skills III	1
MUSC 2170 Keyboard Harmony III	1
MUSC 2310 Introduction to Observational and Behavioral Methods in Music Therapy	2
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr) or	
MUSC 2590 Individual Guitar Instruction (Second Instrument) for Music Majors (1 cr)	1
MUSC 2640 Individual Vocal Instruction (Second Instrument) for Music Majors	1
MUSC 3260 Elementary School Music	2
MUSC Ensemble course	1
University Studies Breadth course	3

Spring Semester (17 credits)

MUSC 2140 Aural Skills IV	1
MUSC 2180 Computer Applications in Music	2
MUSC 2320 Music Therapy Methods and Materials	2
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr) or	
MUSC 2590 Individual Guitar Instruction (Second Instrument) for Music Majors (1 cr)	1
MUSC 2740 Recorder Techniques	1
MUSC 3110 Music History I: Origins through Baroque	3
MUSC 3140 Musical Form and Analysis	3
MUSC 3330 Music Therapy Practicum	1
University Studies Breadth course	3

Junior Year (33 credits)

Fall Semester (17 credits)

MUSC 2350 Conducting	2
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr) or	
MUSC 2590 Individual Guitar Instruction (Second Instrument) for Music Majors (1 cr)	1
MUSC 3120 Music History II: Classical and Romantic Periods	3
MUSC 3310 Music Therapy and the Exceptional Child	3
MUSC 3330 Music Therapy Practicum	2
Behavioral elective course	3
Depth Life and Physical Sciences (DSC) course	3

Spring Semester (16 credits)

MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr) or	
MUSC 2590 Individual Guitar Instruction (Second Instrument) for Music Majors (1 cr)	1
MUSC 3130 (CI) Music Theory IV	3
MUSC 3180 Scoring and Arranging	2
MUSC 3320 Psychology of Music I	2
MUSC 3330 Music Therapy Practicum	2
Behavioral elective courses	6

Senior Year (29 credits)

Fall Semester (17 credits)

BIOL 2320 Human Anatomy	4
MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors (1 cr) or	
MUSC 2590 Individual Guitar Instruction (Second Instrument) for Music Majors (1 cr)	1
MUSC 3330 Music Therapy Practicum	3
MUSC 4310 Music Therapy with Adult Populations	3
PSY 3210 (DSS) Abnormal Psychology	3
Quantitative Intensive (QI) course	3

Spring Semester (12 credits)

MUSC 3190 Music History III: Music of the Twentieth Century	3
MUSC 3330 Music Therapy Practicum	3
MUSC 4320 (CI) Psychology of Music II	2
MUSC 4330 Clinical and Professional Issues in Music Therapy	2
MUSC 4340 Internship in Music Therapy	2

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)

Advisor: Dr. Dean Madsen, 797-3031, University Reserve 202

MUSC 1110¹⁰ Music Theory I (<i>music minor section</i>) (F)	3
MUSC 1130¹⁰ Aural Skills I (<i>music minor section</i>) (F)	1
MUSC 1480 Individual Piano Instruction for Nonmusic Majors (F,Sp,Su)	1
MUSC 2350 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.

MUSC 1010 (BCA) Introduction to Music (F,Sp,Su)	3
MUSC 3010 (DHA)¹¹ Masterpieces of Music (F,Sp)	3
MUSC 3020 (DHA)¹¹ History of Jazz (Sp)	3

Music Composition Minor (21 credits)

(Approval pending)

This minor is available to Music and Music Therapy majors only.

Advisor: Dr. Dean Madsen, 797-3031, University Reserve 202

MUSC 2180 Computer Applications in Music (F,Sp)	2
MUSC 3020 History of Jazz (Sp)	3
MUSC 3910 Individual Composition Instruction (F,Sp)	2
MUSC 4900 Baroque Counterpoint (F)	2
MUSC 4910 Music Composition (repeatable; take for 2 semesters) (Sp)	4
MUSC 4920 Individual Recital (F,Sp,Su)	2

In addition, complete the following two courses. ECE 3260 may also count toward University Studies requirements.

PHIL 3810 Aesthetics (Sp)	3
ECE 3260 (QI/DSC) Science of Sound (F)	3

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Elementary School Music Teaching Minor (19 credits)

This minor is for Early Childhood Education or Elementary Education majors only.

Advisor: Professor Leslie Timmons, 797-3699, Fine Arts 105

MUSC 1110 ¹⁰ Music Theory I (<i>music minor section</i>) (F)	3
MUSC 1130 ¹⁰ Aural Skills I (<i>music minor section</i>) (F)	1
MUSC 1170 Keyboard Harmony I (<i>music minor section</i>) (F)	1
MUSC 1600 Voice Techniques (F,Sp) (1 cr) or	
MUSC 1630 Individual Vocal Instruction for Nonmusic Majors (F,Sp,Su) (1 cr)	1
MUSC 3260 ¹² Elementary School Music (F,Sp,Su)	2
MUSC 3270 ¹³ Teaching Strategies and Practicum in Elementary Music (Sp)	3
Choral Performance Ensemble	2
Large or Small Performance Ensembles	2

In addition, complete the following course, which may also count toward University Studies requirements.

MUSC 1010 (BCA) Introduction to Music (F,Sp,Su)	3
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Elective Courses

Complete at least **one** of the three courses listed below.

MUSC 1480 Individual Piano Instruction for Nonmusic Majors (F,Sp,Su)	1
MUSC 1550 Beginning Group Guitar (F,Sp)	1
MUSC 1560 Intermediate Group Guitar (F,Sp)	1

¹⁰Offered during spring semester *only*. These courses must be taken concurrently.

¹¹It is recommended that students complete MUSC 1010 prior to enrolling in MUSC 3010 and 3020.

¹²Students 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.

¹³Offered spring semester *only*. Level I Orff Schulwerk (taught summer semester *only*) may also fulfill this requirement. MUSC 1110 and 3260 are prerequisites for MUSC 3270. It is recommended that students complete MUSC 1600 or 1630 prior to enrolling in MUSC 3270.

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://www.usu.edu/music/assessment/index.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@cc.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/ats/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.

Department of Music

Music Faculty

Professors

Gary Amano, piano
Michael L. Ballam, opera
Michael K. Christiansen, guitar program
James M. Drake, organ program
Todd L. Fallis, instrumental music education, student advising, low brass
F. Dean Madsen, music theory, twentieth century music, composition
Nicholas E. Morrison, clarinet, associate director of bands

Adjunct Professor

Michael Martin Murphey, songwriting, American studies

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
Mark A. Emile, string performance and pedagogy, violin/viola
Dennis D. Griffin, percussion, electronic music, composition
Lynn Jemison-Keisker, opera, voice
Thomas Rohrer, director of bands
Bruce M. Saperston, music therapy
Leslie Timmons, elementary music education, flute
Elizabeth York, director of music therapy

Associate Professor Emeritus

Mildred Johnson, music history and literature, musicianship program, viola

Assistant Professors

Sergio Bernal, orchestra conductor, string program
Jon Gudmundson, jazz, saxophone
R. Dennis Hirst, piano, Youth Conservatory
Eric Smigel, music history, world music
Ralph van der Beek, piano, Youth Conservatory

Assistant Professor Emeritus

Betty Beecher, piano

Instructors

Lane Cheney, choral music education
R. Cory Evans, choral music

Lecturers (Fry Street Quartet)

Russell Fallstad, viola
Anne Francis, cello
Jessica Guideri, violin
Rebecca McFaul, violin

Course Descriptions

Music (MUSC), pages 668-675.

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.

NEPA 6200 How to Manage the NEPA Process and Write Effective NEPA Documents	2
NEPA 6210 Clear Writing for NEPA Specialists	2
NEPA 6220 Reviewing NEPA Documents	2
NEPA 6230 Risk Communication for NEPA Specialists: Strategies and Implementation	2
NEPA 6260 Cultural and Natural Resource Management	2

Elective Courses

Participants are required to take three courses of their choosing from the following list.

NEPA 6270 Environmental Compliance Overview	1
NEPA 6280 Interdisciplinary Team Building	1
NEPA 6300 Effective Environmental Contracting	1
NEPA 6310 NEPA Writing for Technical Specialists	1
NEPA 6320 NEPA: Cumulative Impacts	1
NEPA 6330 Conflict Management in the NEPA Process	1
NEPA 6350 Socio-economic Impact Analysis for NEPA Specialists	1
NEPA 6360 Overview of the Endangered Species Act	1

Certificate Program in National Environmental Policy Act (NEPA)

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), page 676.

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/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

The Environmental Education course and the Advanced Natural Resource Interpretation course serve as Foundation Courses. Environmental Education covers teaching about the environment,

Natural Resources and Environmental Education Graduate Certificate

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 interpretive plans 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.

ECON 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
AWER 5150/6150 Fluvial Geomorphology 3
AWER 5330/6330 Large River Management 3
AWER 5640/7640 Riparian Ecology and Management 3
AWER 5660 Watershed and Stream Restoration 2
AWER 6530 Water Quality and Pollution 3
AWER 6650 Principles in Fishery Management 3
ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources 3
FRWS 5000 Predator Ecology and Management 3
FRWS 5070/6070 Range Wildlife Relations 3
FRWS 5300/7300 Wildlife Damage Management Principles 3
FRWS 7000 Theory and Applications of Rangeland Ecosystem Management 3
PLSC 5550/6550 Weed Biology and Control 4
SOIL 5350/6350 Wildland Soils 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 6400 Multiple Talent Approach to Teaching 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 6700 Folklore Theory and Method 3
ENGL/HIST 6720 Folklore Fieldwork 3
ENGL/HIST 6730 Public Folklore 3
ENGL/HIST 6740 Folk Narrative 3

Natural Resources and Environmental Education Graduate Certificate

ENGL/HIST 6760 Cultural and Historical Museums	3
GEOG 5650/6650 Developing Societies	3
GEOG 5810/6810 Geography Education Inservice Workshop	3
GEOG 5970 Classroom Technology in Geography Education.....	3
GEOG 6800 Teaching Geography.....	3
HIST 6460 Seminar in Environmental History	3
LAEP 5400/6400 Low Water Landscaping	3
LAEP 6110 Landscape Planning for Wildlife.....	3
MHR 6620 Training and Organizational Development	3
MHR 6650 Team and Interpersonal Effectiveness	3
PLSC 5100/6100 Landscape Irrigation Management	3
POLS 5180 Natural Resource Policy	3
POLS 5200 Global Environment	3
PSY 6660 Cognition and Instruction.....	3
PSY/EDUC 7670 Literature Reviews in Education and Psychology	1
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
 Clifford B. Craig, Environment and Society
 Melody Graulich, English
 Michael R. Kuhns, Wildland Resources
 Terry L. Sharik, Environment and Society
 Gary S. Straquadine, Agricultural Systems Technology and Education
 Richard E. Toth, Environment and Society

Associate Professors

James J. Barta, Elementary Education
 Dale J. Blahna, Environment and Society
 Steven W. Burr, Environment and Society
 Christopher A. Call, Wildland Resources
 Christopher A. Conte, History
 Rebecca M. Monhardt, Elementary Education
 Jan E. Roush, English
 Robert H. Schmidt, Environment and Society

Assistant Professors

Christopher Cokinos, English
 Nancy O. Mesner, Watershed Sciences
 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
 John Haskin, Director of Education and Dean of Faculty, Teton Science
 School
 Darren J. McAvoy, Extension Program Associate, Wildland Resources
 Kay Rhees, Principal, Edith Bowen Laboratory School
 Jack Shea, Director, Teton Science School
 Debra M. Spielmaker, Director, Utah Agriculture in the Classroom
 Karla VanderZanden, Director, Canyonlands Field Institute
 Douglas G. Wachob, Research Director, Teton Science School

Certificate Program in Natural Resource and Environmental Policy

Coordinator: Michael S. Lyons
Location: Main 330D
Phone: (435) 797-1312
E-mail: m.lyons@usu.edu

Lead Department: Political Science
Staff Assistant: Natalie Heaton
Location: Main 320
Phone: (435) 797-1306
FAX: (435) 797-3751

Graduate Program Description

The Natural Resource and Environmental Policy Graduate Certificate is an interdisciplinary program designed for students seeking graduate degrees in fields related to environmental and natural resource policy analysis. The program introduces students to complementary scientific and social scientific perspectives on environmental and natural resource policy, linking the scientific dimensions of policy to its social context and to the operation of political and economic institutions. Courses that satisfy program requirements are currently offered by the departments of Agricultural Systems Technology and Education; Business Administration; Economics; Environment and Society; Wildland Resources; History; Landscape Architecture and Environmental Planning; Political Science; and Sociology, Social Work and Anthropology. The program helps to prepare students for careers in public or private sector policy analysis, environmental planning, environmental program assessment, natural resource policy administration, environmental and natural resource consulting, and environmental and natural resource policy advocacy.

Certificate

Students who complete the Policy Program receive a certificate in Natural Resource and Environmental Policy. Notification of this certificate appears on the student's transcript.

Admission Requirements

Admission to the Certificate Program is open to students accepted into a master's degree program or a doctoral degree program at Utah State University, provided their degree program requirements include development of a written research paper or project defended before the student's graduate committee. In all cases, the thesis, research report, or dissertation must contain a significant component addressing natural resource or environmental policy.

Prerequisites

Prior to admission into the Natural Resource and Environmental Policy Graduate Certificate Program, a student must complete at least one upper-division or graduate course in ecology, biological systems, earth

processes, or ecosystem management. In addition, each student must also complete at least one upper-division or graduate course in economics, political science, history, or sociology. With the approval of the program coordinator, appropriate professional experience can serve as a substitute for either one of these prerequisites.

Graduate Committee

The student's graduate committee must include one faculty member affiliated with the Policy Program to advise the student on meeting the program requirements and in selecting core courses.

Course Requirements (14 credits)

Courses taken to satisfy requirements in a student's major or minor area of study can also be used to satisfy Natural Resource and Environmental Policy Graduate Certificate requirements.

Required Courses (5-6 credits)

NR 6430 Natural Resource and Environmental Policy
Cornerstone Seminar (3 cr) **or**
POLS 5180 Natural Resource Policy (3 cr).....3
And
ENVS 5300 Natural Resources Law and Policy (2 cr) **or**
ENVS 5320 Water Law and Policy in the United States (3 cr)2 or 3

Elective Courses (8-9 credits)

Because of ongoing changes in the curricular offerings of the participating departments, the list of Natural Resource and Environmental Policy Graduate Certificate elective courses is updated annually. Students entering the program should immediately obtain a current list of electives from the program coordinator or staff assistant. Students may petition the program coordinator to use as electives courses not included on the current list; however, to gain approval as an elective, a course must have significant environmental or natural resource policy content.

Approved elective courses include the following:

ASTE 6260 Environmental Impacts of Agricultural Systems.....3
AWER 6330 Large River Management3
ECON 6500 Introduction to Natural Resource Economics.....3
ECON 6510 Introduction to Environmental Economics.....3
ENVS 5640/6640 Conflict Management in Natural Resources3
ENVS 6000/7000 Theoretical Foundations in Human
Dimensions of Ecosystem Science and Management3
ENVS 6130 Policy Aspects of Wildland Recreation3
ENVS 6530 Natural Resources Administration2
HIST 6460 Seminar in Environmental History3
POLS 5200 Global Environment3
SOC 6620 Environment, Technology, and Social Change3
SOC 6630 Natural Resources and Social Development.....3
SOC 7620 Sociology of Environmental Hazards and Risks.....3

Master of Natural Resources (MNR)

Degree Coordinator: Todd A. Crowl

Location: Natural Resources 108

Phone: (435) 797-7565

FAX: (435) 797-2443

E-mail: facrowl@cc.usu.edu

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

Degree offered: Master of Natural Resources (MNR)

Objectives

The Master of Natural Resources (MNR) is a professional degree designed to prepare students to work in the interdisciplinary context of the 21st Century. It is a nonthesis program, intended for students and practicing professionals with a career orientation in natural resource management.

Admission Requirements

All MNR students are admitted through one of the three College of Natural Resources departments, following School of Graduate Studies standard procedures and policies (see pages 99-100). As with other USU master's degrees, each student must be accepted by a faculty member (major professor) who agrees to guide the student in the MNR program.

Undergraduate prerequisites include courses in chemistry, physics, botany, zoology, ecology, economics, political science, algebra, and statistics; and at least three courses in natural resources disciplines. Students without undergraduate degrees in natural resources or similar majors will be required to make up deficiencies in undergraduate preparation prior to beginning MNR degree coursework.

Course Requirements

The degree program includes two required core courses, courses in specified topic areas, and elective courses. The specific coursework required for each student will be determined by the major professor and the two other members of the student's graduate supervisory committee.

Cooperative Nursing Program

Coordinator: Jonny Kelly
Location: Lundberg Building 201
Phone: (435) 797-1515
FAX: (435) 797-3649
E-mail: jkelly@cc.usu.edu
WWW: <http://colleges.weber.edu/chp/programs/nursing.asp>

Advisor:
Doug Watson, (801) 626-6128 or (800) 350-7042 (Utah only),
healthprofessions@weber.edu

Undergraduate Programs

Associate Degree Program Objectives

Weber State University and Utah State University jointly offer an Associate of Science degree or an Associate of Applied 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 within Box Elder and Cache Counties.

Weber State University admits the prospective student and grants the Associate of Science degree or the Associate of Applied 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 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 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 Major

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 be accepted into the USU pre-nursing major.

USU Pre-Nursing Advisor: Liz Heffernan, (435) 797 2577,
heffernanliz@biology.usu.edu

Curriculum for Associate Degree Program

The curriculum for the associate degree is planned over a six-semester period, using two academic years plus two summer semesters. It is planned to include a broad University Studies program concurrently with courses in Nursing. A grade of *B* or higher is required for all lower-division nursing courses, and a grade of *C* or higher is required for all support classes.

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
Breadth Humanities (BHU) elective course	3

Mathematics Requirement. For information about the mathematics requirement, students should refer to their admission packet.

Fall Semester

BIOL 1110 Elementary Microbiology (4 cr) or	
BIOL 1100 Introduction to Microbiology (Home Study only) (3 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

Cooperative Nursing Program

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	

Fall Semester

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
NURS 2050 Treatment Modalities	2
NURS 2070 Nursing Care of Adults and Children II	3
NURS 2071 Nursing Care of Adults and Children II Clinical	4
Breadth American Institutions (BAI) elective course	3

Spring Semester

NURS 2060 Psychiatric/Mental Health Nursing	2
NURS 2061 Psychiatric/Mental Health Nursing Clinical	1
NURS 2080 Patient Care Management	2
NURS 2081 Patient Care Management Clinical	3
Breadth Humanities (BHU) elective course	3
Quantitative Literacy (QL) course	3

Associate of Applied 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

Mathematics Requirement. For information about the mathematics requirement, students should refer to their admission packet.

Fall Semester

BIOL 1110 Elementary Microbiology (4 cr) or	
BIOL 1100 Introduction to Microbiology (Home Study only) (3 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 Humanities (BHU) elective course	3

Fall Semester

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
NURS 2050 Treatment Modalities	2
NURS 2070 Nursing Care of Adults and Children II	3
NURS 2071 Nursing Care of Adults and Children II Clinical	4

Spring Semester

NURS 2060 Psychiatric/Mental Health Nursing	2
NURS 2061 Psychiatric/Mental Health Nursing Clinical	1
NURS 2080 Patient Care Management	2
NURS 2081 Patient Care Management Clinical	3

Additional Information

For detailed information about course requirements for the Associate of Science and Associate of Applied Science degrees in Nursing, see the major requirement sheet, available from the Nursing Program, or online at: <http://www.usu.edu/ats/majorsheets/>

Nursing Program Faculty

Assistant Professors

Charlotte Harris
Jonny Kelly
Julie O'Brien
Mary Orians
Linda Richards

Course Descriptions

Nursing (NURS), page 681.

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: nfs@cc.usu.edu
WWW: <http://www.nfs.usu.edu/>

Undergraduate Advisor:
Emily W. Hoffman, 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

Students receive an excellent background in chemistry, engineering, food processing, statistics, sensory evaluation, and microbiology. The Food Science program is approved by the Institute of Food Technologists. Graduates are in demand by industry for positions in research, quality control/assurance, product development, and processing. Government laboratories and regulatory agencies also hire food science graduates. With a food science degree, students can also qualify to enter graduate school.

Food Technology Management

The Food Technology Management program 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 qualify for a Business Production Minor. 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 bases 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.

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

This emphasis is a Bachelor of Science program that prepares students to become registered dietitians with professional skills in clinical nutrition, community/public health nutrition, and food service management. Students should complete prerequisites and apply by March 15 of their sophomore year. Within this program, USU offers two options: the **Coordinated Program in Dietetics (CPD)** and the **Didactic Program in Dietetics (DPD)**, which are both accredited by the Commission on Accreditation for Dietetics Education of The American Dietetic Association, 20 South Riverside Plaza Suite 2000, Chicago IL 60606-6995, (312) 899-0040. Each of these programs is described below:

1. **Coordinated Program in Dietetics (CPD).** In addition to coursework, students complete 1,000 internship hours during their junior and senior years. Students should complete prerequisites and apply by mid-March of their sophomore year. Twelve students are accepted annually, and seniors must relocate to Salt Lake City during fall semester. Graduates are eligible to take the national registration exam upon completion of the BS degree.
2. **Didactic Program in Dietetics (DPD).** After completing prerequisites, students should apply by mid-March of their sophomore year. Upon completion of coursework required for the BS degree, students apply for internships (located throughout the U.S., including the Utah-based USU Extension Dietetic Internship Program). Graduates are eligible to take the national registration exam upon completion of their internship.

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

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 16-20. 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 six emphasis areas in the department and must meet the following minimum requirements:

Department of Nutrition and Food Sciences

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.
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, 3110, 4070, 5020 (or 5030), and 5560 with a minimum cumulative GPA of 2.5 for these courses.

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

NFS 1000	World of Food and Nutrition	1
CHEM 1210	Principles of Chemistry I	4
CHEM 1215	Chemical Principles Laboratory I	1
NFS 1020 (BLS)	Science and Application of Human Nutrition	3
MATH 1050 (QL)	College Algebra	4
MATH 1060	Trigonometry	2

Spring Semester

NFS 1250	Sanitation and Safety	3
CHEM 1220 (BPS)	Principles of Chemistry II	4
CHEM 1225	Chemical Principles Laboratory II	1
ECON 1500 (BAI)*	Introduction to Economic Institutions, History, and Principles	3
MATH 1210 (QL)	Calculus I	4

Sophomore Year

Fall Semester

NFS 3110	Food, Technology, and Health	3
BIOL 1610	Biology I	4
CHEM 2300	Principles of Organic Chemistry	3
CHEM 2315	Organic Chemistry Laboratory I	1
ENGL 1010 (CL1)	Introduction to Writing: Academic Prose	3
USU 1320 (BHU)*	Civilization: Humanities	3

Spring Semester

NFS 4070	Experimental Foods	4
ENGL 2010 (CL2)	Intermediate Writing: Research Writing in a Persuasive Mode	3
CHEM 3700	Introductory Biochemistry	3
CHEM 3710	Introductory Biochemistry Laboratory	1
STAT 3000 (QI)	Statistics for Scientists	3

Junior Year

Fall Semester

NFS 5020	Meat Technology and Processing	4
NFS 5560	Food Chemistry	4
BIOL 3300	General Microbiology	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 (may be taken senior year)	3

Summer Semester

NFS 3250	Occupational Experience in Nutrition and Food Sciences	2
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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
SPCH 3330 (DSS)	Intercultural Communication	3

Spring Semester

NFS 4990	Nutrition and Food Sciences Seminar	1
NFS 5510	Food Laws and Regulations (may be taken junior year)	2
PHIL 4310 (DHA)*	Philosophy of Science	3
STAT 5200	Design of Experiments (3 cr) or	
STAT 5300 (QI)	Statistical Process Control (3 cr)	3
USU 1330 (BCA)*	Civilization: Creative Arts	3
USU 1340 (BSS)*	Social Systems and Issues	3

Food Technology Management Emphasis

Courses followed by an asterisk (*) are suggested for fulfilling University Studies Requirements.

Freshman Year

Fall Semester

CHEM 1110 (BPS)	General Chemistry I	4
NFS 1000	World of Food and Nutrition	1
NFS 1020 (BLS)	Science and Application of Human Nutrition	3
NFS 1240	Culinary Basics	3
MATH 1050 (QL)	College Algebra	4

Spring Semester

CHEM 1115	General Chemistry Laboratory	1
CHEM 1120 (BPS)	General Chemistry II	4
USU 1320 (BHU)*	Civilization: Humanities	3
NFS 1250	Sanitation and Safety	3
ENGL 1010 (CL1)	Introduction to Writing: Academic Prose	3

Sophomore Year

Fall Semester

MATH 1100 (QL)	Calculus Techniques	3
MHR 3110 (DSS)	Managing Organizations and People	3
NFS 3110	Food, Technology, and Health	3
BIOL 1110	Elementary Microbiology	4
USU 1330 (BCA)*	Civilization: Creative Arts	3

Spring Semester

NFS 4070	Experimental Foods	4
BA 3500	Fundamentals of Marketing	3
ENGL 2010 (CL2)	Intermediate Writing: Research Writing in a Persuasive Mode	3
STAT 3000 (QI)	Statistics for Scientists	3

Department of Nutrition and Food Sciences

PHYS 1100 (BPS) Great Ideas in Physics (3 cr) or
PHYS 1200 (BPS) Introduction to Physics by
 Hands-on Exploration (4 cr) 3 or 4

Junior Year

Fall Semester

NFS 5030 Dairy Technology and Processing 4
NFS 5560 Food Chemistry 4
BA 3700 Operations Management 3
PSY 1010 (BSS)* General Psychology 3

Spring Semester

NFS 3100 (QI) Sensory Evaluation of Food 3
NFS 5110 (CI) Food Microbiology 4
NFS 5500 (QI) Food Analysis 4
ECON 1500 (BAI)* Introduction to Economic Institutions, History, and
 Principles 3

Summer Semester

NFS 3250 Occupational Experience in Nutrition and Food Sciences ... 2

Senior Year

Fall Semester

NFS 5020 Meat Technology and Processing 4
NFS 5920 (CI) Food Product Development 3
BA 4720 Production Planning and Control 3
BA 5730 Process Analysis and Improvement 3

Spring Semester

NFS 4990 Nutrition and Food Sciences Seminar 1
NFS 5510 Food Laws and Regulations (may be taken junior year) 2
BA 4790 Supply Chain Management 3
PHIL 4310 (DHA)* Philosophy of Science 3
SPCH 2110 (CI) Interpersonal Communication 3
ACCT 2010 Survey of Accounting I 3

Nutrition Science Emphasis

Courses followed by an asterisk (*) are suggested for fulfilling
 University Studies Requirements.

Freshman Year

Fall Semester

NFS 1000 World of Food and Nutrition 1
CHEM 1210 Principles of Chemistry I 4
CHEM 1215 Chemical Principles Laboratory I 1
BIOL 1610 Biology I 4
MATH 1050 (QL) College Algebra 4

Spring Semester

NFS 1020 (BLS) Science and Application of Human Nutrition 3
CHEM 1220 (BPS) Principles of Chemistry II 4
CHEM 1225 Chemical Principles Laboratory II 1
BIOL 1620 (BLS) Biology II 4
MATH 1060 Trigonometry 2

Sophomore Year

Fall Semester

NFS 3110 Food, Technology, and Health 3
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
USU 1330 (BCA)* Civilization: Creative Arts 3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3
BIOL 2420 Human Physiology 4

Spring Semester

NFS 2020 Nutrition Throughout the Life Cycle 3
MATH 1210 (QL) Calculus I 4
CHEM 3700 Introductory Biochemistry 3
CHEM 3710 Introductory Biochemistry Laboratory 1
USU 1320 (BHU)* Civilization: Humanities 3
ECON 1500 (BAI)* Introduction to Economic Institutions, History,
 and Principles 3

Junior Year

Fall Semester

NFS 4020 Advanced Nutrition 3
NFS 4550 Nutrition Assessment/Clinical Nutrition I 4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a
 Persuasive Mode 3
USU 1340 (BSS)* Social Systems and Issues 3
STAT 3000 (QI) Statistics for Scientists 3

Spring Semester

NFS 4070 Experimental Foods 4
NFS 5210 Advanced Public Health Nutrition 2
 Univ. Studies Depth Humanities and Creative Arts (DHA) Course 3

Summer Semester

NFS 3250 Occupational Experience in Nutrition and Food Sciences ... 2

Senior Year

Fall Semester

NFS 5370 Molecular Methods in Nutrition Science 2
 Univ. Studies Depth Social Sciences (DSS) Course 3

Spring Semester

NFS 4990 Nutrition and Food Sciences Seminar 1
NFS 5220 Endocrine Aspects of Nutrition 2
NFS 5300 Advanced Micronutrient Nutrition 3

Electives

Students in the Nutrition Science Emphasis must select 20 credits from
 the following courses to meet their career objectives.

NFS 1250 Sanitation and Safety (Sp) 3
NFS 3020 Nutrition and Physical Performance (F) 2
NFS 3600 Medical Technology for Health Care Professionals
 (F,Sp,Su) 1
NFS 4480 Community Nutrition (F) 3
NFS 5200 Nutritional Epidemiology (F) 2
NFS 5500 (QI) Food Analysis (Sp) 4
MATH 1220 (QL) Calculus II (F,Sp,Su) 4
PUBH 4030 Communicable Disease Control (F) 3
PHYS 2110 The Physics of Living Systems I 4
PHYS 2120 (BPS) The Physics of Living Systems II 4
BIOL 2320 Human Anatomy (Sp,Su) 4
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su) 4
BIOL 3300 General Microbiology (F,Sp) 4
BIOL 5210 Cell Biology (F) 3
BIOL 5230 Developmental Biology (Sp) 3
BIOL 5620 Medical Physiology (Sp) 3
CHEM 2320 Organic Chemistry II (Sp) 4

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.

Department of Nutrition and Food Sciences

Depth Training in Food Science

Freshman Year

Fall Semester

NFS 1000 World of Food and Nutrition	1
NFS 1020 (BLS) Science and Application of Human Nutrition	3
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

Spring Semester

NFS 2040 Introduction to Biotechnology	1
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
MATH 1100 (QL) Calculus Techniques	3
USU 1320 (BHU)* Civilization: Humanities	3
ECON 1500 (BAI)* Introduction to Economic Institutions, History, and Principles.....	3

Sophomore Year

Fall Semester

NFS 3110 Food, Technology, and Health.....	3
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

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
SPCH 3330 (DSS) Intercultural Communication.....	3
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
NFS 5510 Food Laws and Regulations.....	2
PLSC 4600 (QI) Cereal Science	3

Summer Semester

NFS 3250 Occupational Experience in Nutrition and Food Sciences ..	1
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Senior Year

Fall Semester

NFS 5920 (CI) Food Product Development	3
NFS 5020 Meat Technology and Processing (4 cr) or NFS 5030 Dairy Technology and Processing (4 cr).....	4
NFS 5370 Molecular Methods in Nutrition Science.....	2
PHIL 4410 (DHA)* Philosophy of Mind	3
USU 1340 (BSS)* Social Systems and Issues.....	3

Spring Semester

ADVS 3200 Ethical Issues in Genetic Engineering and Biotechnology.....	3
NFS 4990 Nutrition and Food Sciences Seminar.....	1
NFS 5160 Methods in Biotechnology: Cell Culture	3
NFS 5240 Methods in Biotechnology: Protein Purification Techniques	3
STAT 5200 Design of Experiments	3
USU 1330 (BCA)* Civilization: Creative Arts	3

Depth Training in Nutrition Science

Freshman Year

Fall Semester

NFS 1000 World of Food and Nutrition	1
CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
BIOL 1610 Biology I.....	4
MATH 1050 (QL) College Algebra.....	4

Spring Semester

NFS 1020 (BLS) Science and Application of Human Nutrition	3
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
BIOL 1620 (BLS) Biology II.....	4
MATH 1060 Trigonometry	2

Sophomore Year

Fall Semester

BIOL 2420 Human Physiology	4
BIOL 3060 (QI) Principles of Genetics	4
CHEM 2300 Principles of Organic Chemistry	3
CHEM 2315 Organic Chemistry Laboratory I.....	1
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1100 (QL) Calculus Techniques	3

Spring Semester

NFS 2020 Nutrition Throughout the Life Cycle.....	3
NFS 2040 Introduction to Biotechnology	1
CHEM 3700 Introductory Biochemistry	3
CHEM 3710 Introductory Biochemistry Laboratory	1
USU 1320 (BHU)* Civilization: Humanities	3
ECON 1500 (BAI)* Introduction to Economic Institutions, History, and Principles.....	3

Junior Year

Fall Semester

STAT 3000 (QI) Statistics for Scientists	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
NFS 4020 Advanced Nutrition	3
PHYS 2110 The Physics of Living Systems I.....	4
USU 1330 (BCA)* Civilization: Creative Arts	3

Spring Semester

NFS 5200 Nutritional Epidemiology	2
BIOL 5620 Medical Physiology	3
USU 1340 (BSS)* Social Systems and Issues.....	3
Univ. Studies Depth Humanities and Arts (DHA) Course	3

Senior Year

Fall Semester

NFS 5260 Methods in Biotechnology: Molecular Cloning	3
NFS 5370 Molecular Methods in Nutrition Science.....	2
BIOL 3300 General Microbiology	4
BIOL 5210 Cell Biology	3
Univ. Studies Depth Social Sciences (DSS) Course	3

Department of Nutrition and Food Sciences

Spring Semester

ADVS 3200 Ethical Issues in Genetic Engineering and Biotechnology	3
BIOL 5150 Immunology	3
NFS 4990 Nutrition and Food Sciences Seminar	1
NFS 5160 Methods in Biotechnology: Cell Culture	3
NFS 5220 Endocrine Aspects of Nutrition	2
NFS 5240 Methods in Biotechnology: Protein Purification Techniques	3

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	
NFS 1020 (BLS) Science and Application of Human Nutrition	3
NFS 1240 Culinary Basics	3
CHEM 1210 Principles of Chemistry I	4
MATH 1050 (QL) College Algebra	4
PSY 1010 (BSS) General Psychology (3 cr) or SOC 1010 (BSS) Introductory Sociology (3 cr)	3

Spring Semester

CHEM 1220 (BPS) Principles of Chemistry II	4
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
USU 1330 (BCA) Civilization: Creative Arts	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
NFS 2020 Nutrition Throughout the Life Cycle	3

Sophomore Year

Fall Semester	
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
CHEM 2300 Principles of Organic Chemistry	3
NFS 3020 Nutrition and Physical Performance	2
STAT 2000 (QI) Statistical Methods (required) (3 cr) or STAT 3000 (QI) Statistics for Scientists (preferred) (3 cr)	3
BIOL 2420 Human Physiology	4
USU 1320 (BHU) Civilization: Humanities	3

Spring Semester

CHEM 3700 Introductory Biochemistry	3
CHEM 3710 Introductory Biochemistry Laboratory	1
NFS 1250 Sanitation and Safety	3
NFS 3600 Medical Terminology for Health Care Professionals	1
NFS 4070 Experimental Foods	4
MHR 3110 (DSS) Managing Organizations and People (3 cr) or FCHD 3350 (DSS/QI) Family Finance (3 cr)	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 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	
NFS 1020 (BLS) Science and Application of Human Nutrition	3
NFS 1240 Culinary Basics	3
CHEM 1210 Principles of Chemistry I	4
MATH 1050 (QL) College Algebra	4
PSY 1010 (BSS) General Psychology (3 cr) or SOC 1010 (BSS) Introductory Sociology (3 cr)	3

Spring Semester

CHEM 1220 (BPS) Principles of Chemistry II	4
ECON 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
USU 1330 (BCA) Civilization: Creative Arts	3

Sophomore Year

Fall Semester	
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
CHEM 2300 Principles of Organic Chemistry	3
NFS 3020 Nutrition and Physical Performance	2
STAT 2000 (QI) Statistical Methods (required) (3 cr) or STAT 3000 (QI) Statistics for Scientists (preferred) (3 cr)	3
BIOL 2420 Human Physiology	4
USU 1320 (BHU) Civilization: Humanities	3

Spring Semester

CHEM 3700 Introductory Biochemistry	3
CHEM 3710 Introductory Biochemistry Laboratory	1
NFS 1250 Sanitation and Safety	3
NFS 3600 Medical Terminology for Health Care Professionals	1
NFS 4070 Experimental Foods	4
MHR 3110 (DSS) Managing Organizations and People (3 cr) or FCHD 3350 (DSS/QI) Family Finance (3 cr)	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 4480 Community Nutrition	3
NFS 4550 Nutrition Assessment/Clinical Nutrition I	4

Department of Nutrition and Food Sciences

NFS 4710 Quantity Food Preparation	2
NFS 4900 Special Problems	1

Spring Semester

NFS 4060 (CI) Education and Counseling Methods in Dietetics II	2
NFS 4560 (CI) Clinical Nutrition II	4
NFS 4720 (QI) Food Service Organization and Management	2
NFS 4900 Special Problems	1
SPCH 1020 (CI) Public Speaking (3 cr) or	
SPCH 2110 (CI) Interpersonal Communication (3 cr) or	
SPCH 3330 (DSS) Intercultural Communication (3 cr)	3

Senior Year

Fall Semester

NFS 4780 (CI) Maternal and Child Nutrition	3
NFS 5200 Nutritional Epidemiology	2
NFS 5750 Advanced Dietetics Practicum	3
ACCT 2010 Survey of Accounting I	3
BA 3500 Fundamentals of Marketing	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 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://www.nfs.usu.edu/academics/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@cc.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/ats/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/gradsch/admission/>

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.

Department of Nutrition and Food Sciences

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 Assignment 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 Assignment Form* is then forwarded to the dean of the School of Graduate Studies for final approval. (**Note:** The *Supervisory Committee Assignment Form* may be found on the School of Graduate Studies website, <http://www.usu.edu/gradsch/forms/>, 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 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 104-106 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 Teaching Experience (new course to be introduced) 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).

Department of Nutrition and Food Sciences

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 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

Department of Nutrition and Food Sciences

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 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.

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/dietetics/programs/mda>

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 elective 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

Department of Nutrition and Food Sciences

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: BA 3400, 6350, 6440, 6520; INST 6490; MHR 6350, 6370, 6410, 6500, 6510, 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.usu.edu/nfs>

Graduation requirements described in this catalog are subject to change. Students should check with the Department of Nutrition and Food Sciences concerning possible changes.

Nutrition and Food Sciences Faculty

Professors

Jeffery R. Broadbent, food science, microbial genetics
Charles E. Carpenter, food science, muscle biochemistry and physiology, meat processing
Daren P. Cornforth, food science, meat and muscle chemistry
Conly L. Hansen, food science, food engineering

Donald J. McMahon, food science, dairy chemistry and technology
Ronald G. Munger, nutrition, epidemiology, and public health
Illa Nemere, nutrition, molecular nutrition
Bart C. Weimer, food science, microbial physiology

Clinical Professors

Janet B. Anderson, dietetics, food science management, food safety
Noreen B. Schvaneveldt, dietetics, clinical nutrition

Adjunct Professors

Gary M. Chan, pediatrics
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 Professors

Nedra K. Christensen, nutrition, dietetics
Marie K. Walsh, food science, dairy chemistry

Adjunct Associate Professors

Barbara Chatfield, pediatric pulmonology
Wayne G. Geilman, dairy processing and technology
Paul A. Savello, dairy processing and food science, food laws and regulations, milk ultra high temperature and whitening

Adjunct Research Associate Professor

Laurie J. Moyer-Mileur, pediatric nutrition

Associate Professor Emeritus

Charlotte P. Brennand

Assistant Professors

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

Research Assistant Professors

Dong Chen, molecular structure and biochemistry
Carl S. Hansen, agricultural education, waste management

Clinical Assistant Professor

Tamara S. Vitale, dietetics, community nutrition

Adjunct Clinical Assistant Professor

Ann M. Mildenhall, dietetics, director of dietetic internship program

Assistant Professor Emeritus

Frances G. Taylor

Adjunct Assistant Professors

Bradley J. Haack, molecular pathogenesis
Theodore Liou, nutrition, internal medicine, pulmonology
Robert Miceli, molecular assay development, biosensor development, infectious disease, antibody engineering, immune regulation

Department of Nutrition and Food Sciences

Adjunct Clinical Assistant Professor

W. Daniel Jackson, pediatrics

Clinical Instructors

Emily W. Hoffman, dietetics, nutrition, food safety

Kim McMahon, dietetics/food service management

Adjunct Instructors

Catherine McDonald, pediatric nutrition, clinical dietetics

Cynthia Mitchell, dietetics management

Rachel T. Rood, nutrition, registered dietitian

Lecturers

Randall T. Bagley, dairy processing

Virginia C. Bragg, nutrition

Erik T. Burlile, culinary arts/food service management, chef

Grace B. Harvell, culinary arts

Megan Bunch Smith, dietetics

Dick R. Whittier, meat processing

Jeffrey W. Woolley, culinary arts/food service management, chef

Adjunct Clinical Lecturer

Rebecca S. Cole, dietetics/food service management

Course Descriptions

Nutrition and Food Sciences (NFS), pages 676-680.

Office Systems Support AAS Degree

**Associate Vice President and Associate Dean
of Continuing Education:** Weldon S. Sleight

Location: Eccles Conference Center 101B

Phone: (435) 797-2214

FAX: (435) 797-0039

E-mail: weldon.sleight@usu.edu

WWW: <http://extension.usu.edu/continuinged>

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 (F,Sp,Su)	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su).....	3

Quantitative Literacy (3-4 credits)

MATH 1050 (QL) College Algebra (F,Sp,Su) (4 cr) or	
MATH 1100 (QL) Calculus Techniques (F,Sp,Su) (3 cr).....	3 or 4

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 (F,Sp,Su).....	3
BIS 2100 Principles of Management Information Systems (F,Sp,Su) ...	3
BIS 2200 (CI) Business Communication (F,Sp,Su)	3
BUS 2250 Introductory Internship (pre-approval required) (F,Sp,Su) ...	3
OSS 1400 Microcomputer Applications (F,Sp,Su) (3 cr) or	
OSS 1410 Special Topics: Basic Computer Concepts (3 cr).....	3
OSS 1420 Word Processing Applications	3
OSS 1550 (CI) Business Correspondence.....	3
OSS 2300 Data Communications and Networking (F,Sp).....	3
OSS 2400 Web Design Applications (F,Sp,Su)	3
OSS 2520 Integrating Office Technology	3
OSS 2600 Office Procedures	3

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 1500 Accounting Software for Small Business Applications.....	3
ACCT 2020 Survey of Accounting II (F,Sp,Su).....	3
ACCT 3110 Intermediate Financial Accounting and Reporting I (F,Sp,Su).....	3

Office Systems Support AAS Degree

Business Information Systems

BIS 3330 Database Management (F,Sp) 3

Office Systems Support

OSS 1410 Special Topics (F,Sp,Su) 1-3

OSS 2450 Spreadsheets and Databases (F,Sp,Su) 3

OSS 2500 Visual Basic Applications (F,Sp) 3

Communications/Speech/

Engineering and Technology Education

JCOM 1500 (BSS) Introduction to Mass Communication (F,Sp) 3

JCOM 2300 Introduction to Public Relations (F,Sp) 3

SPCH 1020 (CI) Public Speaking (F,Sp) 3

SPCH 2110 (CI) Interpersonal Communication (F,Sp) 3

ETE 1010 Communications Technology (F) 3

General Business

BA 1350 Introduction to Business (F) 3

ECON 1500 (BAI) Introduction to Economic Institutions, History,
and Principles (F,Sp) 3

MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su) 3

MHR 3110 Managing Organizations and People (F,Sp,Su) 3

MHR 3710 Developing Team and Interpersonal Skills (F,Sp) 3

PSY 1010 (BSS) General Psychology (F,Sp,Su) 3

Computer Science

CS 1030 (BPS) Foundations of Computer Science, and the
Application of Computer Science to the Investigation of Physical
Systems and Phenomena (F,Sp,Su) 3

CS 3500 (DSC/QI) Algorithm Development: Visual BASIC/
Graphical User (Su) 3

English (ENGL Electives)

Other Courses Approved by Advisor

Course Descriptions

Office Systems Support (OSS), page 682.

Department of Physics

Department Head: Jan J. Sojka
Location: Science Engineering Research 250A
Phone: (435) 797-2848
FAX: (435) 797-2492
E-mail: physics@cc.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: Atomic Physics, Electromagnetic Theory, Industrial Physics (MS only), Medium Energy Nuclear Physics, 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 that 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:
MATH 1210 (QL) Calculus I, (F,Sp,Su)4
MATH 1220 (QL) Calculus II (F,Sp,Su)4

Choose one of the following pairs of courses:

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

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.

Department of Physics

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)

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
Or (PHYS 2210, 2220 preferred; or PHYS 2110, 2120)	
PHYS 2110 The Physics of Living Systems I (4 cr) and	
PHYS 2120 (BPS) The Physics of Living Systems II (4 cr)	8
PHYS 2500 Introduction to Computer Methods in Physics	2
PHYS 2710 Introductory Modern Physics	3
PHYS 3550 Intermediate Classical Mechanics	3
PHYS 3600 Intermediate Electromagnetism (3 cr) or	
ECE 3870 Electromagnetics I (F,Sp) (3 cr)	3
PHYS 3870 (CI) Intermediate Laboratory I	2
PHYS 4900 (CI) Research in Physics	2

Note: A new course in systems analysis is currently under discussion. For details, students should contact the Physics Department.

C. Required Mathematics Course (3 credits)

MATH 2210 (QI) Multivariable Calculus (F,Sp,Su)	3
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The specific requirements beyond this core for the various bachelor's degrees are:

1. Bachelor of Science Degree in Physics (15 credits)

MATH 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su)	4
PHYS 3710 Intermediate Modern Physics	3
PHYS 3700 Thermal Physics (3 cr) or	
PHYS 4650 Optics I (3 cr)	3
Courses in Physics at the 3500 level and above (not to include PHYS courses designated as University Studies depth courses)	5

2. Bachelor of Arts Degree in Physics (32 credits)

MATH 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su)	4
PHIL 4310 (DHA) Philosophy of Science (Sp)	3
PHIL 4320 (DHA) History of Scientific Thought (Sp)	3
Courses in Physics at the 3500 level and above (not 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 (29 credits)

MATH 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su)	4
PHYS 3700 Thermal Physics	3
PHYS 3710 Intermediate Modern Physics	3
PHYS 3750 Foundations of Wave Phenomena	3
PHYS 3880 (CI) Intermediate Laboratory II	2
PHYS 4600 Advanced Electromagnetism	3
PHYS 4650 Optics I	3
PHYS 4700 Quantum Mechanics I	3
PHYS 4710 Quantum Mechanics II	3
PHYS 4900 (CI) Research in Physics	2

4. Bachelor of Science Degree in Physics with an Applied Emphasis (24 credits)

MATH 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su)	4
PHYS 3700 Thermal Physics	3
PHYS 3880 (CI) Intermediate Laboratory II	2
PHYS 4650 Optics I	3
Courses in other technical departments at the 3000 level or above (not 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.

Suggested Four-year Course of Study for Bachelor of Science Degree in Physics

The suggested schedule shown below should be used in conjunction with the major requirement sheet. Students should consult with their advisor to develop an individualized plan of study that is applicable to their interests and degree track.

Prior to enrolling in MATH 1220 (Calculus II), students must have completed MATH 1210 (Calculus I) with a grade of C- or better, **or** must have received an AP score of *at least 4* on the Calculus AB exam **or at least 3** on the Calculus BC exam.

Freshman Year (30 credits)

Fall Semester (15 credits)	
PHYS 2210 (QI) General Physics—Science and Engineering I	4
MATH 1220 (QL) Calculus II	4
College of Science sequence requirement	4
University Studies Breadth course	3

Spring Semester (15 credits)

PHYS 2220 (BPS/QI) General Physics—Science and Engineering II	4
MATH 2210 (QI) Multivariable Calculus	3
College of Science sequence requirement	4
University Studies Breadth course	3
Elective course	1

Sophomore Year (30 credits)

Fall Semester (15 credits)	
PHYS 2500 Introduction to Computer Methods in Physics	2
PHYS 2710 Introductory Modern Physics	3
MATH 2250 (QI) Linear Algebra and Differential Equations	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth course	3

Spring Semester (15 credits)

PHYS 3710 Intermediate Modern Physics	3
University Studies Breadth courses	6
Elective courses	6

Junior Year (30 credits)

Fall Semester (14 credits)	
PHYS 3550 Intermediate Classical Mechanics	3
PHYS 3870 (CI) Intermediate Laboratory I	2

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ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth course	3
University Studies Depth course	3

Spring Semester (16 credits)	
PHYS 3600 Intermediate Electromagnetism	3
PHYS 3880 (CI) Intermediate Laboratory II (as elective credit)	2
PHYS elective course (if not taken sophomore spring)	3
University Studies Depth course	3
Elective courses	5

Senior Year (30 credits)	
Fall Semester (15 credits)	
PHYS 4650 Optics I (required if PHYS 3700 was not taken, or may be used as a physics elective)	3
Elective courses	12

Spring Semester (15 credits)	
PHYS 3700 Thermal Physics (3 cr) or Physics elective course at 3500-level or higher (3 cr)	3
PHYS 4900 (CI) Research in Physics	2
Elective courses	10

**Suggested Four-year Course of Study
for Bachelor of Arts Degree in Physics**

The suggested schedule shown below should be used in conjunction with the major requirement sheet. Students should consult with their advisor to develop an individualized plan of study that is applicable to their interests and degree track.

Prior to enrolling in MATH 1220 (Calculus II), students must have completed MATH 1210 (Calculus I) with a grade of C- or better, **or** must have received an AP score of *at least 4* on the Calculus AB exam **or at least 3** on the Calculus BC exam.

Freshman Year (30 credits)	
Fall Semester (15 credits)	
PHYS 2210 (QI) General Physics—Science and Engineering I	4
MATH 1220 (QL) Calculus II	4
College of Science sequence requirement	4
University Studies Breadth course	3

Spring Semester (15 credits)	
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II	4
MATH 2210 (QI) Multivariable Calculus	3
College of Science sequence requirement	4
University Studies Breadth course	3
Elective course	1

Sophomore Year (30 credits)	
Fall Semester (15 credits)	
PHYS 2500 Introduction to Computer Methods in Physics	2
PHYS 2710 Introductory Modern Physics	3
MATH 2250 (QI) Linear Algebra and Differential Equations	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth course	3

Spring Semester (15 credits)	
PHIL 4310 (DHA) Philosophy of Science	3
University Studies Breadth courses	6
Elective courses	6

Junior Year (30 credits)	
Fall Semester (15 credits)	
PHYS 3550 Intermediate Classical Mechanics	3
PHYS 3870 (CI) Intermediate Laboratory I	2
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth course	3
Required language courses	4

Spring Semester (15 credits)	
PHYS 3600 Intermediate Electromagnetism	3
PHYS 3710 Intermediate Modern Physics (3 cr) or Elective course at 3500-level or higher (3 cr)	3
University Studies Depth Social Sciences (DSS) course	3
Required language courses	4
Elective course(s)	2

Senior Year (30 credits)	
Fall Semester (15 credits)	
PHYS elective course at 3500-level or higher	3
Required language courses	4
Elective courses	8

Spring Semester (15 credits)	
PHYS 4900 (CI) Research in Physics	2
PHIL 4320 (DHA) History of Scientific Thought	3
Required language courses	4
Elective courses	6

Spring Semester (15 credits)	
PHYS 4900 (CI) Research in Physics	2
PHIL 4320 (DHA) History of Scientific Thought	3
Required language courses	4
Elective courses	6

**Suggested Four-year Course of Study for Bachelor of
Science Degree in Physics with Professional Emphasis**

The suggested schedule shown below should be used in conjunction with the major requirement sheet. Students should consult with their advisor to develop an individualized plan of study that is applicable to their interests and degree track.

Prior to enrolling in MATH 1220 (Calculus II), students must have completed MATH 1210 (Calculus I) with a grade of C- or better, **or** must have received an AP score of *at least 4* on the Calculus AB exam **or at least 3** on the Calculus BC exam.

Freshman Year (30 credits)	
Fall Semester (15 credits)	
PHYS 2210 (QI) General Physics—Science and Engineering I	4
MATH 1220 (QL) Calculus II	4
College of Science sequence requirement	4
University Studies Breadth course	3

Spring Semester (15 credits)	
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II	4
MATH 2210 (QI) Multivariable Calculus	3
College of Science sequence requirement	4
University Studies Breadth course	3
Elective course	1

Sophomore Year (30 credits)	
Fall Semester (15 credits)	
PHYS 2500 Introduction to Computer Methods in Physics	2
PHYS 2710 Introductory Modern Physics	3
MATH 2250 (QI) Linear Algebra and Differential Equations	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth course	3

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Spring Semester (15 credits)

PHYS 3710 Intermediate Modern Physics	3
PHYS 3750 Foundations of Wave Phenomena	3
University Studies Breadth courses	6
Elective course(s)	3

Junior Year (30 credits)

Fall Semester (15 credits)

PHYS 3550 Intermediate Classical Mechanics	3
PHYS 3870 (CI) Intermediate Laboratory I	2
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth course	3
University Studies Depth course	3
Elective course	1

Spring Semester (15 credits)

PHYS 3600 Intermediate Electromagnetism	3
PHYS 3700 Thermal Physics	3
PHYS 3880 (CI) Intermediate Laboratory II	2
University Studies Depth course	3
Elective course(s)	4

Senior Year (30 credits)

Fall Semester (15 credits)

PHYS 4650 Optics I	3
PHYS 4700 Quantum Mechanics I	3
PHYS 4900 (CI) Research in Physics	2
Elective courses	7

Spring Semester (15 credits)

PHYS 4600 Advanced Electromagnetism	3
PHYS 4710 Quantum Mechanics II	3
PHYS 4900 (CI) Research in Physics	2
Elective courses	7

Suggested Four-year Course of Study for Bachelor of Science Degree in Physics with Applied Emphasis

The suggested schedule shown below should be used in conjunction with the major requirement sheet. Students should consult with their advisor to develop an individualized plan of study that is applicable to their interests and degree track.

Prior to enrolling in MATH 1220 (Calculus II), students must have completed MATH 1210 (Calculus I) with a grade of C- or better, **or** must have received an AP score of *at least 4* on the Calculus AB exam **or at least 3** on the Calculus BC exam.

Freshman Year (30 credits)

Fall Semester (15 credits)

PHYS 2210 (QI) General Physics—Science and Engineering I	4
MATH 1220 (QL) Calculus II	4
University Studies Breadth courses	6
Elective course	1

Spring Semester (15 credits)

PHYS 2220 (BPS/QI) General Physics—Science and Engineering II	4
MATH 2210 (QI) Multivariable Calculus	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth course	3
Elective course(s)	2

Sophomore Year (30 credits)

Fall Semester (14 credits)

PHYS 2500 Introduction to Computer Methods in Physics	2
PHYS 2710 Introductory Modern Physics	3
MATH 2250 (QI) Linear Algebra and Differential Equations	4
College of Science sequence requirement	4
Elective course	1

Spring Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
College of Science sequence requirement	4
University Studies Breadth courses	6
Elective course(s)	3

Junior Year (30 credits)

Fall Semester (15 credits)

PHYS 3870 (CI) Intermediate Laboratory I	2
PHYS 3550 Intermediate Classical Mechanics	3
University Studies Breadth course	3
Elective technical course at 3000-level or higher	3
Elective course(s)	4

Spring Semester (15 credits)

PHYS 3600 Intermediate Electromagnetism	3
PHYS 3880 (CI) Intermediate Laboratory II	2
Elective technical course at 3000-level or higher	3
University Studies Depth course	3
Elective course(s)	4

Senior Year (30 credits)

Fall Semester (15 credits)

PHYS 4650 Optics I	3
Elective technical course	3
University Studies Depth course	3
Elective courses	6

Spring Semester (15 credits)

PHYS 3700 Thermal Physics	3
PHYS 4900 (CI) Research in Physics	2
Elective technical course	3
Elective courses	7

Minor in Physics

Majors in other departments may obtain a minor in physics by successfully completing the following courses:

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
Or (PHYS 2210, 2220 preferred; or PHYS 2110, 2120) PHYS 2110 The Physics of Living Systems I (4 cr) and PHYS 2120 (BPS) The Physics of Living Systems II (4 cr)	8

To obtain a physics minor, students must also select 10 additional credits from PHYS courses at the 2500 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

In addition to the College of Science requirements, courses required for the Bachelor of Science in Physics Teaching include the following:

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MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
MATH 2250 (QI) Linear Algebra and Differential Equations (F,Sp,Su)	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3

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
Or (PHYS 2210, 2220 preferred; or PHYS 2110, 2120) PHYS 2110 The Physics of Living Systems I (4 cr) and PHYS 2120 (BPS) The Physics of Living Systems II (4 cr)	8

PHYS 1040 (BPS) Introductory Astronomy	3
PHYS 2500 Introduction to Computer Methods in Physics	2
PHYS 2710 Introductory Modern Physics	3
PHYS 3710 Intermediate Modern Physics	3
PHYS 3870 (CI) Intermediate Laboratory I	2

In addition, student must select 5 credits in Physics above the 3000 level (including USU Depth courses); SCI 4300; and 6 credits in science, with 3 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 Department of Secondary Education requirements.

Note: Beginning in 2006, 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 Course of Study for Bachelor of Science Degree in Physics Teaching

The suggested schedule shown below should be used in conjunction with the major requirement sheet. Students should consult with their advisor to develop an individualized plan of study that is applicable to their interests and degree track.

Prior to enrolling in MATH 1220 (Calculus II), students must have completed MATH 1210 (Calculus I) with a grade of C- or better, **or** must have received an AP score of *at least 4* on the Calculus AB exam **or** *at least 3* on the Calculus BC exam.

Freshman Year (30 credits)

Fall Semester (15 credits)	
PHYS 2210 (QI) General Physics—Science and Engineering I	4
MATH 1220 (QL) Calculus II	4
General Science sequence requirement	4
University Studies Breadth course	3

Spring Semester (15 credits)

PHYS 2220 (BPS/QI) General Physics—Science and Engineering II	4
MATH 2250 (QI) Linear Algebra and Differential Equations	4
General Science sequence requirement	4
University Studies Breadth course	3

Sophomore Year (33 credits)

Fall Semester (17 credits)	
PHYS 1040 (BPS) Introductory Astronomy	3
PHYS 2500 Introduction to Computer Methods in Physics	2

PHYS 2710 Introductory Modern Physics	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
STAT 3000 (QI) Statistics for Scientists	3
University Studies Breadth course	3

Spring Semester (16 credits)

PHYS 3710 Intermediate Modern Physics	3
General Science requirement	4
University Studies Breadth courses	6
University Studies Depth course	3
Apply for STEP (Secondary Teacher Education Program)	

Junior Year (31 credits)

Fall Semester (15 credits)	
PHYS 3870 (CI) Intermediate Laboratory I	2
PHYS elective course at 3000-level or higher	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
General Science requirement	4
University Studies Breadth course	3

Spring Semester (16 credits)

PHYS elective course at 3000-level or higher	2
University Studies Breadth course	3
STEP Level 1 courses	11

Senior Year (29 credits)

Fall Semester (17 credits)	
SCI 4300 Science in Society	2
University Studies Depth course	3
STEP Level 2 courses	12

Spring Semester (12 credits)

STEP Level 3 Student Teaching	12
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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:

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3

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
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Or (PHYS 2210, 2220 preferred; or PHYS 2110, 2120) PHYS 2110 The Physics of Living Systems I (4 cr) and PHYS 2120 (BPS) The Physics of Living Systems II (4 cr)	8
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PHYS 1040 (BPS) Introductory Astronomy	3
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PHYS 1080 (BPS) Intelligent Life in the Universe (sometimes listed as USU 1360, ST: Intelligent Life in the Universe) (3 cr) or PHYS 3030 (QI) The Universe (3 cr)	3
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Courses in Physics from PHYS courses at the 2500 level and above (including USU Depth courses)	5
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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 cr) or CHEM 2310 Principles of Organic Chemistry I (F) (4 cr)	3 or 4
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CHEM 2315 Organic Chemistry Laboratory I (F)	1
BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su)	3

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GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp).....	4
BMET 2000 (BPS) The Atmosphere and Weather (F,Sp).....	3
SCI 4300 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 Department of Secondary Education 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: Beginning in 2006, 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 Course of Study for Bachelor of Science Degree in Composite Teaching—Physical Science

The suggested schedule shown below should be used in conjunction with the major requirement sheet. Students should consult with their advisor to develop an individualized plan of study that is applicable to their interests and degree track.

Prior to enrolling in MATH 1220 (Calculus II), students must have completed MATH 1210 (Calculus I) with a grade of C- or better, **or** must have received an AP score of *at least 4* on the Calculus AB exam **or at least 3** on the Calculus BC exam.

Freshman Year (31 credits)

Fall Semester (15 credits)	
PHYS 2210 (QI) General Physics—Science and Engineering I.....	4
MATH 1220 (QL) Calculus II.....	4
PHYS 1080/USU 1360 (BPS) Intelligent Life in the Universe.....	3
University Studies Breadth course.....	3
Elective course.....	1

Spring Semester (16 credits)

PHYS 2220 (BPS/QI) General Physics—Science and Engineering II.....	4
STAT 3000 (QI) Statistics for Scientists.....	3
BIOL 1010 (BLS) Biology and the Citizen.....	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
University Studies Breadth course.....	3

Sophomore Year (32 credits)

Fall Semester (18 credits)	
PHYS 1040 (BPS) Introductory Astronomy.....	3
GEO 1110 (BPS) The Dynamic Earth: Physical Geology.....	4
BMET 2000 (BPS) The Atmosphere and Weather.....	3
CHEM 1210 Principles of Chemistry I.....	4
CHEM 1215 Chemical Principles Laboratory I.....	1
University Studies Breadth course.....	3

Spring Semester (14 credits)

CHEM 1220 (BPS) Principles of Chemistry II.....	4
CHEM 1225 Chemical Principles Laboratory II.....	1
ENGL 1010 (CL1) Introduction to Writing: Academic Prose.....	3
PHYS elective course at 2500-level or higher.....	3
University Studies Breadth course.....	3

Apply for STEP (Secondary Teacher Education Program)

Junior Year (31-33 credits)

Fall Semester (15-17 credits)

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
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
University Studies Breadth course.....	3
University Studies Depth course.....	3
PHYS elective course at 2500-level or higher.....	2-3

Spring Semester (16 credits)

SCI 4300 Science in Society.....	2
University Studies Depth course.....	3
STEP Level I courses.....	11

Senior Year (24 credits)

Fall Semester (12 credits)

STEP Level 2 courses.....	12
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Spring Semester (12 credits)

STEP Level 3 Student Teaching.....	12
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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:

PHYS 1000 (BPS) Introductory Astronomy.....	3
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

Courses in Physics chosen from PHYS 2500 and/or courses above the 3000 level (including USU Depth courses).....6

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

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 Department of Secondary Education requirements.

Secondary Teacher Education Program (STEP) (35 credits)

Level 1 (11 credits)

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 (F,Sp).....	3
INST 3500 Technology Tools for Secondary Teachers (F,Sp,Su).....	1

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Level 2 (12 credits)

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,Sp)	3
SPED 4000 Education of Exceptional Individuals (may be taken at any time) (F,Sp,Su)	2

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

*Science methods courses (SCED 3400 and 4400) may only be taught once per year. Therefore, students should take whichever one is taught during the term they are in Level 1 or Level 2.

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@cc.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^{1,2,3,4,5,6}
2. Skepticism^{1,2,3,4,5,6}
3. Ability in critical thinking and problem solving^{1,2,3,4,5,6}
4. Knowledge of physics subjects to an advanced undergraduate level^{1,2,3,4,5,6}
5. Wide knowledge of physics subjects to an advanced undergraduate level^{2,3}
6. Knowledge of focused applied areas of study to the undergraduate level⁴
7. Experience in experimental physics^{1,2,3,4,5,6}
8. Experience in physics research^{1,2,3,4,5,6}
9. Knowledge of computer methods in physics^{1,2,3,4,5,6}
10. Knowledge of broadening subjects^{1,2,3,4,5,6}
11. Knowledge of mathematics to undergraduate calculus level^{1,2,3,4,5,6}
12. Knowledge of mathematics to undergraduate differential equations level^{1,2,3,4,5}
13. Knowledge of statistics to undergraduate level^{5,6}
14. Knowledge of philosophy of science to the undergraduate level¹
15. Knowledge of a foreign language to the undergraduate level¹

Programs:

The footnotes following each of the preceding learning objectives indicate which program(s) include that objective. The six undergraduate programs are as follows:

¹BA degree in physics

²BS degree in physics

³BS degree in physics with professional emphasis

⁴BS degree in physics with applied emphasis

⁵BS degree in physics teaching

⁶BS degree in composite teaching

Assessment

The principal assessment tools of the Physics Department are (1) an exit interview, which is conducted by the department head with all graduating seniors; and (2) follow-up on the work or advanced education of all graduating seniors. The department also makes special note of awards and honors received by students having majors within the department. At the annual departmental retreat (as well as at faculty meetings), faculty members conduct a careful review of any deficiencies in departmental programs. If it is perceived and agreed that these deficiencies are real, and if departmental resources are available to remedy them, then the department undertakes steps to modify their teaching program in order to address the problems. Details of the assessment plan can be found at the following website:

<http://www.physics.usu.edu/teaching/assessment.html>

Department of Physics

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/ats/majorsheets/>

Graduate Programs

Admission Requirements

In addition to the general requirements for admission established by the School of Graduate Studies (see pages 104-106), 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 458.)

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:

PHYS 4600	Advanced Electromagnetism	3
PHYS 6240	Space Environment and Engineering	3
PHYS 6310	Solar-terrestrial Physics I	3
PHYS 6320	Solar-terrestrial Physics II	3
PHYS 6330	Plasma Physics I	3
PHYS 6340	Plasma Physics II	3
PHYS 7210	Spacecraft Instrumentation (Sp)	3
PHYS 7500	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:

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PHYS 5340 Methods of Theoretical Physics I.....	3
PHYS 5350 Methods of Theoretical Physics II.....	3
PHYS 6010 Classical Mechanics I.....	3
PHYS 6110 Electrodynamics I.....	3
PHYS 6210 Quantum Mechanics I.....	3
PHYS 6410 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.

Theoretical Physics

The department maintains an active research program in theoretical physics via its Field Theory Group. The principal focus of this group is on unified field theories, gravitational theory, classical and quantum field theory, and geometric methods in mathematical physics. Current research projects include: conformal and scale invariant gravity theories and unified field theories, Weyl-geometric quantization, exact solutions in Gauss-Bonnet extended gravity, classical and quantum dynamics of the gravitational field, symmetries and conservation laws in relativistic field theories, Lagrangian and Hamiltonian formulation of field theory, and application of geometrical methods in physics. Weekly seminars and ongoing collaborations with members of the USU Mathematics and Statistics Department and the University of Utah Physics Department provide an active research environment that allows for substantial interaction between students and faculty.

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

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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 98).

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 usually only following an appointment as a postdoctoral fellow for one to three years).

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
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
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
Allen Q. Howard, electromagnetic theory
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
Tsung-Cheng Shen, surface physics, nanotechnology
James T. Wheeler, mathematical physics and general relativity

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
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 Professor

Haeyeon Yang, surface physics, nanotechnology

Adjunct Assistant Professor

Jeremy R. King, astrophysics

Lecturer

Tonya B. Triplett, physics education

Course Descriptions

Physics (PHYS), page 689-691.

Department of Plants, Soils, and Biometeorology

Department Head: Larry A. Rupp
Location: Agricultural Science 322C
Phone: (435) 797-2233
FAX: (435) 797-3376
E-mail: larry.rupp@usu.edu
WWW: <http://www.psb.usu.edu>

Undergraduate Advisor:
M. Cathryn Myers-Roche, Agricultural Science 322, (435) 797-5560,
cmymers@mendel.usu.edu

Undergraduate Off-Campus Advisor:
Donna B. Minch, Farmington, (801) 451-4604, minch@sisna.com

Graduate Program Coordinator:
Paul G. Johnson, Agricultural Science 306, (435) 797-7039,
paul.johnson@usu.edu

Degrees Offered: Bachelor of Science (BS) and Bachelor of Arts (BA) in Crop Science, Horticulture, Environmental Soil/Water Science; 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, Landscape Maintenance and Construction, 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 16-20) are admitted to the Department of Plants, Soils, and Biometeorology 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 Biometeorology.

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, Soil Classifier, or Weed Scientist through the American Registry of Certified Professionals in Agronomy, Crops, and Soils (ARCPACS). General information about ARCPACS certifications can be found at <http://www.agronomy.org/certification>. 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, floral design, and maintenance of home and commercial grounds. 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 three 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 floriculture and landscape plant production and use); and (3) **Environmental Soil/Water Science**, which deals with soil and water in relation to plant growth and environmental quality. In all three majors, there are science-oriented emphases intended to prepare students for research or professional studies, and degree emphases that emphasize a practical, applied approach to application of information. All courses 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

Department of Plants, Soils, and Biometeorology

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 **Landscape Maintenance and Construction Emphasis**, students learn design, construction, and maintenance through a joint program with the Landscape Architecture and Environmental Planning Department. 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.

Course Requirements

Crop Science Major

Crop Science Major Core Courses (30 credits)

All Crop Science majors must complete the following courses:

BIOL 1610 Biology I (F).....	4
BIOL 1620 (BLS) Biology II (Sp).....	4

BIOL 4400 (QI) Plant Physiology (F).....	4
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp).....	3
MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
PHYS 1100 (BPS) Great Ideas in Physics.....	3
PSB 1050 Plants, Soils, and Biometeorology Orientation (F).....	1
PSB 4890 (CI) Senior Seminar (F,Sp) (take one credit per semester).....	2
SOIL 3000 Fundamentals of Soil Science (F,Sp).....	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).

CHEM 1110 (BPS) General Chemistry I (F,Sp).....	4
CHEM 1115 General Chemistry Laboratory (Sp).....	1
CHEM 1120 (BPS) 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 (*):

BIOL 3060 (QI) Principles of Genetics (F,Sp,Su).....	4
BIOL 4410 Plant Structure (Sp).....	3
BIOL 4500* Applied Entomology (Sp).....	3
BIOL 5410* Introduction to Plant Pathology (Sp).....	4
PLSC 2650 Identification and Selection of Plants in Production Agriculture (F).....	1
PLSC 3500 The Structure and Function of Economic Crop Plants (Sp).....	3
PLSC 3700 Plant Propagation (F).....	4
PLSC 3800 Turfgrass Management (F).....	3
PLSC 4280 Field Crops (F, odd years).....	3
PLSC 4300 World Food Crops and Cropping Systems: The Plants That Feed Us (F even).....	3
PLSC 4320 Forage Production and Pasture Ecology (F).....	3
PLSC 4600 (QI) Cereal Science (Sp, even years).....	3
PLSC 5200 Crop Physiology (Sp).....	2
PLSC 5210 Crop Physiology Laboratory (Sp).....	1
PLSC 5550* Weed Biology and Control (F).....	4
PLSC 5700 Principles of Plant Breeding (Sp, odd years).....	3
PLSC 5750 Crop Biotechnology (Sp).....	2
PSB 4250 Internship in Plants, Soils, and/or Biometeorology (F,Sp).....	1-4
PSB 5200 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:

SOIL 4000 Soil and Water Conservation (F).....	4
SOIL 4700 Irrigated Soils (Sp, half semester).....	3
SOIL 5050 Principles of Environmental Soil Chemistry (Sp odd).....	3
SOIL 5130 Soil Genesis, Morphology, and Classification (F even).....	4
SOIL 5310 Soil Microbiology (F, even years).....	3
SOIL 5320 Soil Microbiology Laboratory (F, even years).....	2
SOIL 5550 (QI) Soils and Plant Nutrient Bioavailability (Sp).....	3
SOIL 5560 Analytical Techniques for the Soil Environment (Sp).....	2
SOIL 5650 Environmental Soil Physics (F).....	3

B. Research/Biotechnology Emphasis (58 credits)

Students must complete *all* of the following courses for the Research/Biotechnology Emphasis (38 credits).

BIOL 3060 (QI) Principles of Genetics (F,Sp,Su).....	4
CHEM 1210 Principles of Chemistry I (F,Sp).....	4

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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,Sp)	1
CHEM 2320	Organic Chemistry II (Sp)	4
CHEM 2325	Organic Chemistry Laboratory II (Sp, blocks 1 & 2)	1
CHEM 3700	Introductory Biochemistry (Sp)	3
CHEM 3710	Introductory Biochemistry Laboratory (Sp)	1
MATH 1060	Trigonometry (F,Sp,Su)	2
PLSC 5200	Crop Physiology (Sp)	2
PLSC 5210	Crop Physiology Laboratory (Sp)	1
PLSC 5750	Crop Biotechnology (Sp)	2
SOIL 5550 (QI)	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:

PLSC 2650	Identification and Selection of Plants in Production Agriculture (F)	1
PLSC 3700	Plant Propagation (F)	4
PLSC 4280	Field Crops (F odd)	3
PLSC 4300	World Food Crops and Cropping Systems: The Plants That Feed Us (F even)	3
PLSC 4320	Forage Production and Pasture Ecology (F)	3
PLSC 4600 (QI)	Cereal Science (Sp, even years)	3
PLSC 5430	Plant Nutrition (F odd)	2
PLSC 5440	Plant Molecular, Cellular, and Developmental Biology I (Sp)	3
PLSC 5450	Plant Molecular, Cellular, and Developmental Biology II (Sp)	3
PLSC 5550	Weed Biology and Control (F)	4
PLSC 5600	Plant Water Relations (F)	2
PLSC 5700	Principles of Plant Breeding (Sp, odd years)	3
PSB 5160	Methods in Biotechnology: Cell Culture (Sp)	3
PSB 5240	Methods in Biotechnology: Protein Purification Techniques (Sp)	3
PSB 5260	Methods in Biotechnology: Molecular Cloning (F)	3
SOIL 5560	Analytical Techniques for the Soil Environment (Sp)	2
STAT 2000 (QI)	Statistical Methods (F,Sp) (3 cr) or	
STAT 3000 (QI)	Statistics for Scientists (F,Sp,Su) (3 cr)	3

The following courses are also recommended:

BIOL 4410	Plant Structure (Sp)	3
BIOL 4500	Applied Entomology (Sp)	3
BIOL 5210	Cell Biology (F)	3
BIOL 5230	Developmental Biology (Sp)	3
BIOL 5410	Introduction to Plant Pathology (Sp)	4
MATH 1210 (QL)	Calculus I (F,Sp,Su)	4
PHYS 2110	The Physics of Living Systems I	4
PLSC 5440	Plant Molecular, Cellular, and Developmental Biology I (Sp)	3
PLSC 5450	Plant Molecular, Cellular, and Developmental Biology II (Sp)	3

Sample Curriculum for Crop Science Major—Agronomy Emphasis

The sample curriculum shows most lower-division courses selected freshman and sophomore years, and most upper-division courses selected junior and senior years.

Freshman Year (30 credits)

Fall Semester (15 credits)		
BIOL 1610 ¹	Biology I	4
MATH 1050 (QL) ¹	College Algebra	4
PSB 1050 ¹	Plants, Soils, and Biometeorology Orientation	1

CHEM 1110 (BPS) ²	General Chemistry I	4
Elective course(s) ⁶		2

Spring Semester (15 credits)

BIOL 1620 (BLS) ¹	Biology II	4
CHEM 1120 (BPS) ²	General Chemistry II	4
CHEM 1115 ²	General Chemistry Laboratory	1
ECON 1500 (BAI) ¹	Introduction to Economic Institutions, History, and Principles	3
PSB 2040 ⁶	Introduction to Biotechnology	1
Elective course(s) ⁶		2

Sophomore Year (28 credits)

Fall Semester (16 credits)		
PLSC 4280 ³	Field Crops	3
PLSC 4320 ³	Forage Production and Pasture Ecology	3
USU 1320 (BHU)	Civilization: Humanities	3
USU 1330 (BCA)	Civilization: Creative Arts	3
ENGL 2010 (CL2) ⁵	Intermediate Writing: Research Writing in a Persuasive Mode	3
PLSC 2650 ³	Identification and Selection of Plants in Production Agriculture	1

Spring Semester (12 credits)

PLSC 3500 ³	The Structure and Function of Economic Crop Plants	3
PHYS 1100 (BPS)	Great Ideas in Physics	3
BIS 2100	Principles of Management Information Systems (F,Sp,Su)	3
BIOL 4500 ⁷	Applied Entomology	3

Junior Year (31 credits)

Fall Semester (15 credits)		
BIOL 3060 (QI) ³	Principles of Genetics	4
SOIL 3000 ¹	Fundamentals of Soil Science	4
HIST 3850 (DHA/CI) ⁵	History of Utah	3
Elective course(s) ⁶		4

Spring Semester (16 credits)

BIOL 5410 ⁷	Introduction to Plant Pathology	4
PLSC 4600 (QI) ³	Cereal Science (taught even years <i>only</i>)	3
PLSC 5700 ³	Principles of Plant Breeding (taught odd years <i>only</i>)	3
SOIL 4700 ⁴	Irrigated Soils (half semester)	3
STAT 3000 (QI) ⁶	Statistics for Scientists	3

Senior Year (30 credits)

Fall Semester (15 credits)		
BIOL 4400 (QI) ¹	Plant Physiology	4
PLSC 5550 ⁷	Weed Biology and Control	4
PSB 4250 ³	Internship in Plants, Soils, and/or Biometeorology	2
PSB 4890 (CI) ¹	Senior Seminar	1
SOIL 4000 ⁴	Soil and Water Conservation	4

Spring Semester (15 credits)

BIOL 4410 ³	Plant Structure	3
PLSC 5200 ³	Crop Physiology	2
PLSC 5210 ³	Crop Physiology Laboratory	1
SOIL 5550 (QI) ⁴	Soils and Plant Nutrient Bioavailability	3
SOIL 5560 ⁴	Analytical Techniques for the Soil Environment	2
Elective course(s) ⁶		4

Sample Curriculum for Crop Science Major— Research/Biotechnology Emphasis

The sample curriculum shows most lower-division courses selected freshman and sophomore years, and most upper-division courses selected junior and senior years.

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Freshman Year (28 credits)

Fall Semester (15 credits)

BIOL 1610 ¹ Biology I	4
MATH 1050 (QL) ¹ College Algebra	4
PSB 1050 ¹ Plants, Soils, and Biometeorology Orientation	1
CHEM 1210 ⁸ Principles of Chemistry I	4
CHEM 1215 ⁸ Chemical Principles Laboratory I	1
Elective course(s) ¹¹	1

Spring Semester (13 credits)

BIOL 1620 (BLS) ¹ Biology II	4
CHEM 1220 (BPS) ⁸ Principles of Chemistry II	4
CHEM 1225 ⁸ Chemical Principles Laboratory II	1
ECON 1500 (BAI) ¹ Introduction to Economic Institutions, History, and Principles	3
PSB 2040 ¹¹ Introduction to Biotechnology	1

Sophomore Year (30 credits)

Fall Semester (15 credits)

CHEM 2310 ⁸ Organic Chemistry I	4
CHEM 2315 ⁸ Organic Chemistry Laboratory I	1
USU 1320 (BHU) Civilization: Humanities	3
USU 1330 (BCA) Civilization: Creative Arts	3
ENGL 2010 (CL2) ⁵ Intermediate Writing: Research Writing in a Persuasive Mode	3
PLSC 2650 ⁹ Identification and Selection of Plants in Production Agriculture	1

Spring Semester (15 credits)

CHEM 2320 ⁸ Organic Chemistry II	4
CHEM 2325 ⁸ Organic Chemistry Laboratory II (blocks 1 & 2)	1
PHYS 1100 (BPS) ¹ Great Ideas in Physics	3
BUS 3100 (DSS) ⁵ Survey of Management Information Systems	3
MATH 1210 (QL) ¹⁰ Calculus I	4

Junior Year (28 credits)

Fall Semester (15 credits)

BIOL 3060 (QI) ⁸ Principles of Genetics	4
SOIL 3000 ¹ Fundamentals of Soil Science	4
PLSC 3700 ⁹ Plant Propagation	4
HIST 3850 (DHA/CI) ⁵ History of Utah	3

Spring Semester (13 credits)

CHEM 3700 ⁸ Introductory Biochemistry	3
CHEM 3710 ⁸ Introductory Biochemistry Laboratory	1
PLSC 4600 (QI) ⁹ Cereal Science (taught even years <i>only</i>)	3
STAT 3000 (QI) ¹¹ Statistics for Scientists	3
Elective course(s) ¹¹	3

Senior Year (32 credits)

Fall Semester (15 credits)

BIOL 4400 (QI) ¹ Plant Physiology	4
BIOL 5210 ¹⁰ Cell Biology	3
PLSC 5550 ⁹ Weed Biology and Control	4
PSB 4890 (CI) ¹ Senior Seminar	1
Elective course(s) ¹¹	3

Spring Semester (17 credits)

BIOL 5230 ¹⁰ Developmental Biology	3
PLSC 5200 ⁸ Crop Physiology	2
PLSC 5210 ⁸ Crop Physiology Laboratory	1
PLSC 5750 ⁸ Crop Biotechnology	2
SOIL 5550 (QI) ⁸ Soils and Plant Nutrient Bioavailability	3
Elective course(s) ¹¹	5

¹This course is required as part of the Crop Science Major Core.

²This course is required for the Agronomy Emphasis.

³This course is included in the Additional Crop-related Courses for the Agronomy Emphasis.

⁴This course is included in the Additional Soils-related Courses for the Agronomy Emphasis.

⁵This course is a restricted elective. Other courses may be used to satisfy this requirement.

⁶This course is an unrestricted elective.

⁷Students must complete at least 9 credits selected from these Agronomy Emphasis courses.

⁸This course is required for the Research/Biotechnology Emphasis.

⁹This course is included in the Additional Crop-related Courses for the Research/Biotechnology Emphasis.

¹⁰This course is a recommended elective for the Research/Biotechnology Emphasis.

¹¹This course is an unrestricted elective. Some suggested courses are indicated.

ARCPACS Certification

For more information, students should refer to the American Society of Agronomy website at: <http://www.agronomy.org> or <http://www.agronomy.org/certification>

ARCPACS Requirements

Certified Professional Agronomist (84 credits)

Certified Professional Crop Scientist (84 credits)

Certified Professional Weed Scientist (82 credits)

Students wishing to obtain ARCPACS certification must satisfy the requirements for the Bachelor of Science degree, as well as complete any additional courses.

For **Certified Agronomist** or **Certified Weed Scientist**, take 9 credits chosen from the following courses. For **Certified Crop Scientist**, take 15 credits chosen from the following courses.

PLSC 3800 Turfgrass Management (F)	3
PLSC 4280 Field Crops (F)	3
PLSC 4320 Forage Production and Pasture Ecology (F)	3
PLSC 4600 (QI) Cereal Science (Sp, even years)	3
PLSC 5200 Crop Physiology (Sp)	2
PLSC 5210 Crop Physiology Laboratory (Sp)	1
PLSC 5700 Principles of Plant Breeding (Sp, odd years)	3

All ARCPACS categories (Agronomy, Crop Science, and Weed Science) require the following course:

SOIL 5550 (QI) Soils and Plant Nutrient Bioavailability (Sp)	3
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For **Certified Agronomist**, take at least 6 credits from the following list:

SOIL 4000 Soil and Water Conservation (F)	4
SOIL 4700 Irrigated Soils (Sp, half semester)	3
SOIL 5050 Principles of Environmental Soil Chemistry (Sp)	3
SOIL 5130 Soil Genesis, Morphology, and Classification (F)	4

For **Certified Agronomist** or **Certified Crop Scientist**, take at least two of the following three courses:

BIOL 4500 Applied Entomology (Sp)	3
BIOL 5410 Introduction to Plant Pathology (Sp)	4
PLSC 5550 Weed Biology and Control (F)	4

For **Certified Agronomist** or **Certified Crop Scientist**, take *all* of these courses:

ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture (F,Sp)	3
SPCH 1020 (CI) Public Speaking (F,Sp)	3
CS 1030 (BPS) Foundations of Computer Science, and the Application of Computer Science to the Investigation of Physical Systems and Phenomena (F,Sp,Su)	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp)	3

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STAT 1040 (QL) Introduction to Statistics (F,Sp,Su).....	3
CHEM 3650 Environmental Chemistry (Sp).....	3

For **Certified Weed Scientist**, choose 9 credits from the above list. In addition, take at least 19 credits from the following, including the four courses identified with an asterisk (*):

BIOL 4410* Plant Structure (Sp).....	3
BIOL 4420* Plant Taxonomy (Sp).....	3
BIOL 4500 Applied Entomology (Sp).....	3
BIOL 5410 Introduction to Plant Pathology (Sp).....	4
FRWS 5100 Wildlife Management Laboratory (F).....	3
PLSC 2200* Pest Management Principles and Practices (Sp).....	3
PLSC 5550* Weed Biology and Control (F).....	4

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 (23-26 credits)

OSS 1400 Microcomputer Applications (F,Sp,Su).....	3
CHEM 1110 (BPS) General Chemistry I (F,Sp) (4 cr) or	
CHEM 1210 Principles of Chemistry I (F,Sp) (4 cr).....	4
FRWS 2200 (BLS) Ecology of Our Changing World (F,Sp).....	3
MATH 1050 (QL) College Algebra (F,Sp,Su).....	4
PLSC 2250 Occupational Experience in Agronomy and Horticulture (F,Sp,Su) (1-4 cr) or	
PSB 4250 Internship in Plants, Soils, and/or Biometeorology (F,Sp) (1-4 cr).....	1-4
PLSC 2650 Identification and Selection of Plants in Production Agriculture (F).....	1
PSB 1050 Plants, Soils, and Biometeorology Orientation (F).....	1
PSB 4890 (CI) Senior Seminar (take one credit per semester) (F,Sp).....	2
SOIL 3000 Fundamentals of Soil Science (F,Sp).....	4

A. Ornamental Horticulture Emphasis (48 credits minimum)

In addition to the Core Courses, select 40 credits from the following courses. Those marked with an asterisk (*) are required.

ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications (Sp).....	3
BIOL 1610* Biology I (F).....	4
BIOL 1620 (BLS)* Biology II (Sp).....	4
BIOL 3060 (QI)* Principles of Genetics (F,Sp,Su).....	4
PLSC 2100 (BLS) Introduction to Horticulture (F).....	3
PLSC 2600* Annual and Perennial Plant Materials (F).....	1.5
PLSC 2610 Indoor Plants and Interiorscaping (F).....	1.5
PLSC 2620* Woody Plant Materials: Trees and Shrubs for the Landscape (F).....	3
PLSC 3050 Greenhouse Management and Crop Production (Sp).....	4
PLSC 3300 Residential Landscapes (Sp).....	3
PLSC 3400 Landscape Management Principles and Practices (F).....	3
PLSC 3700 Plant Propagation (F).....	4
PLSC 3800 Turfgrass Management (F).....	3
PLSC 4400* Modern Vegetable Production (F).....	3
PLSC 4500* Fruit Production (Sp).....	4
PLSC 4800 Professional Turfgrass Management (Sp, even years).....	2
PSB 2800 Fundamentals of Organic Agriculture (Sp).....	3
SOIL 5550 (QI)* Soils and Plant Nutrient Bioavailability (Sp).....	3

Select two of the following courses:

BIOL 4500 Applied Entomology (Sp).....	3
BIOL 5410 Introduction to Plant Pathology (Sp).....	4
PLSC 5550 Weed Biology and Control (F).....	4

Select two of the following courses:

BIOL 4400 (QI) Plant Physiology (F).....	4
BIOL 4410 Plant Structure (Sp).....	3

CHEM 1120 (BPS) General Chemistry II (Sp).....	4
PLSC 3500 The Structure and Function of Economic Crop Plants (Sp).....	3
PLSC 5200 Crop Physiology (Sp, half semester).....	2
PLSC 5210 Crop Physiology Laboratory (Sp).....	1

B. Landscape Maintenance and Construction Emphasis (47.5-48.5 credits)

In addition to the Core Courses, students must complete the following courses for the Landscape Maintenance and Construction Emphasis.

All courses are required.

BIOL 1610 Biology I (F).....	4
LAEP 1200 Basic Graphics in Landscape Architecture (F).....	4
LAEP 2600 (QI) Landscape Construction I (F).....	4
LAEP 3500 Planting Design (F).....	2
LAEP 3610 Landscape Construction II (Sp).....	4
PLSC 2200 Pest Management Principles and Practices (Sp).....	3
PLSC 2600 Annual and Perennial Plant Materials (F).....	1.5
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F).....	3
PLSC 3300 Residential Landscapes (Sp).....	3
PLSC 3400 Landscape Management Principles and Practices (F).....	3
PLSC 3500 The Structure and Function of Economic Crop Plants (Sp).....	3
PLSC 3800 Turfgrass Management (F).....	3
PLSC 4400 Modern Vegetable Production (F) (3 cr) or	
PLSC 4500 Fruit Production (Sp) (4 cr).....	3 or 4
PLSC 5550 Weed Biology and Control (F).....	4
SOIL 4700 Irrigated Soils (Sp, half semester).....	3

The following courses are suggested as electives:

ASTE 3200 Irrigation Principles and Practices (Sp).....	3
PLSC 2100 (BLS) Introduction to Horticulture (F).....	3
PLSC 2610 Indoor Plants and Interiorscaping (F).....	1.5
PLSC 3700 Plant Propagation (F).....	4
PLSC 4800 Professional Turfgrass Management (Sp, even years).....	2
PSB 5200 Site-Specific Agriculture and Landscape/Horticultural Management (Sp, half semester).....	3
SOIL 5550 (QI) Soils and Plant Nutrient Bioavailability (Sp).....	3

C. Turfgrass Management Emphasis (48-53 credits)

In addition to the Core Courses, students must complete the following courses for the Turfgrass Management Emphasis.

BIOL 1610 Biology I (F).....	4
BIOL 1620 (BLS) Biology II (Sp).....	4
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su).....	4
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F).....	3
PLSC 3400 Landscape Management Principles and Practices (F).....	3
PLSC 3800 Turfgrass Management (F).....	3
PLSC 4400 Modern Vegetable Production (F) (3 cr) or	
PLSC 4500 Fruit Production (Sp) (4 cr).....	3 or 4
PLSC 4800 Professional Turfgrass Management (Sp, even years).....	2

The following courses are suggested as electives. Select a minimum of two courses from each category:

Horticulture

ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications (Sp).....	3
ASTE 3200 Irrigation Principles and Practices (Sp).....	3
FRWS 5300 Wildlife Damage Management Principles (Sp).....	3
PLSC 2200 Pest Management Principles and Practices (Sp).....	3
PLSC 3300 Residential Landscapes (Sp).....	3
PLSC 3700 Plant Propagation (F).....	4
PLSC 5100 Landscape Irrigation Management (Sp).....	3
PLSC 5550 Weed Biology and Control (F).....	4
SOIL 4700 Irrigated Soils (Sp, half semester).....	3

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Science

BIOL 2220	General Ecology (F,Sp)	3
BIOL 3040	Plants and Civilization (F)	3
BIOL 4400 (QI)	Plant Physiology (F)	4
BIOL 4410	Plant Structure (Sp)	3
BIOL 4420	Plant Taxonomy (Sp)	3
BIOL 4500	Applied Entomology (Sp)	3
BIOL 5410	Introduction to Plant Pathology (Sp)	4
CHEM 1120 (BPS)	General Chemistry II (Sp)	4
CHEM 1215	General Chemistry Laboratory (F,Sp)	1
PLSC 3500	The Structure and Function of Economic Crop Plants (Sp)	3
PLSC 5200	Crop Physiology (Sp)	2
PLSC 5210	Crop Physiology Laboratory (Sp)	1
PLSC 5430	Plant Nutrition (F)	2
SOIL 4000	Soil and Water Conservation (F)	4
SOIL 5550 (QI)	Soils and Plant Nutrient Bioavailability (Sp)	3
STAT 2000 (QI)	Statistical Methods (F,Sp)	3

Business

ACCT 2010	Survey of Accounting I (F,Sp,Su)	3
ASTE 3050 (CI)	Technical and Professional Communication Principles in Agriculture (F,Sp)	3
BA 3500	Fundamentals of Marketing (F,Sp,Su)	3
ECON 1500 (BAI)	Introduction to Economic Institutions, History, and Principles (F,Sp)	3
MHR 2050	Legal and Ethical Environment of Business (F,Sp,Su)	3
MHR 3110 (DSS)	Managing Organizations and People (F,Sp,Su)	3
MHR 3710	Developing Team and Interpersonal Skills (F,Sp)	3

D. Business Emphasis (48 credits)

In addition to the Core Courses, select 30 credits from the following courses. Those marked with an asterisk (*) are required.

BIOL 1610*	Biology I (F)	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)	1.5
PLSC 2620	Woody Plant Materials: Trees and Shrubs for the Landscape (F)	3
PLSC 3050	Greenhouse Management and Crop Production (Sp)	4
PLSC 3300	Residential Landscapes (Sp)	3
PLSC 3400*	Landscape Management Principles and Practices (F)	3
PLSC 3500*	The Structure and Function of Economic Crop Plants (Sp)	3
PLSC 3700	Plant Propagation (F)	4
PLSC 3800	Turfgrass Management (F)	3
PLSC 4400*	Modern Vegetable Production (F)	3
PLSC 4500*	Fruit Production (Sp)	4
PLSC 5200	Crop Physiology (Sp)	2
PLSC 5210	Crop Physiology Laboratory (Sp)	1
PLSC 5550*	Weed Biology and Control (F)	4
PSB 2800	Fundamentals of Organic Agriculture (Sp)	3
SOIL 4700	Irrigated Soils (Sp, half semester)	3
SOIL 5550 (QI)*	Soils and Plant Nutrient Bioavailability (Sp)	3

The following courses are required for a Business Minor and the Business Emphasis:

ACCT 2010	Survey of Accounting I (F,Sp,Su)	3
BA 3460	Fundamentals of Personal Investing	3
BA 3500	Fundamentals of Marketing (F,Sp,Su)	3
MHR 2050	Legal and Ethical Environment of Business (F,Sp,Su) (3 cr) or	
BIS 2100	Principles of Management Information Systems (F,Sp,Su)	3
MHR 3110 (DSS)	Managing Organizations and People (F,Sp,Su)	3

E. Science Emphasis (48 credits minimum)

In addition to the Core Courses, students must select 41 credits from the following courses for the Science Emphasis. Those marked with an asterisk (*) are required.

BIOL 1610*	Biology I (F)	4
BIOL 1620 (BLS)*	Biology II (Sp)	4
BIOL 3060 (QI)*	Principles of Genetics (F,Sp,Su)	4
BIOL 4400 (QI)*	Plant Physiology (F)	4
BIOL 4410	Plant Structure (Sp)	3
CHEM 1120 (BPS)	General Chemistry II (Sp,Su)	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 2320	Organic Chemistry II (Sp)	4
CHEM 3700	Introductory Biochemistry (Sp)	3
CHEM 3710	Introductory Biochemistry Laboratory (Sp)	1
MATH 1060	Trigonometry (F,Sp,Su)	2
MATH 1100 (QL)*	Calculus Techniques (F,Sp,Su)	3
PHYS 1200 (BPS)	Introduction to Physics by Hands-on Exploration	4
PLSC 3700	Plant Propagation (F)	4
PLSC 4400*	Modern Vegetable Production (F)	3
PLSC 4500*	Fruit Production (Sp)	4
PLSC 5200*	Crop Physiology (Sp)	2
PLSC 5210	Crop Physiology Laboratory (Sp)	1
PLSC 5430	Plant Nutrition (F odd)	2
PLSC 5440	Plant Molecular, Cellular, and Developmental Biology I (Sp)	3
PLSC 5450	Plant Molecular, Cellular, and Developmental Biology II (Sp)	3
PLSC 5600	Plant Water Relations (F)	2
PLSC 5760	Crop Ecology (Sp)	2
PSB 2800	Fundamentals of Organic Agriculture (Sp)	3
SOIL 3200 (DSC)	Microbes in Environmental Action (Sp)	3
SOIL 5550 (QI)*	Soils and Plant Nutrient Bioavailability (Sp)	3
STAT 3000 (QI)	Statistics for Scientists (F,Sp,Su)	3
Select any Ornamental Horticulture class*		2-3

Select one of the following:

BIOL 4500	Applied Entomology (Sp)	3
BIOL 5410	Introduction to Plant Pathology (Sp)	4
PLSC 5550	Weed Biology and Control (F)	4

Sample Curriculum for Horticulture Major—Ornamental Horticulture Emphasis

The sample curriculum shows most lower-division courses selected freshman and sophomore years, and most upper-division courses selected junior and senior years.

Freshman Year (29 credits)

Fall Semester (15 credits)

BIOL 1610 ¹³	Biology I	4
ENGL 1010 (CL1)	Introduction to Writing: Academic Prose	3
PLSC 2620 ¹³	Woody Plant Materials: Trees and Shrubs for the Landscape	3
PLSC 2650 ¹²	Identification and Selection of Plants in Production Agriculture	1
PSB 1050 ¹²	Plants, Soils, and Biometeorology Orientation	1
Any USU elective course(s) ¹⁴		3

Spring Semester (14 credits)

BIOL 1620 (BLS) ¹³	Biology II	4
FRWS 2200 (BLS) ¹²	Ecology of Our Changing World	3
MATH 1050 (QL) ¹²	College Algebra	4
OSS 1400 ¹²	Microcomputer Applications	3

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Sophomore Year (29.5 credits)

Fall Semester (15.5 credits)

CHEM 1110 (BPS) ¹² General Chemistry I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
PLSC 2600 ¹³ Annual and Perennial Plant Materials	1.5
Any Breadth American Institutions (BAI)/USU course, as required	3
Any emphasis elective course(s), as advised	4

Spring Semester (14 credits)

PLSC 4500 ¹³ Fruit Production	4
SOIL 3000 ¹² Fundamentals of Soil Science	4
Any Breadth Social Sciences (BSS)/USU course, as required	3
Any emphasis elective course(s), as advised	3

Junior Year (31 credits)

Fall Semester (15 credits)

PLSC 4400 ¹³ Modern Vegetable Production	3
Any Breadth Humanities (BHU)/USU course, as required	3
Any Depth Social Sciences (DSS) course	3
Any emphasis elective course(s), as advised	3
Any USU elective course(s) ¹⁴	3

Spring Semester (16 credits)

SOIL 5550 (QI) ¹³ Soils and Plant Nutrient Bioavailability	3
Any USU elective courses ¹⁴	6
Any emphasis elective courses, as advised	7

Senior Year (34 credits)

Fall Semester (17 credits)

BIOL 3060 (QI) ¹³ Principles of Genetics	4
PSB 4250 ¹² Internship in Plants, Soils, and/or Biometeorology	2
PSB 4890 (CI) ¹² Senior Seminar	1
Any Depth Humanities and Creative Arts (DHA) course	3
Any emphasis elective course(s), as advised	4
Any USU elective course(s) ¹⁴	3

Spring Semester (17 credits)

PSB 4890 (CI) ¹² Senior Seminar	1
Any Breadth Creative Arts (BCA)/USU course, as required	3
Any Quantitative Intensive (QI) course	3
Any emphasis elective courses, as advised	7
Any USU elective course(s) ¹⁴	3

Sample Curriculum for Horticulture Major— Landscape Maintenance and Construction Emphasis

The sample curriculum shows most lower-division courses selected freshman and sophomore years, and most upper-division courses selected junior and senior years.

Freshman Year (29 credits)

Fall Semester (16 credits)

BIOL 1610 ¹⁵ Biology I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
LAEP 1200 ¹⁵ Basic Graphics in Landscape Architecture	4
PLSC 2620 ¹⁵ Woody Plant Materials: Trees and Shrubs for the Landscape	3
PLSC 2650 ¹² Identification and Selection of Plants in Production Agriculture	1
PSB 1050 ¹² Plants, Soils, and Biometeorology Orientation	1

Spring Semester (13 credits)

FRWS 2200 (BLS) ¹² Ecology of Our Changing World	3
MATH 1050 (QL) ¹² College Algebra	4
OSS 1400 ¹² Microcomputer Applications	3
PLSC 2200 ¹⁵ Pest Management Principles and Practices	3

Sophomore Year (32.5 credits)

Fall Semester (16.5 credits)

CHEM 1110 (BPS) ¹² General Chemistry I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
LAEP 2600 (QI) ¹⁵ Landscape Construction I	4
PLSC 2600 ¹⁵ Annual and Perennial Plant Materials	1.5
SOIL 3000 ¹² Fundamentals of Soil Science	4

Spring Semester (16 credits)

LAEP 3610 ¹⁵ Landscape Construction II	4
PLSC 3300 ¹⁵ Residential Landscapes	3
Any Breadth Social Sciences (BSS)/USU course, as required	3
Any USU elective courses ¹⁴	6

Junior Year (29 credits)

Fall Semester (14 credits)

LAEP 3500 ¹⁵ Planting Design	2
PLSC 4400 ¹⁵ Modern Vegetable Production	3
Any Breadth Humanities (BHU)/USU course, as required	3
Any Depth Social Sciences (DSS) course	3
Any USU elective course(s) ¹⁴	3

Spring Semester (15 credits)

PLSC 3500 ¹⁵ The Structure and Function of Economic Crop Plants	3
PSB 4250 ¹² Internship in Plants, Soils, and/or Biometeorology	3
SOIL 4700 ¹⁵ Irrigated Soils	3
Any Breadth American Institutions (BAI)/USU course, as required	3
Any USU elective course(s) ¹⁴	3

Senior Year (30 credits)

Fall Semester (14 credits)

PLSC 3400 ¹⁵ Landscape Maintenance Principles and Practices	3
PLSC 3800 ¹⁵ Turfgrass Management	3
PLSC 5550 ¹⁵ Weed Biology and Control	4
PSB 4890 (CI) ¹² Senior Seminar	1
Any USU elective course(s) ¹⁴	3

Spring Semester (16 credits)

PSB 4890 (CI) ¹² Senior Seminar	1
Any Breadth Creative Arts (BCA)/USU course, as required	3
Any Depth Humanities and Creative Arts (DHA) course	3
Any emphasis elective course(s), as advised	3
Any USU elective courses ¹⁴	6

Sample Curriculum for Horticulture Major— Turfgrass Management Emphasis

The sample curriculum shows most lower-division courses selected freshman and sophomore years, and most upper-division courses selected junior and senior years.

Freshman Year (32 credits)

Fall Semester (15 credits)

BIOL 1610 ¹⁶ Biology I	4
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
PLSC 2620 ¹⁶ Woody Plant Materials: Trees and Shrubs for the Landscape	3
PLSC 2650 ¹² Identification and Selection of Plants in Production Agriculture	1
PSB 1050 ¹² Plants, Soils, and Biometeorology Orientation	1

Spring Semester (17 credits)

BIOL 1620 (BLS) ¹⁶ Biology II	4
FRWS 2200 (BLS) ¹² Ecology of Our Changing World	3

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MATH 1050 (QL) ¹² College Algebra	4
OSS 1400 ¹² Microcomputer Applications	3
Emphasis elective horticulture course, as advised	3

Sophomore Year (32 credits)

Fall Semester (16 credits)

CHEM 1110 (BPS) ¹² General Chemistry I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
PLSC 3400 ¹⁶ Landscape Management Principles and Practices	3
Any Breadth Social Sciences (BSS)/USU course, as required	3
Emphasis elective horticulture course, as advised	3

Spring Semester (16 credits)

PLSC 4500 ¹⁶ Fruit Production	4
SOIL 3000 ¹² Fundamentals of Soil Science	4
PSB 4250 ¹² Internship in Plants, Soils, and/or Biometeorology	2
Emphasis elective science course, as advised	3
Any USU elective course(s) ¹⁴	3

Junior Year (30 credits)

Fall Semester (15 credits)

MHR 3110 (DSS) Managing Organizations and People	3
Any Breadth Humanities (BHU)/USU course, as required	3
Emphasis elective horticulture course, as advised	3
Any USU elective courses ¹⁴	6

Spring Semester (15 credits)

PLSC 4800 ¹⁶ Professional Turfgrass Management	2
PSB 4890 (CI) ¹² Senior Seminar	1
Any Breadth Creative Arts (BCA)/USU course, as required	3
Emphasis elective science course, as advised	3
Emphasis elective business course, as advised	3
Any USU elective course(s) ¹⁴	3

Senior Year (26 credits)

Fall Semester (13 credits)

PLSC 3800 ¹⁶ Turfgrass Management	3
PSB 4890 (CI) ¹² Senior Seminar	1
Any Depth Humanities and Creative Arts (DHA) course	3
Any Communications Intensive (CI) course	3
Any USU elective course(s) ¹⁴	3

Spring Semester (13 credits)

BIOL 3060 ¹⁶ Principles of Genetics	4
Any Quantitative Intensive (QI) course	3
Any emphasis elective course, as advised	3
Any USU elective course(s) ¹⁴	3

Sample Curriculum for Horticulture Major— Business Emphasis

The sample curriculum shows most lower-division courses selected freshman and sophomore years, and most upper-division courses selected junior and senior years.

Freshman Year (28 credits)

Fall Semester (12 credits)

BIOL 1610 ¹⁷ Biology I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
PLSC 2650 ¹² Identification and Selection of Plants in Production Agriculture	1
PSB 1050 ¹² Plants, Soils, and Biometeorology Orientation	1
Any USU elective course(s) ¹⁴	3

Spring Semester (16 credits)

ACCT 2010 ¹⁷ Survey of Accounting I	3
FRWS 2200 (BLS) ¹² Ecology of Our Changing World	3
MATH 1050 (QL) ¹² College Algebra	4
OSS 1400 ¹² Microcomputer Applications	3
PLSC 2200 ¹⁷ Pest Management Principles and Practices	3

Sophomore Year (32 credits)

Fall Semester (16 credits)

BA 3500 ¹⁷ Fundamentals of Marketing	3
CHEM 1110 (BPS) ¹² General Chemistry I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Any Breadth American Institutions (BAI)/USU course, as required	3
Any emphasis elective course, as advised	3

Spring Semester (16 credits)

MHR 2050 ¹⁷ Legal and Ethical Environment of Business	3
PLSC 3500 ¹⁷ The Structure and Function of Economic Crop Plants	3
SOIL 3000 ¹² Fundamentals of Soil Science	4
Any Breadth Social Sciences (BSS)/USU course, as required	3
Any emphasis elective course(s), as advised	3

Junior Year (30 credits)

Fall Semester (15 credits)

MHR 3110 (DSS) ¹⁷ Managing Organizations and People	3
PLSC 4400 ¹⁷ Modern Vegetable Production	3
Any Breadth Humanities (BHU)/USU course, as required	3
Any emphasis elective course(s), as advised	3
Any USU elective course(s) ¹⁴	3

Spring Semester (15 credits)

BA 3460 ¹⁷ Fundamentals of Personal Investing	3
SOIL 5550 (QI) ¹⁷ Soils and Plant Nutrient Bioavailability	3
Any emphasis elective course, as advised	3
Any USU elective courses ¹⁴	6

Senior Year (30 credits)

Fall Semester (16 credits)

PLSC 5550 ¹⁷ Weed Biology and Control	4
PSB 4250 ¹² Internship in Plants, Soils, and/or Biometeorology	2
PSB 4890 (CI) ¹² Senior Seminar	1
Any Depth Humanities and Creative Arts (DHA) course	3
PSB upper-division course, as advised	3
Any USU elective course(s) ¹⁴	3

Spring Semester (14 credits)

PLSC 4500 ¹⁷ Fruit Production	4
PSB 4890 (CI) ¹² Senior Seminar	1
Any Breadth Creative Arts (BCA)/USU course, as required	3
Any USU elective courses ¹⁴	6

Sample Curriculum for Horticulture Major— Science Emphasis

The sample curriculum shows most lower-division courses selected freshman and sophomore years, and most upper-division courses selected junior and senior years.

Freshman Year (27 credits)

Fall Semester (13 credits)

BIOL 1610 ¹⁸ Biology I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
PLSC 2650 ¹² Identification and Selection of Plants in Production Agriculture	1
PSB 1050 ¹² Plants, Soils, and Biometeorology Orientation	1
Any USU elective course(s) ¹⁴	4

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Spring Semester (14 credits)

BIOL 1620 (BLS) ¹⁸ Biology II	4
FRWS 2200 (BLS) ¹² Ecology of Our Changing World	3
MATH 1050 (QL) ¹² College Algebra	4
OSS 1400 ¹² Microcomputer Applications	3

Sophomore Year (31 credits)

Fall Semester (14 credits)

BIOL 4400 (QI) ¹⁸ Plant Physiology	4
CHEM 1110 (BPS) ¹² General Chemistry I	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Any Breadth American Institutions (BAI)/USU course, as required	3

Spring Semester (17 credits)

SOIL 3000 ¹² Fundamentals of Soil Science	4
Any Breadth Social Sciences (BSS)/USU course, as required	3
Any emphasis elective courses, as advised	6
Any USU elective course(s) ¹⁴	4

Junior Year (31 credits)

Fall Semester (15 credits)

PLSC 4400 ¹⁸ Modern Vegetable Production	3
Any Breadth Humanities (BHU)/USU course, as required	3
Any Depth Social Sciences (DSS) course	3
Any emphasis elective course(s), as advised	3
Any USU elective course(s) ¹⁴	3

Spring Semester (16 credits)

PLSC 4500 ¹⁸ Fruit Production	4
SOIL 5550 (QI) ¹⁸ Soils and Plant Nutrient Bioavailability	3
Any USU elective course(s) ¹⁴	3
Any emphasis elective courses, as advised	6

Senior Year (32 credits)

Fall Semester (16 credits)

MATH 1100 (QL) ¹⁸ Calculus Techniques	3
PSB 4250 ¹² Internship in Plants, Soils, and/or Biometeorology	2
PSB 4890 (CI) ¹² Senior Seminar	1
Any Depth Humanities and Creative Arts (DHA) course	3
Any USU elective courses ¹⁴	7

Spring Semester (16 credits)

PLSC 5200 Crop Physiology	2
BIOL 3060 (QI) ¹⁸ Principles of Genetics	4
PSB 4890 (CI) ¹² Senior Seminar	1
Any Breadth Creative Arts (BCA)/USU course, as required	3
Any Quantitative Intensive (QI) course	3
Any emphasis elective course, as advised	3

¹²This course is required as part of the Horticulture Major Core.

¹³This course is required for the Ornamental Horticulture Emphasis.

¹⁴These courses are unrestricted electives.

¹⁵This course is required for the Landscape Maintenance and Construction Emphasis.

¹⁶This course is required for the Turfgrass Management Emphasis.

¹⁷This course is required for the Business Emphasis.

¹⁸This course is required for the Science Emphasis.

Environmental Soil/Water Science Major Preparatory Core Courses (43-49 credits)

Required Courses (18 credits)

BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	4
GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp)	4
FRWS 2200 (BLS) Ecology of Our Changing World (F,Su) (3 cr) or	
BIOL 2220 General Ecology (F,Sp) (3 cr)	3

STAT 2000 (QI) Statistical Methods (F,Sp) (3 cr) or	
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su) (3 cr)	3

Chemistry Courses (9 or 13 credits)

Complete *one* of the two following blocks of Chemistry courses:

Block 1 (9 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

Block 2 (13 credits)¹⁹

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

Mathematics Courses (10 or 8 credits)

Complete *one* of the two following blocks of Mathematics courses:

Block 1 (10 credits)

MATH 1050 (QL) College Algebra (F,Sp,Su)	4
MATH 1060 Trigonometry (F,Sp,Su)	2
MATH 1210 (QL) Calculus I (F,Sp,Su)	4

Block 2 (8 credits)¹⁹

MATH 1210 (QL) Calculus I (F,Sp,Su)	4
MATH 1220 (QL) Calculus II (F,Sp,Su)	4

Physics Courses (8 credits)

Complete *one* of the two following blocks of Physics courses:

Block 1 (8 credits)

PHYS 2110 The Physics of Living Systems I	4
PHYS 2120 (BPS) The Physics of Living Systems II	4

Block 2 (8 credits)¹⁹

PHYS 2210 (QI) General Physics—Science and Engineering I	4
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II	4

Professional Core Courses (26 credits)

SOIL 3000 Fundamentals of Soil Science (F,Sp)	4
SOIL 5050 Principles of Environmental Soil Chemistry (Sp odd)	3
SOIL 5130 Soil Genesis, Morphology, and Classification (F)	4
SOIL 5310 Soil Microbiology (F, even years) (3 cr) or	
SOIL 5550 (QI) ²⁰ Soils and Plant Nutrient Bioavailability (Sp) (3 cr)	3
SOIL 5560 Analytical Techniques for the Soil Environment (Sp)	2
SOIL 5600 Surface Hydrologic Field Methods (Sp)	3
SOIL 5650 Environmental Soil Physics (F)	3
SOIL 5750 Environmental Quality: Soil and Water (Sp)	2
PSB 4890 (CI) Senior Seminar (F,Sp) (take 1 credit per semester)	2

¹⁹Students in the **Water Emphasis** should take the **Block 2** courses in Chemistry, Mathematics, and Physics.

²⁰Students 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

AWER 4750 ²¹ Fundamentals of Remote Sensing Science (F)	3
AWER 4930 Geographic Information Systems (F)	4
AWER 5930 Geographic Information Analysis (Sp)	4
BMET 5250 Remote Sensing of Land Surfaces (Sp)	4
CEE 5190 Geographic Information Systems for Civil Engineers (Sp)	3
CHEM 3000 (QI) Quantitative Analysis (F)	3
FRWS 5750 Applied Remote Sensing (F)	3
GEO 3500 Mineralogy and Crystallography (F)	4
GEO 3550 (CI) Sedimentation and Stratigraphy (F)	4

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GEO 3600	Geomorphology (F)	4
GEO 5410 ²¹	Introduction to Clay Mineralogy (Sp)	2
GEO 5600	Geochemistry (F)	3
GEO 5630	Photogeology	2
PSB 5200	Site-Specific Agriculture and Landscape/Horticultural Management (Sp, half semester)	3
SOIL 3100	Soils and Civilization (Sp)	3
SOIL 3200 (DSC)	Microbes in Environmental Action (Sp)	3
SOIL 4000	Soil and Water Conservation (F)	4
SOIL 5310	Soil Microbiology (F)	3
SOIL 5320	Soil Microbiology Laboratory (F, even years)	2
SOIL 5350	Wildland Soils (Sp)	3
SOIL 5550 (QI)	Soils and Plant Nutrient Bioavailability (Sp)	3

Water Emphasis

ASTE 5260 (CI)	Environmental Impacts of Agricultural Systems (F)	3
AWER 3700 (CI)	Fundamentals of Watershed Science (Sp)	3
AWER 4500	Limnology: Ecology of Inland Waters (Sp)	3
AWER 4510	Aquatic Ecology Practicum (F)	3
AWER 4530	Water Quality and Pollution (Sp)	3
AWER 5640 ²¹	Riparian Ecology and Management (Sp)	3
BIE 5010 ²¹	Principles of Irrigation Engineering (F)	3
BIE 5110 ²¹	Sprinkle and Trickle Irrigation (F)	4
BIE 5150 ²¹	Surface Irrigation Design (Sp)	3
BMET 4300	General Meteorology (F)	3
BMET 5250	Remote Sensing of Land Surfaces (Sp)	4
BMET 5500	Land-Atmosphere Interactions (Sp)	3
BMET 5700	Environmental Measurements (Sp)	3
CEE 3430	Engineering Hydrology (Sp)	3
CHEM 3000 (QI)	Quantitative Analysis (F)	3
GEO 5150 ²¹	Fluvial Geomorphology (F)	3
GEO 5510 (QI)	Groundwater Geology (F)	3
GEO 5520 (CI) ²¹	Techniques of Groundwater Investigations (Sp)	3
PLSC 5200	Crop Physiology (Sp)	2
PLSC 5210	Crop Physiology Laboratory (Sp)	1
SOIL 4000	Soil and Water Conservation (F)	4
SOIL 4700	Irrigated Soils (Sp, half semester)	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
BMET 5500	Land-Atmosphere Interactions (Sp)	3
FRWS 3600	Wildland Plant Ecology and Identification (F)	4
FRWS 3700 (CI)	Inventory and Assessment in Natural Resource and Environmental Management (F)	3
FRWS 3710	Monitoring and Assessment in Natural Resource and Environmental Management (Sp)	3
PLSC 2100 (BLS)	Introduction to Horticulture (F)	3
PLSC 2600	Annual and Perennial Plant Materials (F)	1.5
PLSC 2620	Woody Plant Materials: Trees and Shrubs for the Landscape (F)	3
PLSC 3400	Landscape Management Principles and Practices (F)	3
PLSC 3800	Turfgrass Management (F)	3
PLSC 4280	Field Crops (F)	3
PLSC 4320	Forage Production and Pasture Ecology (F)	3
PLSC 4300	World Food Crops and Cropping Systems: The Plants That Feed Us (F even)	3
PLSC 4400	Modern Vegetable Production (F)	3
PLSC 4500	Fruit Production (Sp)	4
PLSC 4800 ²¹	Professional Turfgrass Management (Sp)	2
PLSC 5200 ²¹	Crop Physiology (Sp)	2
PLSC 5210 ²¹	Crop Physiology Laboratory (Sp)	1
PLSC 5430 ²¹	Plant Nutrition (F, odd years)	2
PLSC 5550	Weed Biology and Control (F)	4
PLSC 5760 ²¹	Crop Ecology (Sp)	2

PSB 2800	Fundamentals of Organic Agriculture (Sp)	3
SOIL 4700	Irrigated Soils (Sp, half semester)	3

²¹Prerequisites are required for this course.

Sample Curriculum for Environmental Soil/Water Science Major

The sample curriculum shows most lower-division courses selected freshman and sophomore years, and most upper-division courses selected junior and senior years.

Freshman Year (31 credits)

Fall Semester (14 credits)

BIOL 1610	Biology I	4
ENGL 1010 (CL1)	Introduction to Writing: Academic Prose	3
GEO 1110 (BPS)	The Dynamic Earth: Physical Geology	4
Any Breadth Creative Arts (BCA)/USU course, as required		3

Spring Semester (17 credits)

BIOL 1620 (BLS)	Biology II	4
FRWS 2200 (BLS)	Ecology of Our Changing World	3
MATH 1050 (QL)	College Algebra	4
OSS 1400	Microcomputer Applications	3
Any emphasis elective course, as advised		3

Sophomore Year (31 credits)

Fall Semester (16 credits)

CHEM 1110 (BPS)	General Chemistry I	4
ENGL 2010 (CL2)	Intermediate Writing: Research Writing in a Persuasive Mode	3
Any Breadth Humanities (BHU)/USU course, as required		3
Any Breadth Social Sciences (BSS)/USU course, as required		3
Any emphasis elective course, as advised		3

Spring Semester (15 credits)

CHEM 1115	General Chemistry Laboratory (1 cr) or	
CHEM 1215 ²²	Chemical Principles Laboratory I (1 cr)	1
CHEM 1120 (BPS)	General Chemistry II (4 cr) or	
CHEM 1220 (BPS) ²²	Principles of Chemistry II (4 cr)	4
SOIL 3000	Fundamentals of Soil Science	4
Any Depth Humanities and Creative Arts (DHA)/USU course, as required		3
Any emphasis elective course, as advised		3

Junior Year (31 credits)

Fall Semester (15 credits)

MATH 1060	Trigonometry	2
SOIL 5130	Soil Genesis, Morphology, and Classification	4
STAT 2000 (QI)	Statistical Methods (3 cr) or	
STAT 3000 (QI)	Statistics for Scientists (3 cr)	3
Any Depth Social Sciences (DSS) course		3
Any Communications Intensive (CI) course		3

Spring Semester (16 credits)

MATH 1210 (QL)	Calculus I	4
PHYS 2110	The Physics of Living Systems I	4
SOIL 5050	Principles of Environmental Soil Chemistry	3
SOIL 5560	Analytical Techniques for the Soil Environment	2
Any emphasis elective course, as advised		3

Senior Year (31 credits)

Fall Semester (16 credits)

PHYS 2120 (BPS)	The Physics of Living Systems II	4
SOIL 5650	Environmental Soil Physics	3
Any Breadth American Institutions (BAI)/USU course, as required		3
Any USU elective courses		6

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Spring Semester (15 credits)

PSB 4890 (CI) Senior Seminar	1
SOIL 5550 (QI) Soils and Plant Nutrient Bioavailability.....	3
SOIL 5600 Surface Hydrologic Field Methods	3
SOIL 5750 Environmental Quality: Soil and Water	2
Any USU elective courses	6

²Students in the Water Emphasis should take CHEM 1215 and 1220, rather than CHEM 1115 and 1120.

Ornamental Horticulture Program One-year Certificate (27 credits)

The 27 credits are distributed as follows:

PLSC 2600 Annual and Perennial Plant Materials (F)	1.5
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	35-38
Courses selected from Approved Electives	7-10

Core Courses (35-38 credits)

OSS 1400 Microcomputer Applications (F,Sp,Su).....	3
PSB 1050 Plants, Soils, and Biometeorology 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)	1.5
PLSC 2610 Indoor Plants and Interiorscaping (F)	1.5
PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape (F)	3
PLSC 2650 Identification and Selection of Plants in Production Agriculture (F).....	1
PLSC 3050 Greenhouse Management and Crop Production (Sp)	4
PLSC 3300 Residential Landscapes (Sp).....	3
PLSC 3400 Landscape Management Principles and Practices (F)	3
PLSC 3700 Plant Propagation (F).....	4
PLSC 3800 Turfgrass Management (F)	3

Approved Electives (10-14 credits)

Choose electives from the following courses or choose from any courses that are part of a BS Degree in Horticulture.

PLSC 2900 Special Problems in Plant Science (F,Sp,Su)	1-4
PLSC 3010 Basic Flower Arranging (F)	2
PLSC 3020 Floral Crops Judging and Contemporary Design (Sp).....	2

PLSC 3500 The Structure and Function of Economic Crop Plants

(Sp).....	3
PLSC 4400 Modern Vegetable Production (F).....	3
PLSC 4500 Fruit Production (Sp).....	4
SOIL 3000 Fundamentals of Soil Science (F,Sp).....	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*, 4300, 4320*, 4400*, 4500*, 5200, 5550, 5700, PSB 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, 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, 2610, 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 2650, 3050, 3300, 3800, PSB 2800, SOIL 3000.

Undergraduate Research Opportunities

The Plants, Soils, and Biometeorology Department is dedicated to providing undergraduate students with opportunities to participate with faculty members in research and creative activities. Examples of recent research include 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 undergraduate research section of the Vice President for Research website at: <http://www.usu.edu/vpr/students/>

Departmental Assessment

Review and assessment of departmental programs is a commitment of the Plants, Soils, and Biometeorology 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://psb.usu.edu/htm/about/assessment/>

Department of Plants, Soils, and Biometeorology

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@cc.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 Biometeorology Department, or accessed online at: <http://www.usu.edu/ats/majorsheets/>

Graduate Programs

Admission Requirements

See general admission requirements, pages 99-100. 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, biometeorology, 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 Biometeorology 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.

Graduate student candidates must have scores on the verbal and quantitative portions of the Graduate Record Examination (GRE) at or above the 40th percentile. TOEFL scores of 550 or higher are 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.

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 98-99 of this catalog. The Department of Plants, Soils, and Biometeorology 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 98).

Career Opportunities

A broad range of career opportunities exists for students completing the MS or PhD degree from the Department of Plants, Soils, and Biometeorology. Graduate students specializing in the plant

Department of Plants, Soils, and Biometeorology

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://www.psb.usu.edu>

Plants, Soils, and Biometeorology Faculty

Professors

Bruce G. Bugbee, crop physiology
John G. Carman, plant reproduction and development
Steven A. Dewey, weed science
Daniel T. Drost, vegetable production
Lynn M. Dudley, soil physical chemistry
Lawrence E. Hips, biometeorology
David J. Hole, cereal breeding
H. Paul Rasmussen, horticulture
V. Philip Rasmussen, sustainable agriculture
Larry A. Rupp, ornamental horticulture
Schuyler D. Seeley, pomology
Ralph E. Whitesides, agronomy

Research Professor

Stanford A. Young, seed production

Adjunct Professors

Michael C. Amacher, soil chemistry
Gail E. Bingham, micrometeorology
N. Jerry Chatterton, forage/range physiology/biochemistry
Wilford R. Gardner, soil physics
Henry F. Mayland, soil science
Charles W. Robbins, soil science
Edward J. Souza, plant breeding and genetics
John M. Stark, microbial ecology and biogeochemistry
Dale R. Westermann, soil science
Raymond M. Wheeler, plant physiology
James L. Wright, soil science

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
Paul D. Christensen, soil science
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
DeVere McAllister, plant breeding
Frank B. Salisbury, plant physiology
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

Janis L. Boettinger, soil genesis, classification and mineralogy
Brent L. Black, pomology
Grant E. Cardon, soil science
Robert R. Gillies, biometeorology
Paul R. Grossl, biogeochemist
Paul G. Johnson, turfgrass science
Roger K. Kjelgren, urban horticulture
Jennifer W. MacAdam, forage production and physiology
Jeanette M. Norton, soil microbiology

Research Associate Professor

Esmael Malek, biometeorology

Adjunct Associate Professors

Ari M. Ferro, phytoremediation
Kevin B. Jensen, forage breeding
Thomas A. Jones, plant genetics
Helga Van Miegroet, forest soils

Assistant Professors

David G. Chandler, surface hydrology
Thomas C. Griggs, agronomy
Scott B. Jones, soil physics
Kelly L. Kopp, water conservation/turfgrass science
Heidi A. Kratsch, ornamental horticulture
Corey V. Ransom, weed science
Dominique J. P. Roche, small grains, breeding/genetics
Yajun Wu, plant stress physiology, cell wall proteins

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
Richard T. Lamar, environmental microbiology
Steven R. Larson, research geneticist
Susan Meyer, seed biology
Michael Peel, plant breeding
Blair L. Waldron, research geneticist

Senior Lecturer

D. Craig Aston, ornamental horticulture

Lecturer

M. Cathryn Myers-Roche

Department of Plants, Soils, and Biometeorology

Research Associates

Shyrl M. Clawson, plant breeding

Robert L. Newhall, soil conservation and sustainable agriculture

Director, Utah Botanical Gardens

William A. Varga, ornamental horticulture

Director, Soil Testing Lab

Janice Kotuby-Amacher, soil chemistry

Course Descriptions

Plant Science (PLSC), pages 691-694.

Soil Science (SOIL), pages 711-713.

Biometeorology (BMET), page 581.

Plants, Soils, and Biometeorology (PSB), page 698.

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://websites.usu.edu/politicalscience

Assistant Head: To be appointed

Graduate Program Director: To be appointed

Undergraduate Advisors:

Political Science:

Roberta Q. Herzberg, Main 320A, (435) 797-1307,
bobbi.herzberg@usu.edu

Law and Constitutional Studies:

Anthony A. Peacock, Main 341, (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; Participates in a pilot program of Master of Social Sciences (MSS), with an emphasis in Public Administration, administered through Continuing Education.

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

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) ¹ Introduction to Political Research (F,Sp)	3
POLS 4990 (CI) ² 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 3810 Introduction to Public Policy (F)	3
POLS 4120 American Constitutional Law (F)	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 ³ 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

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.

POLS 3100 Global Issues (F)	3
POLS 3400 United States Foreign Policy (F,Sp)	3
POLS 4210 European Union Politics (Sp)	3
POLS 4280 Politics and War (Sp)	3
POLS 4410 Global Negotiations (Sp)	3

Department of Political Science

POLS 4450 (CI) United States and Latin America (Sp)	3
POLS 4460 National Security Policy (Sp)	3
POLS 4470 Foreign Policy in the Pacific (Sp).....	3
POLS 4480 International Trade Policy (Sp)	3
POLS 4890 ³ Special Topics (F,Sp).....	3
POLS 5200 Global Environment (F)	3
POLS 5210 Comparative Political Change/Development (F)	3
POLS 5270 Latin American Politics and Development (Sp)	3
POLS 5290 Development in Europe (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.

POLS 3190 Gender, Power, and Politics (F).....	3
POLS 3210 Western European Government and Politics (F).....	3
POLS 3220 Russian and East European Government and Politics (F)	3
POLS 3230 Middle Eastern Government and Politics (F).....	3
POLS 3250 Chinese Government and Politics (F).....	3
POLS 3270 Latin American Government and Politics (F)	3
POLS 3430 Political Geography (Sp).....	3
POLS 4210 European Union Politics (Sp)	3
POLS 4220 (CI) Ethnic Conflict and Cooperation (Sp)	3
POLS 4230 Issues in Middle East Politics (Sp)	3
POLS 4260 Southeast Asian Government and Politics (Sp).....	3
POLS 4410 Global Negotiations (Sp)	3
POLS 4450 (CI) United States and Latin America (Sp)	3
POLS 4890 ³ Special Topics (F,Sp).....	3
POLS 5120 Economics of Russia and Eastern Europe, 9th Century to 21st Century (F)	3
POLS 5140 Law, Politics, and War (F).....	3
POLS 5210 Comparative Political Change/Development (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 5350 Evolution, Conflict, and Cooperation (Sp)	3
POLS 5440 Gender and World Politics (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.

POLS 3310 American Political Thought (F).....	3
POLS 3320 The Foundations of American Constitutionalism	3
POLS 4130 Constitutional Theory (Sp).....	3
POLS 4310 (CI) History of Political Thought I (Sp)	3
POLS 4320 History of Political Thought II (Sp)	3
POLS 4890 ³ 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:

POLS 5910 Campaign Internship (F,Sp,Su)	1-12
POLS 5920 Washington Internship (F,Sp,Su).....	1-12
POLS 5930 State Government Internship (F,Sp,Su).....	1-12
POLS 5940 Administrative Internship (F,Sp,Su)	1-12

¹Prerequisite: STAT 1040 or MATH 1030.

²POLS 3000 must be taken before POLS 4990.

³The subject matter of POLS 4890 determines the area to which it applies.

Sample Four-year Plan for 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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
POLS 1100 (BAI) United States Government and Politics	3
POLS 2100 Introduction to International Politics (3 cr) or	
POLS 2200 (BSS) Comparative Politics (3 cr).....	3
University Studies Breadth course	3
Elective course(s).....	3

Spring Semester (15 credits)

POLS 2300 Introduction to Political Theory	3
Quantitative Literacy (QL) course.....	3
University Studies Breadth courses	6
Elective course(s).....	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
POLS upper-division course.....	3
University Studies Breadth course	3
Elective courses	6

Spring Semester (15 credits)

POLS upper-division courses	6
Communications Intensive (CI) course	3
University Studies Breadth course	3
Elective course(s).....	3

Junior Year (30 credits)

Fall Semester (15 credits)

POLS 3000 (QI) Introduction to Political Research.....	3
POLS upper-division course.....	3
Depth Humanities and Creative Arts (DHA) course	3
Elective courses	6

Spring Semester (15 credits)

POLS 4990 (CI) Senior Research Seminar	3
POLS upper-division course.....	3
Depth Life and Physical Sciences (DSC) course	3
Elective courses	6

Senior Year (30 credits)

Fall Semester (15 credits)

POLS upper-division course.....	3
Upper-division elective courses.....	6
Elective courses	6

Department of Political Science

Spring Semester (15 credits)

POLS upper-division course.....	3
Upper-division elective courses.....	6
Elective courses	6

Law and Constitutional Studies Major

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. One must not 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)

POLS 1100 (BAI) U.S. Government and Politics (F,Sp)	3
POLS 2300 Introduction to Political Theory (F,Sp).....	3
POLS 3120 Law and Politics (F)	3
POLS 3170 Law and Economics (F).....	3
POLS 4120 American Constitutional Law (F).....	3
POLS 5130 Law and Policy (Sp) (3 cr) or	
POLS 5140 Law, Politics, and War (F) (3 cr)	3
POLS 3320 The Foundations of American Constitutionalism (3 cr) or	
POLS 4130 Constitutional Theory (Sp) (3 cr) or	
POLS 4140 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.
2. Not more than **three** credits in the following courses can apply to this requirement:

POLS 5910 Campaign Internship (F,Sp,Su)	1-12
POLS 5920 Washington Internship (F,Sp,Su).....	1-12
POLS 5930 State Government Internship (F,Sp,Su).....	1-12
POLS 5940 Administrative Internship (F,Sp,Su)	1-12

Sample Four-year Plan for 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 sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

POLS 1100 (BAI) United States Government and Politics	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth courses	6
Elective course(s).....	3

Spring Semester (15 credits)

POLS 2300 Introduction to Political Theory	3
University Studies Breadth courses	6
Quantitative Literacy (QL) course.....	3
Elective course(s).....	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

POLS 3120 Law and Politics.....	3
POLS 3170 Law and Economics	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth course	3
Elective course(s).....	3

Spring Semester (15 credits)

POLS upper-division elective (U.S. Government and Politics) courses	6
Communications Intensive (CI) course	3
Elective courses	6

Junior Year (30 credits)

Fall Semester (15 credits)

POLS 4120 American Constitutional Law	3
POLS upper-division elective course	3
Quantitative Intensive (QI) course	3
Depth Humanities and Creative Arts (DHA) course	3
Elective course(s).....	3

Spring Semester (15 credits)

POLS 3320 The Foundations of American Constitutionalism (3 cr) or	
POLS 4130 Constitutional Theory (3 cr) or	
POLS 4140 Political Organizations (3 cr).....	3
POLS upper-division elective course	3
Depth Life and Physical Sciences (DSC) course	3
Elective courses	6

Senior Year (30 credits)

Fall Semester (15 credits)

POLS 5140 Law, Politics, and War	3
POLS upper-division elective course	3
Communications Intensive (CI) course	3
Elective courses	6

Spring Semester (15 credits)

Upper-division elective courses.....	6
Elective courses	9

Department of Political Science

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:

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

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 342-343.

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 January and due back the first week of February) 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@cc.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/ats/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, 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 15** 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 March 15.

Department of Political Science

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:

BA 6420 Financial Problems (F) (for MSS in Public Administration students <i>only</i>)	3
POLS 4480 International Trade Policy (Sp)	3
POLS 5110 Social Policy (F)	3
POLS 5130 Law and 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:

ECON 5150 Comparative Economic Systems (Sp)	3
POLS 4480 International Trade Policy (Sp)	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 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:

ECON 5150 Comparative Economic Systems (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 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

Peter F. Galderisi, parties, elections, interest groups, research methods, statistics

Carolyn Rhodes, international relations, comparative politics, European union, trade

Randy T. Simmons, environmental politics and policy, public choice

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

Associate Professors

David B. Goetze, human cooperation and conflict, ethnic conflict, evolutionary theory

Roberta Q. Herzberg, public choice, health policy, public policy

Patria D. Julnes, public administration, organization theory, information technology management, quantitative and statistical methods

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

Huiyun Feng, Chinese politics, East Asian politics, comparative politics, international relations

V. James Strickler, public law

Department of Political Science

Senior Lecturer

Carol L. McNamara, political theory, presidency

Lecturers

Jeannie L. Johnson, international relations, comparative cultures

Shannon Peterson, international relations, foreign policy

Course Descriptions

Political Science (POLS), pages 694-696.

Latin American Studies (LATS), page 658.

Department of Psychology

Department Head: David M. Stein

Location: Emma Eccles Jones Education 487E

Phone: (435) 797-1460

Department Mailing Address:

Department of Psychology,
Utah State University, 2810 Old Main Hill,
Logan UT 84322-2810

FAX: (435) 797-1448

E-mail: psydept@cc.usu.edu

WWW: <http://www.cehs.usu.edu/psyc/>

Graduate Program Coordinators:

Combined Clinical/Counseling/School PhD:

Susan L. Crowley, Education 479, (435) 797-1251,
susan.crowley@usu.edu

Research and Evaluation Methodology PhD:

Karl R. White, Education 430, (435) 797-3013,
karl.white@usu.edu

School Psychology MS:

Gretchen Gimpel Peacock, Education 490, (435) 797-0721,
ggimpel@cc.usu.edu

School Counseling MS:

Camille J. Odell, Education 476, (435) 797-5576, codell@usu.edu

Undergraduate Program Faculty Coordinator:

Tamara J. Ferguson, Education 499, (435) 797-3272,
tjferguson@cc.usu.edu

Undergraduate Advisors:

Karen R. Ranson, Education 475, (435) 797-1456,
karen.ranson@usu.edu

Tressa M. Haderlie, Education 477, (435) 797-0097,
thaderlie@cc.usu.edu

Degrees offered: Bachelor of Science (BS), Bachelor of Arts (BA),
Master of Science (MS), and Doctor of Philosophy (PhD) in Psychology

Graduate specializations: *MS*—School Psychology, School
Counseling; *PhD*—Combined Clinical/Counseling/School Psychology,
Research and Evaluation Methodology

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, 4250, 4910, 4920, 5500, 5720, 5900, 5910, 5930, 5950, and 5960); 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 4950 is currently being developed.)

PSY 5950 and 5960 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 5950 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 5950 *very early* in their undergraduate careers. Students should take this course as soon as they know they wish to major in psychology. PSY 5950 should be taken *no later* than the semester immediately following admission to the major. (Because this course should be taken as early as is feasible, plans are underway to renumber PSY 5950 to the undergraduate level to promote earlier enrollment.) 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 two post-tests, and 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 the two post-tests, 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. The Psychology Advising Office *will not* initiate the graduation application process until students have additionally completed two formal *post-test* assessments of their progress through the program, which are correlated with learning objectives 1-4. Specifically, students must take the departmental competency *post-test* in psychology, which is similar but not identical to the pre-test, as well as a departmentally prepared and administered analogue of the Graduate Record Examination subject test in psychology. Students' performance in each content area of the three tests is recorded and maintained in a confidential, password-protected file accompanied by students' pre-test and post-test scores from assessments administered in each USU-affiliated course in psychology. Graduation is not currently contingent upon the level of performance on these tests. Test performance is used, however, as a formative assessment of programmatic achievement.

Final approval of each student's application for graduation is additionally 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. Along with the vita, each student must submit an accompanying approval form that has been signed by his or her faculty mentor, or USU-affiliated and approved sponsor. The student must additionally complete a departmental exit survey that compiles information regarding the student's perception of the program and his or her success in securing employment or admission to graduate programs. The vita and survey documents are used to assess program objectives 5 and 6.

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. 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 16-20). 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, and 2800 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 Distance Education, Continuing Education, 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 Distance Education, Continuing Education, or Extension programs or sites must contact the Psychology Department Advising Office on the

Department of Psychology

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) Continuing Education deviates from the published schedule of courses.

General Undergraduate Psychology Major:

- Required Courses (22 credits), plus
- Primary Electives (16 credits),
- Secondary Electives (3 credits), and
- Apprenticeship (6 credits)

Requirements for a psychology major consist of a broad preparation of 22 credits of specified coursework, plus a minimum of 19 credits of approved Psychology elective courses, and 6 credits of an apprenticeship, which allows for integration of coursework knowledge (theory) through application, for a total of 47 credits. At least 20 Psychology credits must be upper-division, 12 of which must be taken at USU.

A. Required Courses (22 credits)

PSY 1010 (BSS) General Psychology (F,Sp,Su)	3
PSY 1100 Developmental Psychology: Infancy and Childhood (F,Sp) ..	3
PSY 1400 Analysis of Behavior: Basic Principles (F,Sp,Su)	3
PSY 1410 Analysis of Behavior: Basic Principles Lab (F,Sp,Su)	1
PSY 2800 (QI) Psychological Statistics (F,Sp)	3
PSY 3500 Scientific Thinking and Methods in Psychology (F,Sp)	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
Behavior Pharmacology course (under development)	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/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
PSY/SPED 5720 Behavior Analysis Practicum (F)	3
SPED 1010 (BSS) Disability in the American Experience	3

D. Required Apprenticeship Courses (6 credits)

PSY 5950 (CI) Undergraduate Apprenticeship I (F,Sp)	3
PSY 5960 (CI) Undergraduate Apprenticeship II (F,Sp)	3

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 Department.)

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 479-480).

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 PSY 5950 *early* in their undergraduate career and *no later* than the semester following admission to the psychology major. 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

Freshman Year (30 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
PSY 1010 (BSS) General Psychology	3
STAT 1040 (QL) ¹ Introduction to Statistics	3
University Studies Breadth courses ²	6
Passing scores on Computer and Information Literacy (CIL) exams ³	0
(Note: The CIL requirement is met <i>only</i> by passing all six exams.)	

Spring Semester (15 credits)

PSY 1400 Analysis of Behavior: Basic Principles	3
PSY 1410 Analysis of Behavior: Basic Principles Lab	1
PSY 2800 (QI) Psychological Statistics	3
University Studies Breadth courses ²	6
Elective course(s)	2

Department of Psychology

Sophomore Year (30 credits)

Fall Semester (15 credits)

PSY 1100 Developmental Psychology: Infancy and Childhood	3
PSY Primary Elective courses (chosen from group 1, 2, 3, or 4) ⁵	6-7
University Studies Breadth course ²	3
Course counting toward minor	3

Spring Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
PSY 3500 Scientific Thinking and Methods in Psychology	3
PSY 5950 (CI) ⁴ Undergraduate Apprenticeship I	3
PSY Primary Elective course (chosen from group 1, 2, 3, or 4) ⁵	3-4
Course counting toward minor	3

Junior Year (30 credits)

Fall Semester (15 credits)

PSY 5330 Psychometrics	3
PSY 5960 ⁴ Undergraduate Apprenticeship II	3
PSY Primary Elective course (chosen from group 1, 2, 3, or 4) ⁵	3-4
Course counting toward minor	3
Elective course(s)	3

Spring Semester (15 credits)

PSY 5100 History and Systems of Psychology	3
PSY Primary Elective course (chosen from group 1, 2, 3, or 4) ⁵	3-4
University Studies Depth course (DHA or DSC)	3
Elective courses	6

Senior Year (30 credits)

Fall Semester (15 credits)

University Studies Depth course (DHA or DSC)	3
PSY Secondary Elective course	3
Course counting toward minor	3
Elective courses	6

Spring Semester (15 credits)

Elective courses or courses counting toward minor (as needed)	15
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Note: In order to graduate, students must complete *at least* 120 credits with a minimum USU GPA of 2.75. Of these 120 credits, 40 credits must be completed in upper-division courses (numbered at the 3000-level and above). For psychology courses used to complete the major, a minimum GPA of *at least* 3.0 is required, with no grades below C-.

¹To enroll in STAT 1040, students must have: (1) completed MATH 1010, (2) achieved a score of 70 percent or higher on the MATH 1050 placement test, (3) received an ACT score of 19 or higher, or (4) received an SAT score of 460 or higher.

²To fulfill the breadth requirements, students must complete *one* course from *each* of the six breadth areas (BAI, BCA, BHU, BLS, BPS, and BSS). PSY 1010 will fulfill the BSS requirement. At least *two* of the remaining five breadth courses *must* be completed in courses having a USU prefix.

³Students may fulfill the CIL requirement by taking OSS 1400 and receiving passing scores on all six required CIL exams, which are included in this course. OSS 1400 may be substituted for one of the elective courses.

⁴Apprenticeship courses are in a state of change. Accommodations will be made for students working to complete their degrees under the requirements previously in place, or under the new courses, when they become available.

⁵Students must complete 4 credits chosen from Group 3. Students must complete 6 credits (or two courses) chosen from Group 4.

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

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 complete 35 credits of the Secondary Teacher Education Program (STEP) in the Department of Secondary Education. 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)

PSY 1010 (BSS) General Psychology (F,Sp,Su)	3
PSY 1100 Developmental Psychology: Infancy and Childhood (F,Sp) ..	3
PSY 1400 Analysis of Behavior: Basic Principles (F,Sp,Su)	3
PSY 1410 Analysis of Behavior: Basic Principles Lab (F,Sp,Su)	1
PSY 2100 Developmental Psychology: Adolescence (Sp)	3
PSY 2800 (QI) Psychological Statistics (F,Sp)	3
PSY 3500 Scientific Thinking and Methods in Psychology (F,Sp)	3
PSY 3660 Educational Psychology for Teachers (F,Sp)	2
PSY 5100 History and Systems of Psychology (Sp)	3
PSY 5330 Psychometrics (F)	3

B. 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
Behavior Pharmacology course (under development)	3

Department of Psychology

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:

INST 3500 Technology Tools for Secondary Teachers (F,Sp,Su)	1
SCED 3100 Motivation and Classroom Management (F,Sp)	3
SCED 3210 (CI) Educational and Multicultural Foundations (F,Sp)	3
Special Methods Course (major or minor) ⁶	3
Clinical Experience I Course (major or minor) ⁶	1

Level 2 (15-week courses) (12 credits)

Students at Level 2 must complete the following 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
Special Methods Course (major or minor) ⁶	3
Clinical Experience II Course (major or minor) ⁶	1

Level 3

(includes 13 weeks of student teaching and 2 weeks of Student Teaching Seminar) (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

⁶Students 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 Department of Secondary Education.

A. Required Courses (15 credits)

PSY 1010 (BSS) General Psychology (F,Sp,Su)	3
PSY 1100 Developmental Psychology: Infancy and Childhood (F,Sp)	3
PSY 1400 Analysis of Behavior: Basic Principles (F,Sp,Su)	3
PSY 1410 Analysis of Behavior: Basic Principles Lab (F,Sp,Su)	1
PSY 2100 Developmental Psychology: Adolescence (Sp)	3
PSY 3660 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, anger management, etc.: PSY 1210, 3210, 3510, 4210, 4510, 5200; MHR 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. Students should also take a course covering use of statistical software (e.g., SPSS), offered through FCHD or Sociology. Furthermore, 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

Department of Psychology

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 supports 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 4510, 5200, 5950, 5960.

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 698-703).

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.

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 5950 and 5960.

Interested students should contact the Honors Program, Main 15, (435) 797-2715, honors@cc.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/ats/majorsheets/>

Graduate Programs

Admission Requirements

Admissions requirements vary somewhat across Psychology graduate programs. However, applications submitted to the School of Graduate

Department of Psychology

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 Research and Evaluation Methodology PhD program are reviewed throughout the year. The application deadline for the MS School Psychology program is **March 1**. Applications for the MS program in School Counseling must be submitted by **June 1** during odd-numbered alternate years (e.g., 2003, 2005, etc.). 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 Psychology master's degree programs, including School Psychology and School Counseling, following completion of a bachelor's degree. Prospective PhD program students can compete for admission to the Combined Clinical/Counseling/School program or the Research and Evaluation Methodology program if they possess either a bachelor's or a master's degree.

Prerequisites for Admission to Graduate Programs

Applicants to the Master of Science (MS) and Doctor of Philosophy (PhD) program 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 MS Programs

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 either a research thesis (Graduate School Plan A option), or a major literature review/synthesis paper (Plan B).

Absolute undergraduate course prerequisites for admission to the MS in School Psychology are as follows: (1) *Elementary Statistics*; (2) *Theories/Research in Learning or Applied Behavior Analysis*; (3) *Abnormal Psychology*; and (4) *Theories/Research in Personality*. The MS in School Psychology requires a **minimum of 60 semester credits**.

The following courses are required:

PSY 6150 Empirically Supported Treatments for Psychological Disorders of Children and Adolescents (Sp)	3
PSY 6220 Group Counseling (F)	3
PSY 6270 Child Psychopathology (F)	3
PSY 6290 Diversity Issues in Treatment and Assessment (Sp)	3

PSY 6310 Intellectual Assessment (F)	3
PSY 6330 Psychometrics (F) (3 cr) or	
PSY 6600 Research Design and Analysis I (F,Sp,Su) (3 cr)	3
PSY 6340 Psychological and Educational Consultation (F)	3
PSY 6350 Introduction to Theory and Practicum in Counseling (F)	3
PSY 6360 Practicum in Counseling and Psychotherapy (Sp,Su)	3
PSY 6380 Practicum in School Psychology (F,Sp,Su)	3
PSY 6410 Psychoeducational Assessment (Sp)	3
PSY 6450 Introduction to School Psychology (F)	1
PSY 6460 Professional Issues in School Counseling and School Psychology (Sp)	3
PSY 6530 Developmental Psychology (F)	3
PSY 6570 Introduction to Educational and Psychological Research (F,Sp,Su)	3
PSY 6660 Cognition and Instruction (Sp)	3
PSY 6880 Transcultural Assessment Lab (Sp)	1
PSY 6890 Assessment of Child and Adolescent Psychopathology and Personality (Su)	3
PSY 6950 Internship in School Psychology (F,Sp,Su)	3
PSY 6970 Thesis (F,Sp,Su)	2-6

School Counselor Education (NCATE-accredited)

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 is offered on campus and via a live, satellite distance education system (EDNET) to sites within Utah's boundaries.

Absolute undergraduate course prerequisites for admission to the MS in School Counseling are as follows: (1) *Theories of Personality*, (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:

PSY 6010 Introduction to Program Evaluation: Evaluation Models and Practical Guidelines (F,Su)	3
PSY 6150 Empirically Supported Treatments for Psychological Disorders of Children and Adolescents (Sp)	3
PSY 6220 Group Counseling (F)	3
PSY 6240 Introduction to School Counseling and Guidance (F)	3
PSY 6250 Internship in School Counseling and Guidance (F,Sp,Su) ..	10
PSY 6260 Career Development: Theory and Practice (Sp)	3
PSY 6290 Diversity Issues in Treatment and Assessment (Sp)	3
PSY 6330 Psychometrics (F)	3
PSY 6340 Psychological and Educational Consultation (F)	3
PSY 6350 Introduction to Theory and Practicum in Counseling (F)	3
PSY 6370 Practicum in School Counseling (F,Sp,Su)	3
PSY 6460 Professional Issues in School Counseling and School Psychology (Sp)	3
PSY 6530 Developmental Psychology (F)	3
PSY 6810 Seminar (Grant Writing) (Su)	2

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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. Entering BS students can opt to earn an MS degree in either counseling psychology or school psychology prior to the PhD. A research thesis and dissertation are required of all students. The combined program provides generalized training, along with three areas of specialization. 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 specialization, which mirror faculty interest and expertise, are health psychology/neuropsychology, child clinical (with or without a school psychology emphasis), and rural and minority 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 **107 total semester credits**, including the following:

A. MS Counseling Psychology Degree Curriculum

PSY 6290 Diversity Issues in Treatment and Assessment (Sp)	3
PSY 6310 Intellectual Assessment (F)	3
PSY 6320 Objective Assessment of Personality and Affect (Sp)	3
PSY 6350 Introduction to Theory and Practicum in Counseling (F)	3
PSY 6360 Practicum in Counseling and Psychotherapy (Sp,Su)	3
PSY 6530 Developmental Psychology (F)	3
PSY 6650 Theories of Learning: The Behavioral Perspective (F) (3 cr) or	3
PSY 6660 Cognition and Instruction (Sp) (3 cr)	3
PSY 6570 Introduction to Educational and Psychological Research (F,Sp,Su)	3
PSY 6600 Research Design and Analysis I (F,Sp,Su)	3
PSY 6850 Introduction to the Combined Doctoral Program (F)	1
PSY 6970 Thesis (F,Sp,Su)	1-6

B. PhD Program Courses

PSY 6220 Group Counseling (F)	3
PSY 6510 Social Psychology (Sp)	3
PSY 6750 Empirically Supported Treatments for Adult Psychological Disorders (Sp)	3
PSY 6880 Transcultural Assessment Lab (Sp)	1
PSY 7100 Biological Basis of Behavior (Sp)	3

PSY 7250 Professional Ethics and Standards (F)	1-3
PSY 7270 Psychopathology (F)	3
PSY 7350 Practicum in School Psychology (F,Sp,Su)	3
PSY 7360 Practicum in Counseling Psychology (F,Sp,Su)	3
PSY 7370 Practicum in Clinical Psychology (F,Sp,Su)	3
PSY 7610 Research Design and Analysis II (Sp,Su)	3
PSY 7670 Literature Reviews in Education and Psychology (F,Sp)	2
PSY 7910 Independent Research (F,Sp,Su)	1-3
PSY 7950 Internship in Professional Psychology (F,Sp,Su)	1
PSY 7970 Dissertation (F,Sp,Su)	1-18
Electives	6

Note: The MS counseling psychology degree is available *only* to students matriculated into the PhD Clinical/Counseling/School program.

Research and Evaluation Methodology (REM)

The department offers a PhD program in research and evaluation methodology. The program is designed to produce specialists capable of contributing to the knowledge base in psychology and education utilizing experimental and evaluation methods. While satisfying the department's general requirements, students may design their programs to become specialists in a variety of areas, such as program evaluation, experimental health psychology, analysis of behavior, statistics, or similar areas. A research thesis and/or dissertation are required of all students.

Absolute undergraduate prerequisites for admission to the PhD program in Research and Evaluation Methodology are as follows: (1) *Elementary Statistics*, (2) *Psychometrics*, and (3) *History and Systems of Psychology*.

The Research and Evaluation Methodology PhD requires a **minimum of 63 total credits** past the MS degree (total of 40 credits):

A. MS Degree Curriculum

PSY 6010 Introduction to Program Evaluation: Evaluation Models and Practical Guidelines (F,Su)	3
PSY 6570 Introduction to Educational and Psychological Research (F,Sp,Su)	3
PSY 6600 Research Design and Analysis I (F,Sp,Su)	3

Content Requirements (12 credits):

Students must complete four of the following five courses:

PSY 6510 Social Psychology (Sp)	3
PSY 6530 Developmental Psychology (F)	3
PSY 6650 Theories of Learning: The Behavioral Perspective (F)	3
PSY 6660 Cognition and Instruction (Sp)	3
PSY 7100 Biological Basis of Behavior (Sp)	3

Other Requirements (4 credits):

INST 7920 College Teaching Seminar (online course offered through USU School of Graduate Studies)	1
PSY 6910 Independent Research: Demonstration of Computer Analysis, Instrument Critique, and Study Design Critique Competencies (F,Sp,Su)	1
PSY 7250 Professional Ethics and Standards (F)	2

B. PhD Degree Curriculum

PSY 7090 Research and Evaluation Methodology Program Seminar (F,Sp)	1
PSY 7670 Literature Reviews in Education and Psychology (F,Sp)	2
PSY 7700 Grant Writing (Sp)	3
PSY 7780 Multivariate Methods in Psychology and Education (F)	3

Department of Psychology

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 Research and Evaluation Methodology 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 Rodríguez*—Latino family dynamics, parent training programs; *Fargo*—statistical methods, quantitative neuropsychology, seizure disorders, classification statistics; *Ferguson*—social skills, guilt/shame development, social cognition; *Field*—adolescent behavior disorders, rural mental health issues, school psychology; *Franco*—student services, minority health issues, multicultural psychology; *Galliher*—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; *Gimpel Peacock*—ADHD, behavioral disorders of children; *Julnes*—evaluation theory, human service delivery, family; *Lehman*—Web/Internet learning variables and efficacy, educational psychology; *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*—processing of central auditory system, neuropsychology of sound discrimination; *Stein*—addictive behaviors and models, drug and alcohol prevention/treatment; *J. Tschanz*—neuropsychology of Alzheimer's disease and other dementias; *White*—educational research, hearing loss detection in infancy, and program evaluation.

Graduate Student Financial Assistance

Financial support for students enrolled in terminal MS programs is limited. MS 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 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

Research Professors

Byron R. Burnham, qualitative evaluation methods
Russell Snyder, auditory neurophysiology

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
George Julnes, research and evaluation methodology
Gretchen Gimpel Peacock, school
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, school psychology
Renee V. Galliher, clinical psychology
Donna M. Gilbertson, school psychology
Steve Lehman, educational psychology
Maria C. Norton, research and evaluation methodology
Amy I. Odum, behavior analysis
Melanie M. Domenech Rodríguez, counseling, child clinical
Timothy Shahan, behavior analysis
Kerstin E. E. Schroder, health psychology

Department of 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

Gwenaelle C. Couillard, training

Mary E. Doty, clinical

Monique Frazier, child clinical

Eric J. Gee, research and evaluation

Richard D. Gordin, Jr., sport and exercise psychology

Randall M. Jones, family research management

Joan A. Kleinke, counseling and personnel services

J. Russell Mason, sensory evaluation, ethology

Kent E. Nabers, gero-psychology

Mark A. Nafziger, counseling psychology

D. Kim Openshaw, marriage and family therapy

Lori A. Roggman, developmental

Thomas R. Schenkenberg, neuropsychology

Patricia L. Truhn, neuropsychology, crisis intervention

Brian Tschanz, social psychology

Beth Walden, research and evaluation methodology

Leland J. Winger, Jr., clinical

Jean Wollam, educational psychology

Course Descriptions

Psychology (PSY), pages 698-703.

Religious Studies Major and Minor

Department Head: Norman L. Jones
Location: Main 323
Phone: (435) 797-1290
FAX: (435) 797-3899
TTY: (435) 797-1290
E-mail: monica.ingold@usu.edu
WWW: <http://www.usu.edu/history>

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 two lower-division courses. One of these courses is a survey of religions, and the other course is a methodology course.

Students must take 27 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 two lower-division courses as the major, and 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, Hebrew, Chinese, or Arabic 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 classes such as SOC 3110 (Methods of Social Research) and SOC 3120 (Social Statistics I). Students must complete 15 credits of math and science beyond the University Studies requirements.

Religious Studies Major

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.

Note: At the time this catalog went to press, courses having the Religious Studies (RELS) prefix had not yet been officially approved. Therefore, these courses *are not listed* in the *Course Descriptions* section of the printed catalog. Following approval, these courses will be shown in the online *General Catalog*, which can be found at: <http://www.usu.edu/ats/generalcatalog/>

Required Courses (9 credits)

RELS 1010 Religion and Culture 3
Explores the ways in which religions shape cultures, and cultures shape religions. Covers the major modern religions. This course will be proposed for General Education credit.

RELS 2010 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.

RELS 4990 Religious Studies Capstone 3
In this course, 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 (27 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* 27 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.....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 ART 3110.

HIST 3150 (CI) Roman History3
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, 500-15003
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 Europe3
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 East3
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 History3
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,Sp).....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 West3
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: 1450-16883
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 History3
Varieties of American religious experience from settlement to the present.

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 4130 (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.

PHIL 3750 Religion and Science in the Modern World (Sp)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 (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.

Religious Studies Major and Minor

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 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 Sociology of Religion (F) 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 (F) 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 (Sp) 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 (F) 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 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 (Sp) 3
 Historical and intellectual context of the development of the New Testament. Character, ideas, and historical setting of the various documents.

PHIL 4300 (DHA) Epistemology (F) 3
 Study of foundations of knowledge and belief systems, and related topics in epistemology, including perception, certainty, and skepticism.

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.

Note: At the time this catalog went to press, courses having the Religious Studies (RELS) prefix had not yet been officially approved. Therefore, these courses *are not listed* in the *Course Descriptions* section of the printed catalog. Following approval, these courses will be shown in the online *General Catalog*, which can be found at: <http://www.usu.edu/ats/generalcatalog/>

RELS 1010 Religion and Culture 3
 Explores the ways in which religions shape cultures, and cultures shape religions. Covers the major modern religions. This course will be proposed for General Education credit.

RELS 2010 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.

In addition to the two RELS courses listed above, students must also complete *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

Minimum GPA for Admission: 2.5, USU; 2.0, Career
Minimum GPA for Graduation: 2.5, major courses
Minimum Grade Accepted: C in all major requirements

This is a sample plan. It outlines 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.

Freshman Year (30-34 credits)

Fall Semester (15-17 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3
RELS 1010 Religion and Culture (approval pending) 3
 Science or Foreign Language course(s) (BS/BA requirement) 3-5
 University Studies Breadth courses 6

Spring Semester (15-17 credits)

Religious Studies upper-division course 3
 Science or Foreign Language course(s) (BS/BA requirement) 3-5
 Quantitative Literacy (QL) course 3
 University Studies Breadth courses 6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30-34 credits)

Fall Semester (15-17 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode 3
RELS 2010 Introduction to Religious Studies Methodology (approval pending) 3
 Religious Studies upper-division course 3
 Science or Foreign Language Course(s) (BS/BA requirement) 3-5
 University Studies Breadth course 3

Religious Studies Major and Minor

Spring Semester (15-17 credits)

Religious Studies upper-division courses.....	6
Science or Foreign Language course(s) (BS/BA requirement)	3-5
University Studies Breadth course	3
Elective course(s).....	3

Junior Year (30 credits)

Fall Semester (15 credits)

Religious Studies upper-division courses.....	6
Communications Intensive (CI) course	3
Quantitative Intensive (QI) course	3
Depth Social Sciences (DSS) course (cannot be used toward minimum credits for Religious Studies major)	3

Spring Semester (15 credits)

Religious Studies upper-division course	3
Communications Intensive (CI) course	3
Depth Life and Physical Sciences (DSC) course	3
Elective courses	6

Senior Year (30 credits)

Fall Semester (15 credits)

Religious Studies upper-division courses.....	9
Elective courses	6

Spring Semester (15 credits)

RELS 4990 Religious Studies Capstone (approval pending)	3
Upper-division course.....	3
Elective courses	9

Department of Secondary Education

Interim Department Head: Gary L. Carlston
Location: Emma Eccles Jones Education 330
Phone: (435) 797-2222
FAX: (435) 797-1441
E-mail: seced@usu.edu
WWW: <http://secondaryeducation.usu.edu/>

Undergraduate Advisor:
Harold E. Heap, Education 330B, (435) 797-2224,
harold.heap@usu.edu

Degrees Offered: Second Bachelor of Science (BS), Second Bachelor of Arts (BA), Master of Science (MS), Master of Arts (MA), and Master of Education (MEd) in Secondary Education; BS and BA in Composite Teaching—Social Studies. The department participates in the Interdepartmental Doctor of Education (EdD) and Doctor of Philosophy (PhD) programs, focusing on the Curriculum and Instruction specialization.

Graduate Specializations: Educational Leadership, English as a Second Language (MEd only), English Education, Gifted and Talented, Mathematics Education, Middle Level Education, Reading Education, Social Studies Education, Science Education

Undergraduate Programs

Objectives

The Department of Secondary Education coordinates state-approved programs for secondary teacher licensure across campus. The department 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 by the National Council for Accreditation of Teacher Education. 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

Departmental 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. 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, and (6) submission of a criminal background check (a legislative mandate). Application forms are available from advisors; from the Office of Teacher Education, Graduation, and Educator Licensing, Room 103, Emma Eccles Jones Education Building; and from the Department of Secondary Education, Room 330, Emma Eccles Jones Education Building.

Students must submit copies of University transcripts, including transfer coursework, verifying a minimum total GPA of 2.75. Criminal

Background Check materials, required by the State of Utah, must also be submitted at this time. The fee for the Criminal Background Check is payable to the Utah State Office of Education. A money order must be provided as payment. Questions about the 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 Department of Secondary Education. 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 (24 credits)

The History requirement is met by completing the 24-credit *History Teaching Minor*. Requirements for this minor can be found on pages 334-335.

B. Geography (16-24 credits)

Complete the 24 credits minimum required for the *Teaching Minor in Geography* (see pages 297-298), or complete the following 16 credits:

GEOG 1000 (BPS) Physical Geography (F,Sp,Su).....	3
GEOG 1300 (BSS) World Regional Geography (F,Sp).....	3
GEOG 1400 (BSS) Human Geography (Sp).....	3
GEOG 3850 Map, Air Photo, and GIS Interpretation (F).....	4
GEOG 4200 (CI) Regional Geography (Utah) (F,Sp,Su).....	3

C. Economics (6 credits)

ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles (F,Sp).....	3
ECON 2010 (BSS) Introduction to Microeconomics (F,Sp).....	3

D. Political Science (9 credits)

POLS 1100 (BAI) United States Government and Politics (F,Sp).....	3
POLS 2200 (BSS) Comparative Politics (F,Sp) (3 cr) or	
POLS 3130 (DSS) United States Legislative Politics (Sp) (3 cr).....	3
POLS 4120 American Constitutional Law (F) (3 cr) or	
POLS 4130 Constitutional Theory (Sp) (3 cr).....	3

E. Psychology/Sociology/Anthropology (9 credits)

PSY 1010 (BSS) General Psychology (F,Sp,Su).....	3
SOC 1010 (BSS) Introductory Sociology (F,Sp).....	3
ANTH 1010 (BSS) Cultural Anthropology (F,Sp).....	3

Department of Secondary Education

Suggested Four-year Course of Study for Social Studies Composite Teaching Major

Freshman Year (30-31 credits)

Fall Semester (15-16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
HIST 2700 (BAI) United States to 1877	3
PSY 1010 (BSS) General Psychology	3
MATH 1050 (QL) College Algebra (4 cr) or	
STAT 1040 (QL) Introduction to Statistics (3 cr)	3 or 4
USU 1340 (BSS) Social Systems and Issues	3

Spring Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
GEOG 1000 (BPS) Physical Geography	3
HIST 1060 (BHU) Introduction to Islamic Civilization (3 cr) or	
HIST 1100 (BHU) Foundations of Western Civilization: Ancient and Medieval (3 cr) or	
HIST 1500 (BHU) Cultural and Economic Exchange in the Pre-Nineteenth Century World (3 cr)	3
POLS 1100 (BAI) United States Government and Politics	3
Breadth Creative Arts (BCA) course	3

Sophomore Year (30 credits)

Fall Semester (15 credits)

GEOG 1300 (BSS) World Regional Geography	3
ECON 1500 (BAI) Introduction to Economic Institutions, History, and Principles	3
HIST 1100 (BHU) Foundations of Western Civilization: Ancient to Medieval (3 cr) or	
HIST 1510 (BHU) The Modern World (3 cr)	3
HIST 2710 (BAI) United States 1877-Present (optional, but recommended)	3
USU 1350 (BLS) Integrated Life Science	3

Spring Semester (15 credits)

ANTH 1010 (BSS) Cultural Anthropology	3
ECON 2010 (BSS) Introduction to Microeconomics	3
GEOG 1400 (BSS) Human Geography	3
POLS 2200 (BSS) Comparative Politics	3
HIST upper-division elective course	3

Junior Year (30 credits)

Fall Semester (16 credits)

GEOG 3850 Map, Air Photo, and GIS Interpretation	4
GEOG 4200 (CI) Regional Geography: Utah	3
POLS 4120 American Constitutional Law (3 cr) or	
POLS 4130 Constitutional Theory (3 cr)	3
Quantitative Intensive (QI) course	3
HIST upper-division elective course	3

Spring Semester (14 credits)

GEOG 4200 (CI) Regional Geography: International (optional, but recommended)	3
HIST 4850 Interpreting the Past for Teachers (3 cr) or	
HIST 4860 Teaching History (3 cr) or	
HIST 4870 Teaching World History: Themes, Approaches, and Materials (3 cr)	3
SPED 4000 Education of Exceptional Individuals	2
Depth Life and Physical Sciences (DSC) course	3
HIST upper-division elective course	3

Senior Year (30 credits)

Fall Semester (15 credits)

Recommended courses in STEP Program (see advisor)	15
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Spring Semester (15 credits)

Recommended courses in STEP Program (see advisor)	15
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Certification Semester (12 credits)

STEP Student Teaching courses	12
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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 Secondary Education and the Department of Special Education and Rehabilitation.

Optional Middle Level Endorsement (grades 6-9)

The Department of Secondary Education has joined with the Department of Elementary Education to offer a Middle Level Endorsement for students seeking initial teacher licensure and for persons who already have an elementary or secondary teaching license. Students pursuing this endorsement must take additional coursework that specifically focuses on middle level curriculum and instruction. To be recommended for the Middle Level Endorsement, students must student teach (SCED 5630) in the middle grades. Information about this program is available from the Secondary Education Advisor and the Department of Elementary Education.

ESL Teaching Minor or Endorsement

The USU Elementary Education Department and the Secondary Education Department jointly offer a K-12 English as a Second Language (ESL) endorsement. Undergraduate students seeking initial teacher licensure can obtain an ESL Teaching Minor (24 credits) and the ESL endorsement. Students pursuing the minor must complete the following courses: LING 4100, 4400, 4900; SCED 3300 or 4300; SCED 4710, 4770, 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.

Department of Secondary Education

Composite Teaching Majors (46 credits minimum)

Agricultural Education, Art Education, Biological Science, Business Information Technology and Education, Earth Science, Engineering and Technology Education, Family and Consumer Sciences Education, Marketing Education, Music 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)

Business Computer and Information Systems, Business Information Technology and Education, Chemistry, Economics, English, Geography, Health Education, History, Marketing Education, 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, not piecemeal. Each level must be satisfactorily completed before students advance to the next level.* 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 Department of Secondary Education 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)

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 ¹ (40 hours minimum)	1
Special Methods I ² (major or minor)	3

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
Clinical Experience II ³ (40 hours minimum)	1
Special Methods II ⁴ (major or minor)	3

C. Level 3 (includes 13 weeks of student teaching and 10 weeks of Student Teaching Seminar)

Student Teaching Seminar ⁵ (10 weeks)	2
Student Teaching ⁶ (13 weeks, full-time)	10

¹The Clinical Experience I course is taught under course number 3300 in various departments. Course title varies among departments.

²The Special Methods I course is taught by various departments under various course numbers. Course title varies among departments.

³The Clinical Experience II course is taught under course number 4300 in various departments. Course title varies among departments.

⁴The Special Methods II course is taught by various departments under various course numbers. Course title varies among departments.

⁵The Student Teaching Seminar course is taught under course number 5500 in various departments. Course title varies among departments.

⁶The 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. If a student extends Level 1 and 2 coursework over more than two semesters, a clinical experience must be taken during each additional semester.

Student Teaching

Students must attend the Student Teaching Enrollment Meeting (STEM) one year in advance of their student teaching semester. Applications for student teaching and each semester's deadlines will be discussed at the STEM. Information concerning the Praxis II Content Major test, which must be passed 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 stay 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.

Assessment

The Department of Secondary Education 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 department can be found at:

<http://www.coe.usu.edu/seced/assessment/index.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

Department of Secondary Education

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@cc.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/ats/majorsheets/>

Graduate Programs

Admission Requirements

The Department of Secondary Education 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 99-100).

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.

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 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 specialization in Secondary Education include the following: Educational Leadership, English as a Second Language (MEd only), English Education, Gifted and Talented, Mathematics Education, Middle Level Education, Reading Education, Social Studies Education, and Science Education. Two University departments—Art and Business 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 specialization, 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.

Doctoral Degree Programs

For students who have already completed a master's degree, Secondary Education participates in the interdepartmental doctoral program coordinated by the dean of the College of Education and Human Services. Both PhD and EdD degrees are offered in the Curriculum and Instruction specialization. For an overview of the program, including program requirements and admission procedures, see pages 251-252 of this catalog. As with any degree program, students interested in doctoral study are encouraged to contact the department head of Secondary Education.

Department of Secondary Education

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 department no later than February 1 for the following academic year. Acceptance to graduate study does not guarantee financial assistance.

Secondary Education 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 Professors

Kay Camperell, content area reading/writing, learning theory, literacy
education

Gary L. Carlston, instructional leadership

Janice L. Hall, qualitative research, professional development,
supervisor of student teaching
Grace C. Huerta, educational foundations, multicultural education,
ESL/Bilingual

Associate Professor Emeritus

Varnell A. Bench, extension, administration, supervision

Assistant Professors

George G. Hruby, literacy/reading

Sherry Marx, ESL/bilingual/multicultural

L. Ruth Struyk, classroom assessment, classroom management,
measurement, instructional supervision, program evaluation

Continuing Education Assistant Professors

Todd Campbell, science

Peggie Lee Clelland, literacy, reading

Laurie Culbreth, English education

Steven Laing, educational leadership

Lecturer

Barbara Cangelosi, classroom management

Adjunct Clinical Instructor

Loo Leong Guan Eddie, instructional technology

Undergraduate Advisor

Harold E. Heap, classroom management, adolescent development

Course Descriptions

Secondary Education (SCED), pages 705-709.

Academic Service-Learning Program and Certificate

Coordinator: Robert H. Schmidt
Location: Student Center 326
Phone: (435) 797-7947
FAX: (435) 797-2919
E-mail: servelearn@cc.usu.edu

Vice President for Student Services:
Juan N. Franco, Student Center 220, (435) 797-1712,
juan.franco@usu.edu

Vice Provost for Undergraduate Studies and Research:
Joyce Kinkead, Main 142, (435) 797-1706, joyce.kinkead@usu.edu

Associate Director for Student Involvement and Leadership:
Keri L. Mecham, Student Center 326, (435) 797-1740

Program Description

Utah State University has implemented an Academic Service-Learning Program that leads to a Certificate in Service-Learning. This 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. Course sections listed in the *Schedule of Classes* with the SL designation have been approved by the Service-Learning Steering Committee to meet the criteria listed above. For a current list of SL-designated courses, contact the Service-Learning Coordinator.

The program is housed organizationally within the Office of the Provost, with oversight by the Vice Provost for Undergraduate Studies and Research. The program's faculty and staff work very closely with the ASUSU Service Vice President, the Val R. Christensen Service Center program directors, and the Vice President for Student Services. The Service-Learning Coordinator is assisted by a steering committee consisting of faculty, students, and staff.

Certificate

Service-Learning Scholars are awarded a Service-Learning Certificate, which is recorded on a student's official transcript, enabling 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.

Certificate Requirements

To receive a Service-Learning Certificate, a student must:

1. Apply for and be accepted to the Service-Learning Scholars Program.
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 work 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:

Gary Kiger, 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 99-100. 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:

Peggy Petrzelka, Main 216E, (435) 797-0981,
peggyp@hass.usu.edu

Social Work:

Terry L. Peak, Main 239D, (435) 797-4080, tpeak@hass.usu.edu

Anthropology:

Patricia M. Lambert, Main 245A, (435) 797-2603,
plambert@hass.usu.edu

Sociology Graduate Program Director:

Douglas B. Jackson-Smith, Main 216H, (435) 797-0582,
douglasj@hass.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; participates in Master of Social Sciences (MSS); BS and BA in Social Work; BS and BA in Anthropology

Graduate Specializations: *PhD*—Demography, Environmental Sociology/Sociology of Natural Resources, Social Problems and Inequality, and Social Change and Development

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

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@cc.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/ats/majorsheets/>

Sociology

Undergraduate Program Director: Peggy Petrzelka
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

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 33 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 (15 credits):
 - SOC 1010 (BSS)** Introductory Sociology (F,Sp)..... 3
 - SOC 3010** Race, Class, and Gender (F,Sp)..... 3
 - SOC 3110 (CI)**¹ Methods of Social Research (F,Sp)..... 3
 - SOC 3120 (QI)**² Social Statistics I (F,Sp) 3
 - SOC 4010** Contemporary Sociological Theory (F,Sp)..... 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
SOC 4800 Seminar in Sociology (F,Sp)	1-3

b. Groups and Institutions

SOC 2370 Sociology of Gender (F)	3
SOC 3320 Sociology of Work and Organization (Sp)	3
SOC 3330 Medical Sociology (F)	3
SOC 3500 Social Psychology (F,Sp).....	3
SOC 4330 Sociology of Religion (F)	3
SOC 4350 Political Sociology (Sp).....	3
SOC 4800 Seminar in Sociology (F,Sp)	1-3

c. Population, Environment, and Development

SOC 3200 Population and Society (F,Sp)	3
SOC 3600 Sociology of Urban Places (F).....	3
SOC 3610 Rural Sociology (F).....	3
SOC 4620 Sociology of the Environment and Natural Resources (Sp)	3
SOC 4710 Asian Societies (Sp)	3
SOC 4720 Applied Community Development (Sp).....	3
SOC 4730 Women in International Development (Sp).....	3
SOC 4800 Seminar in Sociology (F,Sp)	1-3
SOC 5650/6650 Developing Societies (F)	3

¹Prerequisites: Six credits of departmental courses.

²Prerequisites: Six credits of departmental courses; and STAT 1040 or equivalent

Sample Four-year Plan for Sociology Major

Minimum GPA for Admission: 2.5, Career

Additional Matriculation Requirement: Complete SOC 1010 with grade of C or better

Minimum GPA for Graduation: 2.5, major; 2.0, USU; 2.5 Career

Minimum Grade Accepted: C in SOC 1010; C- in major courses

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

SOC 1010 (BSS) Introductory Sociology	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth courses	6
Elective course(s).....	3

Spring Semester (15 credits)

SOC 3010 Race, Class, and Gender	3
STAT 1040 (QL) Introduction to Statistics	3
Sociology elective course (chosen from <i>Social Problems</i> group)	3
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Department of Sociology, Social Work and Anthropology

Sophomore Year (30 credits)

Fall Semester (15 credits)

SOC 3110 (CI) Methods of Social Research.....	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Sociology elective course (chosen from <i>Groups and Institutions</i> group)	3
University Studies Breadth course	3
Elective course(s).....	3

Spring Semester (15 credits)

SOC 3120 (QI) Social Statistics I	3
Sociology upper-division course (chosen from <i>Population, Environment, and Development</i> group)	3
Elective courses	9

Junior Year (30 credits)

Fall Semester (15 credits)

SOC 4010 Contemporary Sociological Theory.....	3
Sociology upper-division course.....	3
Depth Humanities and Creative Arts (DHA) course	3
Upper-division elective courses.....	6

Spring Semester (15 credits)

Sociology upper-division courses	6
Depth Life and Physical Sciences (DSC) course	3
Upper-division elective course(s)	4
Elective course(s).....	2

Senior Year (30 credits)

Fall Semester (15 credits)

Communications Intensive (CI) course	3
Elective courses	12

Spring Semester (15 credits)

Elective courses	15
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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 (BSS) Introductory Sociology (effective Fall Semester 2005), and a grade of C- or better in all other courses to be counted toward the minor.

SOC 1010 (BSS) Introductory Sociology (F,Sp).....	3
SOC 1020 Social Problems (F,Sp).....	3
Additional credits with a SOC prefix	6

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 Peggy Petrzela, peggyp@hass.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:

FCHD 3100 Abuse and Neglect in Family Context (F,Sp) (prereq: Sophomore standing, FCHD 1500, 2400) (3 cr) or	
PSY 3120 Abuse, Neglect, and the Psychological Dimensions of Intimate Violence (F,Su) (prereq: PSY 1100) (3 cr)	3
JCOM 4030 Mass Media Law (F,Sp)	3
MHR 2050 Legal and Ethical Environment of Business (F,Sp,Su).....	3
MHR 3810 Employment Law and Policy Development (F,Sp)	3
MHR 5640 Selected Topics: International Business Law	3
PHIL 1120 (BHU) Social Ethics (F)	3
PHIL 4600 Philosophy of Law (F).....	3
PHIL 4610 (DHA) Social and Political Philosophy (Sp).....	3
PHIL 5600 Legal Ethics (F) (prereq: PHIL 4600)	3
POLS 3120 Law and Politics (F)	3
POLS 3130 United States Legislative Politics (Sp).....	3
POLS 3170 Law and Economics (F).....	3
POLS 3320 The Foundations of American Constitutionalism	3
POLS 3810 Introduction to Public Policy (F).....	3
POLS 4120 American Constitutional Law (F).....	3
POLS 4130 Constitutional Theory (Sp).....	3
POLS 4810 Politics and Public Policy (F)	3
POLS 5130 Law and Policy (Sp).....	3
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 4420 (CI) Criminal Law and Justice (Sp).....	3
SPED 5070 Policies and Procedures in Special Education (F).....	1-3
SW 5350 (CI) 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. Kelly Hardwick, (435) 797-8402, in the Department of Sociology, Social Work and Anthropology.

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.

Department of Sociology, Social Work and Anthropology

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 250-251).

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.

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.

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.

Licensure

In the State of Utah, graduates with a bachelor's degree in Social Work are eligible to be licensed upon graduation as social service workers. 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
(801) 530-6628
<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 46-54), 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.

Social Work Major

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:

Department of Sociology, Social Work and Anthropology

First year:

SW 1010 ³ Introduction to Social Welfare (F,Sp)	3
ANTH 1010 (BSS) Cultural Anthropology (F,Sp)	3
BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su)	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose (F,Sp,Su)	3
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)	3
PSY 1010 (BSS) General Psychology (F,Sp,Su)	3
SOC 1010 (BSS) Introductory Sociology (F,Sp)	3
STAT 1040 (QL) ⁴ Introduction to Statistics (F,Sp,Su)	3

³Students must take SW 1010 before taking SW 2100 and 2400.

⁴Students must complete STAT 1040 as a prerequisite to SOC 3120 and to fulfill Social Work major requirements.

Second year:

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su)	3
SW 2100 ⁵ Human Behavior in the Social Environment (Sp)	3
SW 2400 ⁵ Social Work with Diverse Populations (Sp)	3
One elective enrichment course	3
Students should apply for advanced standing during their second year.	

⁵Since SW 2100 and 2400 are only offered during spring semester each year, students should plan accordingly.

Third year:

SW 3050 ⁶ Practice I (F)	3
SW 4100 Social Work Research (F)	3
SW 4150 Practice II (Sp)	3
SW 4160 Practice III (Sp)	3
SOC 3120 (QI) ⁷ Social Statistics I (F,Sp)	3
Two elective enrichment courses	6
Students should apply for the practicum during their third year.	

⁶Prior to taking SW 3050, students must apply for advanced standing, to qualify to enroll in practice courses.

⁷STAT 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.

SW 3350 Child Welfare	3
SW 3360 Adolescents: Theories, Problems, and Issues	3
SW 3450 School Social Work	3
SW 3550 Social Gerontology	3
SW 3650 Mental Health	3
SW 3750 Medical Social Services	3
SW 3850 Spirituality and Social Work	3
SW 3950 Occupational and Environmental Health (offered infrequently; check with department)	3
SW 4900 Topical Issue Seminar	3-6

Optional Elective

SW 4950 ⁸ Directed Readings (F,Sp)	1-5
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Fourth year:

SW 4870 ⁹ Beginning Field Practicum (F)	6
SW 5350 (CI) Social Welfare Policy (F)	3
SW 5870 Advanced Field Practicum (Sp)	6

⁸SW 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.

⁹Prior 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

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. Application requirements include: satisfactory grades in all prerequisite Social Work courses and specific University Studies courses, an essay, and a satisfactory grade (70 percent or better) on the Advanced Placement Test (APT). After the junior year, the practicum requires a satisfactory grade (70 percent or better) on the Generalist Practice Test (GPT).

Minimum GPA for Graduation: 2.75, major; 2.5, USU; 2.5, Career
Minimum Grade Accepted: C+ in SW 1010; B- in SW 3050, 4150, and 4160; C in remaining major courses

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

SW 1010 Introduction to Social Welfare	3
SOC 1010 (BSS) Introductory Sociology	3
ANTH 1010 (BSS) Cultural Anthropology	3
BIOL 1010 (BLS) Biology and the Citizen	3
Elective course(s)	3

Spring Semester (15 credits)

FCHD 1500 (BSS) Human Development Across the Lifespan	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
PSY 1010 (BSS) General Psychology	3
STAT 1040 (QL) Introduction to Statistics	3
University Studies Breadth course	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth courses	6
Social Work elective course	3
Elective course(s)	3

Spring Semester (15 credits)

SW 2100 Human Behavior in the Social Environment	3
SW 2400 Social Work with Diverse Populations	3
University Studies Breadth course	3
Depth Humanities and Creative Arts (DHA) course	3
Elective course(s)	3

Junior Year (30 credits)

Fall Semester (15 credits)

SW 3050 Practice I	3
SW 4100 Social Work Research	3
SOC 3120 (QI) Social Statistics I	3
Social Work upper-division course	3
Upper-division elective course	3

Spring Semester (15 credits)

SW 4150 Practice II	3
SW 4160 Practice III	3

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Social Work elective course	3
Depth Life and Physical Sciences (DSC) course	3
Communications Intensive (CI) course	3

Senior Year (30 credits)

Fall Semester (15 credits)

SW 4870 Beginning Field Practicum	6
SW 5350 (CI) Social Welfare Policy	3
Elective courses	6

Spring Semester (15 credits)

SW 5870 Advanced Field Practicum	6
Elective courses	9

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. Those students who do not receive advanced standing, and are therefore not allowed to enroll in upper-division practice courses, may retake courses to improve their GPA and reapply for advanced standing during the following year.

To be considered for advanced standing, students must meet the following minimum criteria:

1. Completion of the following courses with a C or better:

ANTH 1010 (BSS) Cultural Anthropology (F,Sp).....	3
BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su)	3
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
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp).....	3
PSY 1010 (BSS) General Psychology (F,Sp,Su)	3
SOC 1010 (BSS) Introductory Sociology (F,Sp).....	3
SW 2100 Human Behavior in the Social Environment (Sp)	3
SW 2400 Social Work with Diverse Populations (Sp)	3
2. Completion of SW 1010 (Introduction to Social Welfare) with a grade of C+ or better.
3. Junior status (61-90 credits) upon application.
4. Maintenance of a minimum overall GPA of 2.5 and a minimum GPA of 2.75 in social work classes.
5. No *Pass-D-Fail* grades in courses required for the major.

6. A satisfactory grade (70 percent or better) on the Advanced Placement Test (APT), given during finals week of spring semester.

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.

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 II).
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 grade (70 percent or better) on the Generalist Practice Test (GPT), given during finals week of spring semester.

Students should also be aware that if there are any personal data, such as that included on the application for state licensure, which

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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:

ANTH 1010 (BSS) Cultural Anthropology (F,Sp).....	3
BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su).....	3
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
FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp)...	3
PSY 1010 (BSS) General Psychology (F,Sp,Su)	3
SOC 1010 (BSS) Introductory Sociology (F,Sp).....	3
STAT 1040 (QL) Introduction to Statistics (F,Sp,Su).....	3
SW 1010 Introduction to Social Welfare (F)	3
SW 2100 Human Behavior in the Social Environment (Sp)	3
SW 2400 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:

SW 3050 Practice I (F)	3
SW 4150 Practice II (Sp).....	3
SW 4160 Practice III (Sp).....	3
SW 4870 Beginning Field Practicum (F)	6
SW 5350 (Cl) Social Welfare Policy (F)	3
SW 5870 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. 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 become involved with the NASW student organization, as well as the USU Social Work Program Phi Alpha Honor Society. Information is available in Main 239.

Anthropology

Program Director: Patricia M. Lambert

Program Office:

Main 245, (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 to encourage broad exploration across anthropology, and students who major in anthropology examine a wide range of peoples and cultures, both past and present. They examine 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

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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 protection 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.

Major Requirements

A minimum of 39 credits is required for the anthropology major. All students must take four required courses, including a three-semester sequence in the basic areas of anthropology and a beginning 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 and a final capstone course. Additional graduation requirements include:

Methods component

Majors must complete one "Methods" course 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.

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 advisor, and complete the following major courses:

Required Courses (12 credits)

ANTH 1010 (BSS) Cultural Anthropology (F,Sp)	3
ANTH 1020 (BLS) Biological Anthropology (F)	3
ANTH 2030 (BSS/CI) World Archaeology (F,Sp)	3
ANTH 3990 History and Theories of Anthropology (F)	3

Cultural Anthropology (6 credits minimum)

ANTH 2010 (BSS) Peoples of the Contemporary World (F)	3
ANTH 3110 North American Indian Cultures (F)	3
ANTH 3130 (CI) Peoples of Latin America	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 (F)	3
ANTH 4120 (CI/DSS) Ethnography of Childhood (Methods) (F)	3
ANTH 4130 (DSS) Medical Anthropology: Matter, Culture, Spirit, and Health (Sp)	3
ANTH 4150 (QI) Problems in Cultural Anthropology (Methods) (F,Sp)	3
ANTH 5100/6100 (DSS) Anthropology of Sex and Gender (Sp)	3
ANTH 5120/6120 Applied Rural Development (Sp)	3
ANTH 5130/6130 Ethnographic Field School (Methods) (Su)	3-6
ANTH 5160/6160 (DSS) Cities and Development (Sp)	3

Biological/Physical Anthropology (6 credits minimum)

ANTH 3200 (CI/DSS) Perspectives on Race (Sp)	3
ANTH 3250 Osteology (Methods) (F)	3
ANTH 4250 (QI) Problems in Bioarchaeology (Methods) (Sp)	3
ANTH 5210 Physical Anthropology Lab (Methods)	1-3

Archaeology (6 credits minimum)

ANTH 3300 (DSS) Archaeology in North America (Sp)	3
ANTH 3320 (DSS) Ancient Humans and the Environment (F)	3
ANTH 3350 (DSS) Archaeology of Ancient Civilizations (Sp)	3
ANTH 4350 Archaeological Method/Theory and Cultural Resource Management (Sp)	3
ANTH 4360 (DSS) Ancient Desert West (F)	3
ANTH 4380 Peopling of the New World (Sp)	3

Capstone Courses (3 credits minimum)

ANTH 4250 (QI) Problems in Bioarchaeology (Methods) (Sp)	3
ANTH 4350 Archaeological Method/Theory and Cultural Resource Management (Sp)	3
ANTH 4990 Contemporary Issues in Anthropology (Sp)	3
ANTH 5650/6650 (DSS) Developing Societies (F)	3

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 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 5190 Applied Anthropology Practicum (Methods)	1-5
ANTH 5300 Archaeology Field School (Methods) (Su)	3-5
ANTH 5310 Archaeology Lab (Methods)	1-3
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

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ANTH 6900 Independent Studies	1-3
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

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

This is a sample plan. It outlines 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.

Freshman Year (30 credits)

Fall Semester (15 credits)

ANTH 1010 (BSS) Cultural Anthropology	3
ANTH 1020 (BLS) Biological Anthropology	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
University Studies Breadth course	3
Elective course(s).....	3

Spring Semester (15 credits)

ANTH 2030 (BSS/CI) World Archaeology	3
STAT 1040 (QL) Introduction to Statistics	3
University Studies Breadth courses	6
Elective course(s).....	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (30 credits)

Fall Semester (15 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
University Studies Breadth course	3
Anthropology upper-division courses	6
Degree requirement (BS/BA) course.....	3

Spring Semester (15 credits)

Anthropology upper-division courses	6
Degree requirement (BS/BA) course.....	3
Elective courses	6

Junior Year (30 credits)

Fall Semester (15 credits)

ANTH 3990 History and Theories of Anthropology	3
ANTH 4150 (QI) Problems in Cultural Anthropology	3

Depth Humanities and Creative Arts (DHA) course	3
Upper-division course(s)	4
Elective course(s).....	2

Spring Semester (15 credits)

Anthropology upper-division courses	6
Depth Life and Physical Sciences (DSC) course	3
Elective courses	6

Senior Year (30 credits)

Fall Semester (15 credits)

Anthropology upper-division course (Methods).....	3
Communications Intensive (CI) course	3
Elective courses	9

Spring Semester (15 credits)

Anthropology upper-division course (Capstone)	3
Elective courses	12

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,Sp).....	3
ANTH 1020 (BLS) Biological Anthropology (F).....	3
ANTH 2030 (BSS/CI) World Archaeology (F,Sp)	3

Breadth-in-Anthropology Structured Electives (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 Electives* in Cultural Anthropology, Biological Anthropology, or Archaeology.

Sociology Graduate Program

Graduate Program Director: Douglas B. Jackson-Smith
Program Office: Main 224, (435) 797-0582

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.

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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.

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.

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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:

SOC 7010 Issues in Sociological Theory (Sp)	3
SOC 7100 Advanced Survey Techniques (Sp).....	3
SOC 7110 Advanced Sociological Analysis (F).....	3
SOC 7150 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:

SOC 6010 Development of Sociological Theory (F).....	3
SOC 6020 Modern Social Theory (F).....	3
SOC 6100 Advanced Methods of Social Research (F)	3
SOC 6150 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 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.

Department of Sociology, Social Work and Anthropology

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 Berry, demography, ecology, methods, urban
Raymond T. Coward, Provost of Utah State University; social gerontology, health care delivery, rural sociology
Richley H. Crapo, religion, sex, and gender; sexuality and homosexuality
Steven E. Daniels, rural development, natural resource policy
Susan E. Dawson, occupational and environmental health
H. Reed Geertsen, community, sociological theory, medical
Gary Kiger, Dean of College of Humanities, Arts, and Social Sciences; social psychology; gender, work, and family; research methods
Richard S. Krannich, environmental, community, and rural sociology; research methods
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

Professors Emeritus

Therel R. Black, theory, rural sociology
H. Bruce Bylund, social change, methods
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
Bonnie Glass-Coffin, medical anthropology, shamanism, Latin America, applied anthropology, method and theory
Douglas B. Jackson-Smith, sociology of agriculture, natural resources and environment, research methods, economic sociology
Patricia M. Lambert, biological anthropology, bioarchaeology, paleopathology
Derek T. Mason, juvenile delinquency
Terry L. Peak, social policy, health care, gerontology

Adjunct Associate Professors

Dale J. Blahna, natural resource sociology, policy, and outdoor recreation
Joanna L. Endter-Wada, cultural anthropology and natural resource policy and sociology

Assistant Professors

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
Susan E. Mannon, social inequality, sociology of development, gender
Sandra T. Marquart-Pyatt, environmental sociology, political sociology, methods
Peggy Petrzalka, environmental sociology, rural sociology, social change and development
Bonnie L. Pitblado, archaeology
Eric Reither, demography, health

Adjunct Assistant Professors

Nazih T. Al-Rashid, sociology of work
Krista Lynn Minnotte, family sociology, gender
Janet L. Osborne, sociology of gender

Assistant Professor Emeritus

Alice C. Smith, sociology

Lecturers

Shannon T. Browne, social work
Jason Leiker, criminology and juvenile delinquency

Course Descriptions

Sociology (SOC), pages xx-xx
Social Work (SW), pages xx-xx
Anthropology (ANTH), pages xx-xx

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: lig@cc.usu.edu
WWW: http://sped.usu.edu

Graduate Program Coordinators:

Special Education Master's Programs:

David E. Forbush, Education 320, (435) 797-0697,
davidf@cc.usu.edu

Doctoral Programs:

Timothy A. Slocum, Education 314, (435) 797-3212,
tslocum@cc.usu.edu

Doctoral Programs:

Charles L. Salzberg, Education 326, (435) 797-3234,
salzberg@cc.usu.edu

Rehabilitation Counseling Program:

Julie F. Smart, Education 322, (435) 797-3269, jsmart@cc.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 107, (435) 797-3252,
darciep@cc.usu.edu

Distance Undergraduate Programs Coordinator:

Nancy K. Glomb, Education 327, (435) 797-3911,
nkglobm@cc.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 Interdepartmental Doctor of Education (EdD)

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, Transition/Special Education

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 Department of Elementary Education. A dual licensure program is available with secondary education content majors.

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 endorsement by taking those courses which lead to a special education license. Teacher education programs in the department are accredited by the State of Utah and nationally by NCATE.

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 Department of Elementary Education and dual teaching majors with the Department of Secondary Education. Students completing the dual major requirements in secondary education will be eligible for teacher licensure in one of the special education endorsement areas and their 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 5 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 16-20). 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 College of Education and Human Services Teacher Education Program (see page 116); (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. 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.

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.

Department of Special Education and Rehabilitation

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 (18 credits), and Depth Education Requirements (5 courses). For more information, see pages 49-57.

B. Professional Education Requirements (18-22 credits)

FCHD 1500 (BSS) Human Development Across the Lifespan (F,Sp) (3 cr) or	
PSY 1100 Developmental Psychology: Infancy and Childhood (F,Sp) (3 cr)	3
SPED 4000 Education of Exceptional Individuals (F,Sp,Su)	2
SPED 5530 Technology for Teaching Exceptional Learners (Sp)	3
PSY 3660 Educational Psychology for Teachers (Sp)	2
ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II (Sp)	8
FCHD 2250 Seminar and Practicum in Early Childhood Education (required only for students completing the Birth to Age 5 Certificate) (Sp)	(4)

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.

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.

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**.¹

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.

Mild/Moderate Disabilities Endorsement (48 credits)

SPED 5010 (QI) Applied Behavioral Analysis 1: Principles, Assessment, and Analysis (F)	3
SPED 5040 Foundations of Effective Assessment and Instructional Practices (F)	3
SPED 5050 Applied Behavioral Analysis 2: Applications (Sp)	3

SPED 5060 Consulting with Parents and Teachers (Sp)	3
SPED 5070 Policies and Procedures in Special Education (F)	3
SPED 5200 (CI)² Student Teaching in Special Education (F or Sp)	15
SPED 5310 Teaching Reading and Language Arts to Students with Mild/Moderate Disabilities (F)	4
SPED 5320 Teaching Content Areas and Transition to Students with Mild/Moderate Disabilities (Sp)	3
SPED 5330 Eligibility Assessment for Students with Mild/Moderate Disabilities (F)	1
SPED 5340 Teaching Math to Students with Mild/Moderate Disabilities (Sp)	3
SPED 5410 Practicum: Direct Instruction Reading and Language Arts for Students with Mild/Moderate Disabilities (F)	3
SPED 5420 Practicum: Teaching Mathematics to Students with Mild/Moderate Disabilities (Sp)	4

Severe Disabilities Endorsement (45 credits)

SPED 5010 (QI) Applied Behavioral Analysis 1: Principles, Assessment, and Analysis (F)	3
SPED 5040 Foundations of Effective Assessment and Instructional Practices (F)	3
SPED 5050 Applied Behavioral Analysis 2: Applications (Sp)	3
SPED 5060 Consulting with Parents and Teachers (Sp)	3
SPED 5070 Policies and Procedures in Special Education (F)	3
SPED 5200 (CI)² Student Teaching in Special Education (F or Sp)	15
SPED 5510 Curriculum for Students with Severe Disabilities (F)	4
SPED 5520 Curriculum for Secondary-Level Students with Severe Disabilities (Sp)	3
SPED 5600 Practicum: Introduction to Instruction of Students with Severe Disabilities (F)	3
SPED 5610 Practicum: Advanced Systematic Instruction of Students with Severe Disabilities (Sp)	4
SPED 5790 Special Topics: Assessment of Persons with Severe Disabilities (Sp)	1

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.³

SPED 5010 (QI) Applied Behavioral Analysis 1: Principles, Assessment, and Analysis (F)	3
SPED 5040 Foundations of Effective Assessment and Instructional Practices (F)	3
SPED 5050 Applied Behavioral Analysis 2: Applications (Sp)	3
SPED 5060 Consulting with Parents and Teachers (Sp)	3
SPED 5070 Policies and Procedures in Special Education (F)	3
SPED 5200 (CI)² Student Teaching in Special Education (F or Sp)	15
SPED 5710 Young Children with Disabilities: Characteristics and Services (Sp)	3
SPED 5730 Intervention Strategies for Young Children with Disabilities (F)	3
SPED 5810 Seminar and Field Experiences with Infants and Families (Sp)	4
SPED 5820 Preschool Practicum with Young Children with Disabilities in Community Environments (F)	4
SPED 5840 Seminar: Preschool Practicum with Young Children with Disabilities (F)	2

¹After acceptance to the Special Education major and before beginning the Special Education practica, students are required to complete a background check for conviction of violating any law (except traffic violations).

²SPED 5200 should be taken during the senior year.

³Students 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.

Department of Special Education and Rehabilitation

Suggested Four-year Course of Study for Special Education Major, Mild/Moderate Disabilities Emphasis

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (29 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
FCHD 1500 (BSS) Human Development Across the Lifespan	3
STAT 1040 (QL) Introduction to Statistics	3
Teaching Support course (REH 1010 suggested)	3
Breadth Life Sciences (BLS) course ⁴	3

Spring Semester (14 credits)

PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration	4
Teaching Support course (MATH 1050 suggested)	4
Breadth American Institutions (BAI) course ⁴	3
Elective course (SPED 4910 suggested)	3

Sophomore Year (30 credits)

Fall Semester (15 credits)

Breadth Creative Arts (BCA) course ⁴	3
Depth course	3
Teaching Support course (MATH 2020 suggested)	3
Teaching Support course (ENGL 1120 suggested)	3
Elective course	3

Note: Apply to the program by the October 1 deadline.

Spring Semester (15 credits)

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II	8
SPED 4000 Education of Exceptional Individuals	2
PSY 3660 Educational Psychology for Teachers	2
SPED 5530 Technology for Teaching Exceptional Learners	3

Junior Year (33 credits)

Fall Semester (17 credits)

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 Semester (16 credits)

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

Senior Year (28 credits)

Fall Semester (13 credits)

ENGL 2010 (CL 2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Breadth Humanities (BHU) course ⁴	3
Depth course	3
Elective course	1
Teaching Support course (ENGL 3510 suggested)	3

Note: Apply for student teaching by the October 1 deadline.

Spring Semester (15 credits)

SPED 5200 (CI) Student Teaching in Special Education	15
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Suggested Four-year Course of Study for Special Education Major, Severe Disabilities Emphasis

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (31 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
FCHD 1500 (BSS) Human Development Across the Lifespan	3
Teaching Support course (REH 1010 suggested)	3
Breadth Life Sciences (BLS) course ⁴	3
Elective course(s)	3

Spring Semester (16 credits)

STAT 1040 (QL) Introduction to Statistics	3
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration	4
Teaching Support course (SPED 4910 suggested)	3
Breadth American Institutions (BAI) course ⁴	3
Breadth Creative Arts (BCA) course ⁴	3

Sophomore Year (30 credits)

Fall Semester (15 credits)

Teaching Support course (COMD 2910)	4
Teaching Support course (HEP 2000)	2
Breadth Humanities (BHU) course ⁴	3
Depth course	3
Elective course(s)	3

Note: Apply to the program by the October 1 deadline.

Spring Semester (15 credits)

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II	8
SPED 4000 Education of Exceptional Individuals	2
PSY 3660 Educational Psychology for Teachers	2
SPED 5530 Technology for Teaching Exceptional Learners	3

Junior Year (30 credits)

Fall Semester (16 credits)

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	3

Department of Special Education and Rehabilitation

Spring Semester (14 credits)
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
SPED 5790 Special Topics: Severe Assessment 1

Senior Year (29 credits)
Fall Semester (14 credits)
ENGL 2010 (CL2) Intermediate Writing:
Research Writing in a Persuasive Mode 3
Depth course 3
Teaching Support course 3
Elective course(s) 5
Note: Apply for student teaching by the October 1 deadline.

Spring Semester (15 credits)
SPED 5200 (CI) Student Teaching in Special Education 15

**Suggested Four-year Course of Study for
Special Education Major, Early Childhood
Special Education Emphasis**

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (28 credits)
Fall Semester (12 credits)
ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3
FCHD 1500 (BSS) Human Development Across the Lifespan 3
Breadth Life Sciences (BLS) course⁴ 3
Teaching Support course (REH 1010 suggested) 3

Spring Semester (16 credits)
STAT 1040 (QL) Introduction to Statistics 3
PHYS 1200 (BPS) Introduction to Physics
by Hands-on Exploration 4
Breadth American Institutions (BAI) course⁴ 3
Breadth Creative Arts (BCA) course⁴ 3
Teaching Support course (SPED 4910 suggested) 3

Sophomore Year (29 credits)
Fall Semester (14 credits)
SPED 4000 Education of Exceptional Individuals 2
COMD 2500 Language, Speech, and Hearing Development 3
Breadth Humanities (BHU) course⁴ 3
Depth course 3
Elective course(s) 3
Note: Apply to the program by the October 1 deadline.

Spring Semester (15 credits)
ELED 3000 (CI) Foundation Studies and Practicum
in Teaching and Classroom Management Level II 6
PSY 3660 Educational Psychology for Teachers 2
SPED 5530 Technology for Teaching Exceptional Learners 3
FCHD 2600 Seminar in Early Childhood Education 2
FCHD 2630 Practicum in Early Childhood Education 2

Junior Year (33 credits)
Fall Semester (18 credits)
SPED 5010 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 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

Spring Semester (15 credits)
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
HEP 2000 First Aid and Emergency Care 2

Senior Year (30 credits)
Fall Semester (15 credits)
ENGL 2010 (CL2) Intermediate Writing:
Research Writing in a Persuasive Mode 3
Depth course 3
Teaching Support course 4
Elective courses 5
Note: Apply for student teaching by the October 1 deadline.

Spring Semester (15 credits)
SPED 5200 (CI) Student Teaching in Special Education 15

**Suggested Four-year Course of Study for
Special Education Major, Mild/Moderate
Disabilities and Early Childhood Special
Education Emphasis**

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (31 credits)
Fall Semester (15 credits)
ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3
FCHD 1500 (BSS) Human Development Across the Lifespan 3
STAT 1040 (QL) Introduction to Statistics 3
Breadth Life Sciences (BLS) course⁴ 3
Breadth Humanities (BHU) course⁴ 3

Spring Semester (16 credits)
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration ... 4
Breadth American Institutions (BAI) course⁴ 3
Breadth Creative Arts (BCA) course⁴ 3
Teaching Support courses 6

Sophomore Year (35 credits)
Fall Semester (17 credits)
SPED 4000 Education of Exceptional Individuals 2
COMD 2500 Language, Speech, and Hearing Development 3

Department of Special Education and Rehabilitation

Depth courses 6
 Teaching Support courses 6
Note: Apply to the program by the October 1 deadline.

Spring Semester (18 credits)

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II 6
FCHD 2600 Seminar in Early Childhood Education 2
FCHD 2630 Practicum in Early Childhood Education 2
PSY 3660 Educational Psychology for Teachers 2
SPED 5530 Technology for Teaching Exceptional Learners 3
SPED 5710 Young Children with Disabilities: Characteristics and Services 3

Junior Year (33 credits)

Fall Semester (17 credits)

SPED 5010 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 Semester (16 credits)

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

Senior Year (31 credits)

Fall Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode 3
SPED 5730 Intervention Strategies for Young Children with Disabilities 3
SPED 5810 Seminar and Field Experiences with Infants and Families 4
SPED 5820 Preschool Practicum with Young Children with Disabilities in Community Environments 4
SPED 5840 Seminar: Preschool Practicum with Young Children with Disabilities 2

Note: Apply for student teaching by the October 1 deadline.

Spring Semester (15 credits)

SPED 5200 (CI) Student Teaching in Special Education 15

Suggested Four-year Course of Study for Special Education Major, Severe and Early Childhood Special Education Emphasis

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (31 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3
FCHD 1500 (BSS) Human Development Across the Lifespan 3
 Breadth Humanities (BHU) course⁴ 3
 Breadth Life Sciences (BLS) course⁴ 3
 Teaching Support course (REH 1010 suggested) 3

Spring Semester (16 credits)

STAT 1040 (QL) Introduction to Statistics 3
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration 4
 Breadth American Institutions (BAI) course⁴ 3
 Breadth Creative Arts (BCA) course⁴ 3
 Teaching Support course (SPED 4910 suggested) 3

Sophomore Year (30 credits)

Fall Semester (15 credits)

SPED 4000 Education of Exceptional Individuals 2
COMD 2500 Language, Speech, and Hearing Development 3
COMD 2910 Sign Language 1 4
 Depth courses 6
Note: Apply to the program by the October 1 deadline.

Spring Semester (15 credits)

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II 6
FCHD 2600 Seminar in Early Childhood Education 2
FCHD 2630 Practicum in Early Childhood Education 2
PSY 3660 Educational Psychology for Teachers 2
SPED 5530 Technology for Teaching Exceptional Learners 3

Junior Year (33 credits)

Fall Semester (16 credits)

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 Semester (17 credits)

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 5710 Young Children with Disabilities: Characteristics and Services 3
SPED 5790 Special Topics: Severe Assessment 1
SPED 5810 Seminar and Field Experiences with Infants and Families 4

Senior Year (29 credits)

Fall Semester (14 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode 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
HEP 2000 First Aid and Emergency Care 2

Note: Apply for student teaching by the October 1 deadline.

Department of Special Education and Rehabilitation

Spring Semester (15 credits)
SPED 5200 (CI) Student Teaching in Special Education 15

Suggested Four-year Course of Study for Elementary Education/Special Education Mild/Moderate Specialization

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (32 credits)

Fall Semester (16 credits)
ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3
MATH 1050 (QL)⁵ College Algebra 4
 Breadth American Institutions (BAI) course⁴ 3
 Breadth Humanities (BHU) course⁴ 3
 Breadth Life Sciences (BLS) course⁴ 3

Spring Semester (16 credits)

PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration ... 4
STAT 1040 (QL) Introduction to Statistics 3
 Breadth Creative Arts (BCA) course⁴ 3

Level I courses:

FCHD 1500 (BSS) Human Development Across the Lifespan 3
ELED 1010 Orientation to Elementary Education 3

Sophomore Year (32 credits)

Fall Semester (16 credits)
ENGL 2010 (CL2) Intermediate Writing: Research Writing
 in a Persuasive Mode 3
MUSC 3260 Elementary School Music 2
PEP 3050 Physical Education in the Elementary School 3
SPED 4000 Education of Exceptional Individuals 2
 Breadth Physical Sciences (BPS) course⁴ 3
 Breadth Social Sciences (BSS) course⁴ 3
Note: Apply to the SPED program by the October 1 deadline.

Spring Semester (16 credits)

Level II courses:

Students must be admitted to the Teacher Education Program prior to enrolling in Level II courses
ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management Level II 8
PSY 3660 Educational Psychology for Teachers 2
SPED 5530 Technology for Teaching Exceptional Learners 3
ELED 3100 Teaching Reading I 3

Junior Year (33 credits)

Fall Semester (17 credits)

SPED 5010 (QI) Applied Behavioral Analysis I: 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 Semester (16 credits)

SPED 5050 Applied Behavioral Analysis II: 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

Senior Year (30 credits)

Fall Semester (15 credits)

Level III courses:

ELED 4000 Teaching Science and Practicum Level III 3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III 3
ELED 4040 (CI) Teaching Reading II and Practicum Level III 3
ELED 4050 Teaching Social Studies and Practicum Level III 3
ELED 4060 Teaching Mathematics and Practicum Level III 3

Spring Semester (15 credits)

Level IV courses:

ELED 5150 Student Teaching—Elementary (Grades 4-6) 6
ELED 5250 Student Teaching—Seminar 3
SPED 5210 (CI) Student Teaching in Special Education:
 Dual Majors 6

Additional Semester (9 credits)

MATH 2020 (QI) Introduction to Logic and Geometry 3
 Depth courses 6

Suggested Four-year Course of Study for Special Education/Early Childhood Education/Elementary Education Early Childhood Composite Major

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (32 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3
MATH 1050 (QL)⁵ College Algebra 4
 Breadth American Institutions (BAI) course⁴ 3
 Breadth Humanities (BHU) course⁴ 3
 Breadth Life Sciences (BLS) course⁴ 3

Spring Semester (16 credits)

PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration ... 4
STAT 1040 (QL) Introduction to Statistics 3
 Breadth Creative Arts (BCA) course⁴ 3

Level I courses:

FCHD 1500 (BSS) Human Development Across the Lifespan 3
ELED 1010 Orientation to Elementary Education 3

Sophomore Year (32 credits)

Fall Semester (17 credits)

MATH 2020 Introduction to Logic and Geometry 3
SPED 4000 Education of Exceptional Individuals 2
COMD 2500 Language, Speech, and Hearing Development 3
 Breadth Physical Sciences (BPS) course⁴ 3
 Breadth Social Sciences (BSS) course⁴ 3
 Depth course 3

Department of Special Education and Rehabilitation

Spring Semester (15 credits)

Level II courses:

Students must be admitted to the Teacher Education Program prior to enrolling in Level II courses.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management.....	6
FCHD 2600 Seminar in Early Childhood Education	2
FCHD 2630 Practicum in Early Childhood Education	2
PSY 3660 Educational Psychology for Teachers	2
SPED 5530 Technology for Teaching Exceptional Learners	3

Junior Year (34 credits)

Fall Semester (18 credits)

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 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

Spring Semester (16 credits)

FCHD 4960 Practice Teaching in Child Development Laboratories	3
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

Senior Year (30 credits)

Fall Semester (15 credits)

ELED 4480 Early Childhood Education Kindergarten through Grade 3	3
FCHD 4550 Preschool Methods and Curriculum	3
ELED 3100 Teaching Reading I	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Depth course	3

Spring Semester (15 credits)

Level III courses:

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III	3
ELED 4050 Teaching Social Studies and Practicum Level III	3
ELED 4060 Teaching Mathematics and Practicum Level III.....	3

Additional Semesters (18 credits)

ELED 5250 Student Teaching—Seminar	3
ELED 5050 Student Teaching—Kindergarten	3
ELED 5100 Student Teaching—Primary Grades (1-3).....	6
SPED 5210 (CI) Student Teaching in Special Education: Dual Majors.....	6

Suggested Four-year Course of Study for Elementary Education/Special Education Severe Specialization

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (32 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL)⁵ College Algebra	4
Breadth American Institutions (BAI) course ⁴	3
Breadth Humanities (BHU) course ⁴	3
Breadth Life Sciences (BLS) course ⁴	3

Spring Semester (16 credits)

PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration ...	4
STAT 1040 (QL) Introduction to Statistics	3
Breadth Creative Arts (BCA) course ⁴	3

Level I courses:

FCHD 1500 (BSS) Human Development Across the Lifespan	3
ELED 1010 Orientation to Elementary Education	3

Sophomore Year (32 credits)

Fall Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
MUSC 3260 Elementary School Music	2
PEP 3050 Physical Education in the Elementary School.....	3
SPED 4000 Education of Exceptional Individuals	2
Breadth Physical Sciences (BPS) course ⁴	3
Breadth Social Sciences (BSS) course ⁴	3

Spring Semester (16 credits)

Level II courses:

Students must be admitted to the Teacher Education Program prior to enrolling in Level II courses.

ELED 3000 (CI) Foundation Studies and Practicum in Teaching and Classroom Management.....	8
ELED 3100 Teaching Reading I	3
PSY 3660 Educational Psychology for Teachers	2
SPED 5530 Technology for Teaching Exceptional Learners	3

Junior Year (36 credits)

Fall Semester (18 credits)

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
HEP 2000 First Aid and Emergency Care	2

Spring Semester (18 credits)

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
SPED 5790 Special Topics: Assessment Severe	1
COMD 2910 (CI) Sign Language I	4

Department of Special Education and Rehabilitation

Senior Year (30 credits)

Fall Semester (15 credits)

Level III courses:

ELED 4000 Teaching Science and Practicum Level III	3
ELED 4030 (CI) Teaching Language Arts and Practicum Level III.....	3
ELED 4040 (CI) Teaching Reading II and Practicum Level III.....	3
ELED 4050 Teaching Social Studies and Practicum Level III	3
ELED 4060 Teaching Mathematics and Practicum Level III.....	3

Spring Semester (15 credits)

Level IV courses:

ELED 5250 Student Teaching—Seminar	3
ELED 5150 Student Teaching—Elementary (Grades 4-6).....	6
SPED 5210 (CI) Student Teaching in Special Education: Dual Majors.....	6

Additional Semester (9 credits)

MATH 2020 (QI) Introduction to Logic and Geometry.....	3
Depth courses	6

Suggested Four-year Course of Study for Dual Major: Secondary Education Content Major and Special Education Major, Mild/Moderate Disabilities Emphasis

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (36 credits)

Fall Semester (18 credits)

ENGL 1010 (CL2) Introduction to Writing: Academic Prose	3
FCHD 1500 (BSS) Human Development Across the Lifespan	3
Breadth Humanities (BHU) course ⁴	3
Breadth Life Sciences (BLS) course ⁴	3
Secondary Content major courses	6

Spring Semester (18 credits)

STAT 1040 (QL) Introduction to Statistics.....	3
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration ...	4
Breadth American Institutions (BAI) course ⁴	3
Breadth Creative Arts (BCA) course ⁴	3
Secondary Content major courses	5

Sophomore Year (36 credits)

Fall Semester (18 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Secondary Content major courses	9
Depth courses	6

Note: Apply to the SPED program by the October 1 deadline.

Spring Semester (18 credits)

SPED 4000 Education of Exceptional Individuals	2
SPED 5530 Technology for Teaching Exceptional Learners	3
SPED 4910 Undergraduate Research and Creative Opportunities	1
SCED 3100 Motivation and Classroom Management.....	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
Secondary Content major courses	6

Junior Year (33 credits)

Fall Semester (17 credits)

SPED 5010 (QI) Applied Behavioral Analysis 1: Principles, Assessment, and Analysis	3
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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 Semester (16 credits)

SPED 5050 Applied Behavior 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

Senior Year (30 credits)

Fall Semester (18 credits)

SCED 4200 (CI) Reading, Writing, and Technology.....	3
SCED 4210 Cognition and Evaluation of Student Learning.....	3
Content Clinical course	1
Content Methods course	3
Secondary Content major courses	8

Spring Semester (12 credits)

SPED 5210 (CI) Student Teaching in Special Education: Dual Majors.....	6
SCED 5500 Student Teaching Seminar	2
SCED 5700 Modified Student Teaching	4

Additional Semester

During this additional semester, students should finish their Secondary Content Major courses.

Suggested Four-year Course of Study for Dual Major: Secondary Education Content Major and Special Education Major, Severe Disabilities Emphasis

This is a model of the requirements and possible sequence of courses. However, students may progress through the 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.

Freshman Year (36 credits)

Fall Semester (18 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
FCHD 1500 (BSS) Human Development Across the Lifespan	3
Breadth Humanities (BHU) course ⁴	3
Breadth Life Sciences (BLS) course ⁴	3
Secondary Content major courses	6

Spring Semester (18 credits)

STAT 1040 (QL) Introduction to Statistics.....	3
PHYS 1200 (BPS) Introduction to Physics by Hands-on Exploration ...	4
Breadth American Institutions (BAI) course ⁴	3
Breadth Creative Arts (BCA) course ⁴	3
Secondary Content major courses	5

Department of Special Education and Rehabilitation

Sophomore Year (36 credits)

Fall Semester (18 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
Depth courses	6
Secondary Content major courses	9

Note: Apply to the SPED program by the October 1 deadline.

Spring Semester (18 credits)

SPED 4000 Education of Exceptional Individuals	2
SPED 5530 Technology for Teaching Exceptional Learners	3
SPED 4910 Undergraduate Research and Creative Opportunities	1
SCED 3100 Motivation and Classroom Management	3
SCED 3210 (C/DSS) Educational and Multicultural Foundations	3
Secondary Content major courses	6

Junior Year (36 credits)

Fall Semester (18 credits)

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
Secondary Content major course	2

Spring Semester (18 credits)

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
SPED 5790 Special Topics: Severe Assessment	1
Secondary Content major courses	4

Senior Year (30 credits)

Fall Semester (18 credits)

SCED 4200 (CI) Reading, Writing, and Technology	3
SCED 4210 Cognition and Evaluation of Student Learning	3
Content Clinical course	1
Content Methods course	3
Secondary Content major courses	8

Spring Semester (12 credits)

SPED 5210 (CI) Student Teaching in Special Education: Dual Majors	6
SCED 5500 Student Teaching Seminar	2
SCED 5700 Modified Student Teaching	4

Additional Semester

During this additional semester, students should finish their Secondary Content Major courses.

⁴At least two of the six breadth courses *must* have a USU prefix.

⁵The MATH 1050 requirement (or its equivalent) must be completed prior to application to the Teacher Education Program.

Assessment and Accreditation

Information about assessment within the Department of Special Education and Rehabilitation, as well as information about NCATE and CORE accreditation, can be found at:

<http://sped.usu.edu/accreditation/index.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@cc.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 107). Requirement sheets can also be accessed online at: <http://www.usu.edu/ats/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 99-100). In addition, the committee considers experience, academic record and curriculum, formal recommendations, and test scores. Master's and doctoral program admission requires GRE 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.

Applicants for the Rehabilitation Counseling program are screened throughout the year by the Graduate Program Committee. Deadlines for application to the Special Education 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.

Department of Special Education and Rehabilitation

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 speaking, 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 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.

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 48-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.

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, and disabilities studies. 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 and rehabilitation services.

Doctorate of Education (EdD)

The department participates in the College of Education and Human Services Interdepartmental Doctorate of Education (EdD) degree program. 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 areas of specialization, emphases of study, research sponsored, admission requirements, procedures to follow, and other information, see pages 251-252 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

Graduate handbooks outlining the graduate programs, policies, and procedures in the Department of Special Education and Rehabilitation may be obtained from the department office in room 313 of the Education Building.

For more information about graduate requirements and the sequence in which courses should be taken, see major requirement sheets, available from the department.

Graduation requirements described in this catalog are subject to change. Students should check with the department concerning possible changes.

Because the Special Education and Rehabilitation graduate programs occasionally undergo fine-tuning and updating, prospective students are advised to check the departmental website at: <http://sped.usu.edu>

Special Education and Rehabilitation Faculty

Professors

Alan M. Hofmeister, technology, school reform, reading and math instruction

Benjamin Lignugaris/Kraft, personnel preparation, secondary special education, social/vocational skill training, behavioral analysis, instructional design and program development

Sarah Rule, early intervention, developmental disabilities, technology and teacher education

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

Department of Special Education and Rehabilitation

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

Karl R. White, research and evaluation, early intervention

Adjunct Professor

K. Richard Young, behavior disorders, behavior analysis, social skills

Professors Emeritus

Garth M. Eldredge, rehabilitation counseling

Marvin G. Fifield, evaluation of persons with emotional disturbances

Associate Professors

Judith M. Holt, early childhood and visually impaired

Pamela J. Hudson, adolescents with mild disabilities, mathematics

Robert L. Morgan, behavior analysis/transition

Timothy A. Slocum, reading, mild/moderate disabilities, behavior analysis, research methods

Research Associate Professor

Marilyn Likins, paraeducators, mild and 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

David E. Forbush, mild/moderate disabilities, reading, behavior analysis in schools, assessment, educational systems change, educational leadership

Nancy Glomb, mild/moderate disabilities, distance education

Thomas S. Higbee, early childhood, severe disabilities, autism

Research Assistant Professors

Cynthia J. Rowland, distance education, speech and language development, naturalistic instructional methods, early literacy, assistive technology

Jared Schultz, rehabilitation counseling

Extension Assistant Professor

Nancy K. Glomb, special education teacher education, distance education, legal issues, behavior disorders, collaboration

Adjunct Assistant Professors

David W. Bush, psychological, assessment, counseling

Julie Landeen, legal issues in special education, special education administration

Sharon Neyme, students at-risk

Ginger Rhode, legal issues in special education, behavior analysis

Kathleen Robins, multi-sensory disabilities

Randy Schelble, mild and moderate disabilities

Clinical Instructors

Barbara J. Fiechtl, preschool and infant service delivery

Kimberly H. Snow, curriculum development

Adjunct Clinical Instructors

Kirk Allen, emotionally disturbed, special education administration

Gayle Baker, severe disabilities

Deb Bowen, vocational rehabilitation and transition

Jerry Christensen, personnel development, special education leadership

Norman Corson, job placement of persons with disabilities

Marlene Deer, clinical early childhood

Glenn Dyke, behavior disorders, mild and moderate disabilities

AnnaLee Hansen, mild and moderate disabilities

Melanie Jones, mild and moderate disabilities

Susanne Kuresa, behavior disorders, classroom management

Martell Menlove, special education administration

Cindy Myers, moderate and severe disabilities, alternative teacher preparation

Lois Naegele, American Sign language, deaf culture, rehabilitation counseling

Bruce Schroeder, collaboration, special education administration, special education personnel development

Patricia B. Willis, learning disabilities, early literacy

Clinical Instructor Emeritus

Joan F. Forsgren-White

Course Descriptions

Special Education (SPED), pages 715-719.

Rehabilitation Counseling (REH), pages 704-705.

Department of Theatre Arts

Department Head: Colin B. Johnson
Location: Chase Fine Arts Center 232
Phone: (435) 797-3046
FAX: (435) 797-0086
E-mail: luannah@hass.usu.edu
WWW: http://www.usu.edu/theatre

Undergraduate Advisors:

General Theatre Arts Studies Program:

Kevin Doyle, Fine Arts Center 139A, (435) 797-3022,
kdoyle@hass.usu.edu

Theatre Design and Technology Emphasis:

Bruce L. Duerden, Fine Arts Center 148, (435) 797-3026,
bruced@hass.usu.edu

Shawn Fisher, Fine Arts Center 139D, (435) 797-2120,
sfisher@hass.usu.edu

Dennis Hassan (set design), Fine Arts Center 138, (435) 797-3024,
dhassan@hass.usu.edu

Nancy E. Hills (costume design), Fine Arts Center 229A,
(435) 797-3049, nhills@hass.usu.edu

Acting Emphasis:

Kevin Doyle, Fine Arts Center 139A, (435) 797-3022,
kdoyle@hass.usu.edu

Lynda Linford, Fine Arts Center 226A, (435) 797-3050,
llinford@hass.usu.edu

Adrienne Moore, Fine Arts Center 230, (435) 797-3023,
amoore@hass.usu.edu

Artemis Preeshl, Fine Arts Center 139B, (435) 797-3025,
apreeshl@hass.usu.edu

Theatre Education Emphasis:

David E. Sidwell, University Reserve 125, (435) 797-3703,
dsidwell@hass.usu.edu

Robbin C. Black, Fine Arts Center 139C, (435) 797-0087,
robbinb@hass.usu.edu

Graduate Program Coordinator:

Nancy E. Hills, Fine Arts Center 229A, (435) 797-3049,
nhills@hass.usu.edu

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 teach appreciation and service courses contributing to the University Studies Program;
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 prepare students for advanced study and training;
5. To sponsor public performances in which students can practice the art and craft of theatre and interpretive/narrative performance. These productions will enhance the cultural life of the University community and region.

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 380-seat proscenium Caine Lyric Theatre in downtown Logan, and a flexible 80-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 16-20. Students in good standing may apply for admission or transfer to the program. Students transferring into the department 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 as soon as they arrive on campus, as the professional BFA degree requires a minimum of three full years to complete. 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 C- is accepted in any 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:

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

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THEA 3230 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 majors and minors should expect to work on Utah State Theatre and studio productions as a crew member nearly every semester. All Theatre Arts majors, **except** for the BFA with the Theatre Education emphasis, are required to complete the following production work requirements (6 credits). Only 1 credit of THEA 2555 or 2556 may be taken per assignment in a given semester (45 clock hours per credit or until assignment is completed).

THEA 2555/4750 Production Practicum: Scenery (F,Sp,Su)	1
THEA 2555/4750 Production Practicum: Lighting (F,Sp,Su)	1
THEA 2555/4750 Production Practicum: Properties (F,Sp,Su)	1
THEA 2555/4750 Production Practicum: Costumes (F,Sp,Su)	1
THEA 2555/4750 Production Practicum: Publicity (F,Sp,Su)	1
THEA 2556/4750 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 page 58). 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)

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)	3
THEA 2420 Intermediate Acting: Scene Study (F,Sp)	3
THEA 2430 Movement for Actors II (F,Sp)	3
THEA 2440 Introduction to Dance for Theatre: Jazz, Ballet, and Tap (F)	3
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 3400 Mask Building and Performance (F,Sp)	3
THEA 3410 Dance for Theatre: Tap (F,Sp)	3
THEA 3420 Dance for Theatre: Jazz (F,Sp)	3
THEA 3440 Dance for Theatre: Ballet (F,Sp)	3
THEA 5400 Advanced Acting: Turn of the Twentieth Century (F,Sp)	3
THEA 5410 Advanced Directing (F,Sp)	3
THEA 5420 Advanced Acting: Absurdist (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 5450 Advanced Acting: Restoration and Greek (F,Sp)	3
THEA 5470 Advanced Acting: Modern Methods (F,Sp)	3

Required Design Courses (select 3 credits minimum)

THEA 2540 Lighting Design (F,Sp)	3
THEA 3050 (DHA) Period Styles/Historic Interiors (Sp,Su)	3
THEA 3510 Scene Design (F,Sp)	3
THEA 3520 Stage Costume Design (F,Sp)	3
THEA 3570 (DHA) Historic Clothing (F,Su)	3

Required Dramatic Literature/History Courses (9 credits)

ENGL 2300 (BHU) Introduction to Shakespeare (F)	3
THEA 5240 (DHA/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 3030 (DHA) Perspectives in Literature (F,Sp,Su)	3
ENGL 4300 Shakespeare (F,Sp)	3
THEA 5250 Playwriting Company Workshop (Sp)	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

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, as well as strengthen their practice of theatre.

Sample Four-year Plan for Theatre Arts Major, General Theatre Arts Studies Program (BA Degree)

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 performance and design courses

This is a sample plan. It outlines 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.

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Freshman Year (30 credits)

Fall Semester (16 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
THEA 1033 Beginning Acting	3
THEA 1513 Stage and Costume Crafts	3
Foreign Language 1010-level course	4
University Studies Breadth course	3

Spring Semester (14 credits)

THEA 1713 Introduction to Playscript Analysis	3
THEA 2410 Directing	3
THEA 2555 Production Practicum (1 cr) or	
THEA 2556 Production Run Crew (1 cr)	1
Foreign Language 1020-level course	4
University Studies Quantitative Literacy (QL) course	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (31 credits)

Fall Semester (17 credits)

THEA 2555 Production Practicum (1 cr) or	
THEA 2556 Production Run Crew (1 cr)	1
THEA 3230 Survey of Western Theatre	3
Required Performance course	3
Required Minor course	3
Foreign Language 2010-level course	4
University Studies Breadth course	3

Spring Semester (14 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
THEA 2555 Production Practicum (1 cr) or	
THEA 2556 Production Run Crew (1 cr)	1
Required Design course	3
Foreign Language 2020-level course	4
University Studies Breadth course	3

Junior Year (32 credits)

Fall Semester (16 credits)

THEA 4750 Advanced Production Practicum (1 cr) or	
THEA 4850 Advanced Production Projects (1 cr)	1
Required Literature/History course	3
Required Performance course	3
Required upper-division Minor course	3
University Studies Breadth courses	6

Spring Semester (16 credits)

THEA 4750 Advanced Production Practicum (1 cr) or	
THEA 4850 Advanced Production Projects (1 cr)	1
THEA 5240 (CI) Contemporary Theatre	3
Required upper-division Literature/History course	3
Required upper-division Performance course	3
Required Minor courses	6

Senior Year (30 credits)

Fall Semester (16 credits)

THEA 4750 Advanced Production Practicum (1 cr) or	
THEA 4850 Advanced Production Projects (1 cr)	1
Required upper-division Literature/History courses	6
Required upper-division Minor course	3
Communications Intensive (CI) course	3
Depth Social Sciences (DSS) course	3

Spring Semester (14 credits)

THEA 5910 Senior Project	2
Required upper-division Literature/History course	3

Required upper-division Minor course	3
Depth Life and Physical Sciences (DSC) course	3
Quantitative Intensive (QI) course	3

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 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) (1-3 cr, repeatable)	3

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 preprofessional training in their selected discipline. Students in these programs also complete a capstone recital or project during their senior year.

Acting Emphasis (AE) (78 Credits) (2.75 GPA) BFA Degree in Theatre Arts

Candidates are accepted into this performance program through an audition and interview conducted by a BFA committee. 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 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. Inquiries about specific requirements and expectations should be directed to the Theatre Arts Office.

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.

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Required Theatre Arts Department Core Courses (15 credits)

Required Practicum Courses (6 credits)

Required Performance Courses (23 credits)

THEA 1113 Beginning Voice (F)	3
THEA 1430 Movement for Actors I (F,Sp)	3
THEA 2420 Intermediate Acting: Scene Study (F,Sp)	3
THEA 2440 Introduction to Dance for Theatre: Jazz, Ballet, and Tap (F)	3
THEA 2480 Intermediate Voice for Theatre (Sp)	3
THEA 2490 Intermediate Acting: Shakespeare (F,Sp)	3
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 Group 1 (select 3 credits minimum)

THEA 5400 Advanced Acting: Turn of the Twentieth Century (F,Sp)	3
THEA 5450 Advanced Acting: Restoration and Greek (F,Sp)	3

Elective Advanced Acting Courses Group 2 (select 3 credits minimum)

THEA 5440 Advanced Acting: Musical Theatre Auditions (F,Sp)	3
THEA 5470 Advanced Acting: Modern Methods (F,Sp)	3

Elective Movement Courses (select 6 credits minimum)

THEA 2430 Movement for Actors II (F,Sp)	3
THEA 2470 Movement: Stage Combat (F,Sp)	3
THEA 3400 Mask Building and Performance (F,Sp)	3
THEA 3410 Dance for Theatre: Tap (F,Sp)	3
THEA 3420 Dance for Theatre: Jazz (F,Sp)	3
THEA 3440 Dance for Theatre: Ballet (F,Sp)	3

Elective Advanced Performance Courses (select 6 credits minimum)

THEA 3450 Dialects (F,Sp)	3
THEA 4400 Company Workshop (F,Sp)	3
THEA 4450 Advanced Voice for Theatre (Sp)	3
THEA 5410 Advanced Directing (F,Sp)	3
THEA 5420 Advanced Acting: Absurdist (F,Sp)	3
THEA 5430 Advanced Acting: Acting for the Camera (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 (F)	3
THEA 5240 (DHA/CI) Contemporary Theatre (F,Sp)	3
THEA 5250 Playwriting Company Workshop (Sp)	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
ENGL 3030 (DHA) Perspectives in Literature (F,Sp,Su)	3

BFA Acting Recital/Capstone (2 credits)

All BFA Acting Emphasis majors must perform a recital during their senior year. Recital material is to be selected and approved during the spring semester of the junior year, including submission of a written

proposal. Students must be enrolled in THEA 5910 for 2 credits during the semester in which the recital is to be presented.

Recitals should be 45-60 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. All BFA candidates are required to attend recitals.

Required Acting Recital

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. 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 (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

Candidates are accepted into the design and technology emphasis by interview and review of a portfolio by a BFA committee. 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 (DHA) Period Styles/Historic Interiors (Sp,Su)	3
THEA 3510 Scene Design (F,Sp)	3
THEA 3520 Stage Costume Design (F,Sp)	3
THEA 3570 (DHA) Historic Clothing (F,Su)	3

Required Performance Courses (select 3 credits minimum)

THEA 2420 Intermediate Acting: Scene Study (F,Sp)	3
THEA 2490 Intermediate Acting: Shakespeare (F,Sp)	3
THEA 5400 Advanced Acting: Turn of the Twentieth Century (F,Sp)	3

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THEA 5420 Advanced Acting: Absurdist (F,Sp).....	3
THEA 5450 Advanced Acting: Restoration and Greek (F,Sp).....	3

**Required Dramatic Literature/History Courses
(select 6 credits minimum)**

THEA 4250 Playwriting (F).....	3
THEA 5240 (DHA/CI) Contemporary Theatre (F,Sp).....	3
THEA 5250 Playwriting Company Workshop (Sp).....	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
ENGL 3030 (DHA) Perspectives in Literature (F,Sp,Su).....	3

BFA Design and Technology Senior Project/Capstone Requirements (2 credits)

All BFA majors in the Theatre Design and Technology emphasis must complete a project during their senior year. The project is to be selected and approved spring semester of the junior year, including submission of a written proposal.

Students must be enrolled in THEA 5910 for 2 credits during the semester in which the project is presented. The project will be to design the settings, costumes, lights, or technical direction for a Studio Stage or Mainstage production.

THEA 5910 Senior Project (F,Sp).....	2
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Specialized Area Requirements (25-28 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 (13 credits)	
THEA 4520 Advanced Costume Design (F,Sp).....	3
THEA 4750 Advanced Production Practicum: Costumes (F,Sp,Su).....	1
THEA 5750 Repertory Theatre Production (Su) (2-8 cr, repeatable) or THEA 5900 Special Projects I: Project in Theatre/Internship (F,Sp,Su) (1-4 cr, repeatable).....	3
THEA 5950 Rendering and Painting for the Theatre (F,Sp).....	3
ARTH 2720 (BHU) Survey of Western Art: Renaissance to Post-Modern (Sp).....	3

Elective Art Courses (select 12 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
ART 3260 Anatomy for Artists (F).....	3
FCSE 2040 Clothing Production Principles (F,Sp).....	3
FCSE 3040 Advanced Clothing Production Principles (F,Sp).....	3
THEA 5590 Design Studies for Theatre (F,Sp).....	2

Lighting Design

Required Theatre Design/Technical Courses (19 credits)	
THEA 2510 Scene Painting/Properties (F,Sp).....	3
THEA 4540 Advanced Lighting Design (Sp).....	3
THEA 4750 Advanced Production Practicum: Lighting (F,Sp,Su).....	4
THEA 5510 Computer-Aided Design for Theatre (F).....	3
THEA 5750 Repertory Theatre Production (Su) (2-8 cr, repeatable) or THEA 5900 Special Projects I: Project in Theatre/Internship (F,Sp,Su) (1-4 cr, repeatable).....	3
THEA 5950 Rendering and Painting for the Theatre (F,Sp).....	3

Elective Technology Courses (select 3 credits minimum)

ART 1050 Introduction to Photography (F).....	3
ART 2810 Photography I (F,Sp).....	3

ETE 2240 Analog Devices and Circuits (F).....	3
ETE 2300 (QI) Electronic Fundamentals (F,Su).....	4
ETE 2310 AC/DC Circuits (Sp).....	2
ETE 2360 Digital Circuits (Sp).....	3
THEA 2560 Theatre and Studio Sound (F,Sp).....	3
THEA 4480 Theatre Leadership and Management (Sp).....	3
THEA 5590 Design Studies for Theatre (F,Sp).....	2
THEA 5930 Special Projects III (F,Sp) (1-4 cr, repeatable).....	3

Elective Art Courses (select 3 credits minimum)

ART 1010 (BCA) Exploring Art (F).....	3
ART 1020 Drawing I (F,Sp).....	3
ART 1120 Two-dimensional Design (F,Sp).....	3
ART 1130 Three-dimensional Design (F,Sp).....	3
ART 2200 Painting I (F).....	3
ART 2400 Computers and Art (Sp).....	3

Scenic Design

Required Theatre Design/Technical Courses (16 credits)

THEA 2510 Scene Painting/Properties (F,Sp).....	3
THEA 4510 Advanced Scene Design (F,Sp).....	3
THEA 4750 Advanced Production Practicum (additional) (F,Sp,Su).....	1
THEA 5510 Computer-Aided Design for Theatre (F).....	3
THEA 5750 Repertory Theatre Production (Su) (2-8 cr, repeatable) or THEA 5900 Special Projects I: Project in Theatre/Internship (F,Sp,Su) (1-4 cr, repeatable).....	3
THEA 5950 Rendering and Painting for the Theatre (F,Sp).....	3

Elective Art Courses (select 9 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
ART 2400 Computers and Art (Sp).....	3
THEA 5590 Design Studies for Theatre (F,Sp).....	2

Stage Management/Technician

Required Theatre Design/Technical Courses (16 credits)

THEA 2510 Scene Painting/Properties (F,Sp).....	3
THEA 2550 Stage Management (F,Sp).....	3
THEA 2560 Theatre and Studio Sound (F,Sp).....	3
THEA 4750 Advanced Production Practicum (F,Sp,Su).....	4
THEA 5750 Repertory Theatre Production (Su) (2-8 cr, repeatable) or THEA 5900 Special Projects I: Project in Theatre/Internship (F,Sp,Su) (1-4 cr, repeatable).....	3

Elective Courses (select 10 credits minimum)

ECE 1000 Introduction to Electrical and Computer Engineering (F).....	2
ECE 2270 Electrical Circuits (F,Sp).....	4
ECE 3260 (DSC/QI) Science of Sound (F).....	3
HEP 2000 First Aid and Emergency Care (F,Sp,Su).....	2
MHR 1160 Developing Self-Management Skills (F,Sp,Su).....	1
MHR 2350 Small Business Management (Sp).....	3
MHR 3110 (DSS) Managing Organizations and People (F,Sp).....	3
MHR 3710 Developing Team and Interpersonal Skills (F,Sp).....	3
MUSC 1010 (BCA) Introduction to Music (F,Sp,Su).....	3
MUSC 1100 (BCA) Fundamentals of Music (F,Sp).....	3
THEA 4480 Theatre Leadership and Management (Sp).....	3
THEA 5510 Computer-Aided Design for Theatre (F).....	3
THEA 5590 Design Studies for Theatre (F,Sp).....	2
THEA 5930 Special Projects III (F,Sp) (1-4 cr, repeatable).....	3

Elective Technology Courses (select 6 credits minimum)

ETE 1040 Construction and Estimating (Sp).....	3
ETE 1200 Computer-Aided Drafting and Design (F,Sp,Su).....	3
ETE 1640 Introduction to Welding (F).....	3

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ETE 2850 Statics and Strength of Materials (F).....	3
THEA 4480 Theatre Leadership and Management (Sp).....	3

Sample Four-year Plan for Theatre Arts Major, Acting Emphasis or Theatre Design and Technology Emphasis

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 major courses; B in performance and design courses

This is a sample plan. It outlines 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.

Freshman Year (31 credits)

Fall Semester (15 credits)	
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
THEA 1033 Beginning Acting	3
THEA 1513 Stage and Costume Crafts	3
Required Beginning Performance or Design course	3
University Studies Breadth course(s)	3

Spring Semester (16 credits)

THEA 1713 Introduction to Playscript Analysis	3
THEA 2410 Directing.....	3
THEA 2555 Production Practicum (1 cr) or	
THEA 2556 Production Run Crew (1 cr)	1
Required Beginning Performance or Design course	3
University Studies Quantitative Literacy (QL) course	3
University Studies Breadth course	3

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)	
THEA 2555 Production Practicum (1 cr) or	
THEA 2556 Production Run Crew (1 cr)	1
THEA 3230 Survey of Western Theatre	3
Required Performance or Design courses	6
University Studies Breadth courses	6

Spring Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
THEA 2555 Production Practicum (1 cr) or	
THEA 2556 Production Run Crew (1 cr)	1
Required Performance or Design courses	6
University Studies Breadth courses	6

Junior Year (32 credits)

Fall Semester (16 credits)	
THEA 4750 Advanced Production Practicum (1 cr) or	
THEA 4850 Advanced Production Projects (1 cr)	1
Required Performance or Design courses	9
Communications Intensive (CI) course	3
Depth Social Sciences (DSS) course	3

Spring Semester (16 credits)

THEA 4750 Advanced Production Practicum (1 cr) or	
THEA 4850 Advanced Production Projects (1 cr)	1
THEA 5240 (CI) Contemporary Theatre.....	3
Required upper-division Performance or Design courses	9
Depth Life and Physical Sciences (DSC) course	3

Senior Year (27 credits)

Fall Semester (16 credits)	
THEA 4750 Advanced Production Practicum (1 cr) or	
THEA 4850 Advanced Production Projects (1 cr)	1
Required upper-division Performance or Design courses	12
Quantitative Intensive (QI) course	3

Spring Semester (11 credits)

THEA 5910 Senior Project	2
Required upper-division Performance or Design courses	9

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 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 (9 credits)

THEA 1713 Introduction to Playscript Analysis (F,Sp).....	3
THEA 2410 Directing (F,Sp).....	3
THEA 2555/4750 Production Practicum (F,Sp,Su) (1-3 cr, repeatable)	3

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)

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 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 4250 Playwriting (F).....	3
THEA 5240 (DHA/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

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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)	3
THEA 2420 Intermediate Acting: Scene Study (F,Sp)	3
THEA 2430 Movement for Actors II (F,Sp)	3
THEA 2440 Introduction to Dance for Theatre: Jazz, Ballet, and Tap (F)	3
THEA 2490 Intermediate Acting: Shakespeare (F,Sp)	3
THEA 3410 Dance for Theatre: Tap (F,Sp)	3
THEA 3420 Dance for Theatre: Jazz (F,Sp)	3
THEA 3440 Dance for Theatre: Ballet (F,Sp)	3
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)	1-2
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)	1-2
THEA 4750 Advanced Production Practicum (F,Sp,Su) (1-3 cr, repeatable)	1-3

BFA Theatre Education Senior Project/ Capstone Requirements

During their senior year, students in the Theatre Education emphasis must complete a project chosen from among the following options, as 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 Department, 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 website: <http://www.coe.usu.edu/seced>

Minor Teaching Subject Area (Required) (approximately 20-30 credits, depending on subject)

Students must complete a University-approved teaching minor.

Sample Four-year Plan for Theatre Arts Major, Theatre Education Emphasis

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 major courses

This is a sample plan. It outlines 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.

Freshman Year (31 credits)

Fall Semester (15 credits)

ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
THEA 1033 Beginning Acting	3
THEA 1513 Stage and Costume Crafts	3
University Studies Breadth courses	6

Begin crafting and assembling portfolio for Theatre Education.

Spring Semester (16 credits)

THEA 2555 Production Practicum (1 cr) or	
THEA 2556 Production Run Crew (1 cr)	1
THEA 1713 Introduction to Playscript Analysis	3
Required Design/Technical course	3
University Studies Quantitative Literacy (QL) course	3
University Studies Breadth courses	6

Complete the CIL exams by the end of the Freshman Year.

Sophomore Year (32 credits)

Fall Semester (16 credits)

THEA 2410 Directing	3
THEA 2555 Production Practicum (1 cr) or	
THEA 2556 Production Run Crew (1 cr)	1
THEA 3230 Survey of Western Theatre	3
Required Performance course	3
Teaching Minor course	3
University Studies Breadth course	3

Review portfolio with faculty advisor.

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Spring Semester (16 credits)

ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
THEA 2555 Production Practicum (1 cr) or	
THEA 2556 Production Run Crew (1 cr)	1
THEA 5340 Theatre Production Methods for Educators	3
Required Technical course	3
Teaching Minor course	3
Quantitative Intensive (QI) course	3

Complete Speech and Hearing Screening and Background Check.
Complete Teacher Education Writing Exam.

Junior Year (32 credits)

Fall Semester (16 credits)

THEA 4750 Advanced Production Practicum (1 cr) or	
THEA 4850 Advanced Production Projects (1 cr)	1
Required Theatre History course	3
Required Design/Technical course	3
Required Performance course	3
University Studies Breadth course	3
Teaching Minor course	3

Review portfolio with faculty advisor.

Spring Semester (16 credits)

THEA 4750 Advanced Production Practicum (1 cr) or	
THEA 4850 Advanced Production Projects (1 cr)	1
THEA 5240 (CI) Contemporary Theatre	3
THEA 5360 Drama in the Secondary Education Classroom: Grades 7-12	3
Teaching Minor courses	6
Depth Life and Physical Sciences (DSC) course	3

Senior Year (25 credits)

Fall Semester (13 credits)

THEA 4740 Advanced Performance Practicum I (1 cr) or	
THEA 4840 Advanced Performance Practicum II (1 cr)	1
THEA 4750 Advanced Production Practicum (1 cr) or	
THEA 4850 Advanced Production Projects (1 cr)	1
Required Performance course	3
Teaching Minor courses	6
Senior Project	2

Apply for admission to the STEP Program.
Review portfolio with faculty advisor.

Spring Semester (12 credits)

THEA 4750 Advanced Production Practicum (1 cr) or	
THEA 4850 Advanced Production Projects (1 cr)	1
SCED 3210 (CI/DSS) Educational and Multicultural Foundations	3
STEP Level I courses	8

Certification Year (24-26 credits)

Fall Semester (12 credits)

STEP Level II courses	12
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Spring Semester (12-14 credits)

THEA 5910 Senior Project (if not doing Senior Project in context of Student Teaching)	2
STEP Level III (Student Teaching) courses	12

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 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 Advanced Performance Practicum I (F,Sp) (1-2 cr, repeatable)	1-2
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 Production Practicum Courses (select 6 credits minimum; 3 credits must be upper division)

THEA 2555 Production Practicum (F,Sp,Su) (1 cr, repeatable)	1-2
THEA 4750 Advanced Production Practicum (F,Sp,Su) (1-3 cr, repeatable)	1-3

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 in their senior year are required to complete a project or recital appropriate to their area of emphasis, except those in the General Theatre Arts Studies BA program.

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.

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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@cc.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/ats/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:

THEA 1033 Beginning Acting (F,Sp)	3
THEA 1513 Stage and Costume Crafts (F,Sp).....	3
THEA 2410 Directing (F,Sp)	3
THEA 3230 Survey of Western Theatre (F)	3
THEA 4750 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 (36 credits minimum required).

Required Courses (30 credits)

Requirements are as follows:

THEA 6010 Introduction to Graduate Study in Theatre (F)	3
THEA 6240 Contemporary Theatre (F,Sp)	3
THEA 6790 Seminar in Drama (Sp)	3
THEA 6800 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 pages 104-105).

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

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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)

THEA 6010 Introduction to Graduate Study in Theatre (F) 3

B. Advanced Literature Component (select two courses) (6 credits)

THEA 6030 Storytelling (F,Sp,Su) 3

THEA 6240 Contemporary Theatre (F,Sp) 3

THEA 6250 Playwriting (Sp) 3

THEA 6270 Performance Theory and Criticism (Sp) 3

THEA 6290 Special Topics in Theatre History and Literature (F,Sp)..... 3

C. Advanced Design Coursework (in areas of specialization) (select 6 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 6540 Advanced Lighting Design (Sp) 3

THEA 6790 Seminar in Drama (*Topics include: Drafting for Theatre, Tailoring, Pattern Drafting, Structural Design for the Stage, Costume Crafts*) (F,Sp) 1-4

THEA 6900 Research Studies (F,Sp,Su) 1-4

D. Design Studies (complete 2 credits each semester) (4 credits)

THEA 5590 Design Studies for Theatre (F,Sp) 4

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.

II. Project Phase (approximately three semesters) (35 credits)

A. Design Studies (complete 2 credits each semester) (6 credits)

THEA 5590 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 (*Topics include: Drafting for Theatre, Tailoring, Pattern Drafting, Structural Design for the Stage, Costume Crafts*) (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

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.

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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: luannh@hass.usu.edu.

Theatre Arts Faculty

Professors

Mark L. Damen, playwriting, history
Colin B. Johnson, theatre history and criticism, film

Professor Emeritus

Sidney G. Perkes, scene and costume design

Associate Professors

Kevin Doyle, acting, directing
Bruce L. Duerden, technical theatre, lighting
Dennis Hassan, scene design
Nancy E. Hills, costume design
Lynda Linford, acting
David E. Sidwell, history, storytelling, theatre education

Associate Professor Emeritus

Arthur Y. Smith, interpretation, theatre education

Assistant Professors

Shawn Fisher, design, technical generalist
Adrienne Moore, voice, acting, directing
Artemis Preeshl, movement, dance, acting

Lecturer

Robbin C. Black, theatre appreciation, theatre education

Course Descriptions

Theatre Arts (THEA), pages 722-725.

Interdepartmental Program in Toxicology

Director: Roger A. Coulombe, Jr.
Location: Animal Science 213
Phone: (435) 797-1600
FAX: (435) 797-1601
E-mail: rogerc@cc.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 Biometeorology (PSB). 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)
Ann E. Aust, metal-induced carcinogenesis (Chemistry and Biochemistry)
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 (PSB)
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

Department of Watershed Sciences

Department Head: Chris Luecke
Location: Natural Resources 210
Phone: (435) 797-2459
FAX: (435) 797-1871
E-mail: chris.luecke@usu.edu
WWW: http://www.cnr.usu.edu/awer

Undergraduate Advisor: Maureen A. Wagner, Natural Resources
120, (435) 797-2448, maureen@cc.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 126-127).

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 AWER 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)

AWER 1020 Aquatic, Watershed, and Earth Resources	
Professional Orientation (F)	1
AWER 3700 (CI) Fundamentals of Watershed Science (Sp)	3
AWER 4490 Small Watershed Hydrology (F)	4
AWER 4500 Limnology: Ecology of Inland Waters (Sp)	3
AWER 4930 Geographic Information Systems (F)	4
AWER 4980 Undergraduate Seminar (F,Sp)	1
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management (F)	3

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)

BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	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
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
NR 2220 General Ecology (F,Sp)	3
PHYS 2110 The Physics of Living Systems I	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3

Department of Watershed Sciences

B. Fisheries Courses (13 credits)

AWER 3100 (CI) Fish Diversity and Conservation (F)	3
AWER 3110 Fish Diversity Laboratory (F)	1
AWER 4650 Principles in Fishery Management (Sp)	3
AWER 5200 Fish Habitat Relationships in Managed Forests (Sp)	3
AWER 5550 Freshwater Invertebrates (Sp)	3

C. Capstone Courses (6 credits minimum)

AWER 4510 Aquatic Ecology Practicum (F)	3
AWER 4530 Water Quality and Pollution (Sp)	3
AWER 5330 Large River Management (F)	3
AWER 5930 Geographic Information Analysis (Sp)	4
AWER 6200 Watershed Analysis (Sp)	2
Or	
Approved Natural Resources Capstone Experience	3

D. Directed Elective Courses (23 credits)

Students must choose a minimum of 23 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.

AWER 3000 Oceanography (Sp)	3
AWER 3820 (QI) Climate Change (Sp)	3
AWER 5150 Fluvial Geomorphology (F)	3
AWER 5640 Riparian Ecology and Management (Sp)	3
ENVS 5320 Water Law and Policy in the United States (Sp)	3
FRWS 3810 Plant and Animal Populations (Sp)	3
FRWS 4880 Genetics in Conservation and Management (F)	3
HIST 3950 (DHA/CI) Environmental History	3
PHIL 3510 (DHA) Environmental Ethics (F,Sp)	3
POLS 4820 (DSS) Natural Resources and Environmental Policy: Political Economy of Environmental Quality (Sp)	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 49-57) should be consulted to ensure meeting University Studies Requirements.

Fisheries and Aquatic Sciences Major Recommended Four-Year Plan of Study

Students should meet regularly with their faculty advisor and carefully plan their academic program, keeping in mind that many upper-division courses have prerequisites and must be taken in sequence.

The first two years of study include courses designed to give the student a sound scientific background, an introduction to the field of natural resources management, and an introduction to aquatic and earth resources.

Students following the recommended schedule listed below should be able to complete degree requirements in four years (eight semesters).

Freshman Year (29 credits)

Fall Semester (15 credits)

AWER 1020 Aquatic, Watershed, and Earth Resources Professional Orientation	1
BIOL 1610 Biology I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
MATH 1050 (QL) College Algebra	4
Breadth American Institutions (BAI) course	3

Spring Semester (14 credits)

AWER 4980 Undergraduate Seminar	1
BIOL 1620 (BLS) Biology II	4
MATH 1100 (QL) Calculus Techniques	3
Breadth Creative Arts (BCA) course	3
Breadth Humanities (BHU) course	3

Sophomore Year (29 credits)

Fall Semester (15 credits)

AWER 3100 (CI) Fish Diversity and Conservation	3
AWER 3110 Fish Diversity Laboratory	1
CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
ECON 1550 (BSS) Introduction to Environmental and Natural Resource Economics (3 cr) or	
Other approved Breadth Social Sciences (BSS) course (3 cr)	3
STAT 3000 (QI) Statistics for Scientists	3

Spring Semester (14 credits)

AWER 3700 (CI) Fundamentals of Watershed Science	3
CHEM 1220 (BPS) Principles of Chemistry II	4
CHEM 1225 Chemical Principles Laboratory II	1
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
NR 2220 General Ecology	3

Junior Year (30 credits)

Fall Semester (15 credits)

AWER 4490 Small Watershed Hydrology	4
AWER 4930 Geographic Information Systems	4
PHYS 2110 The Physics of Living Systems I	4
Directed Elective or General Elective course	3

Spring Semester (15 credits)

AWER 4500 Limnology: Ecology of Inland Waters	3
AWER 4650 Principles in Fishery Management	3
AWER 5550 Freshwater Invertebrates	3
FRWS 3810 Plant and Animal Populations (suggested elective)	3
Depth Humanities and Creative Arts (DHA) course	3

Senior Year (32 credits)

Fall Semester (15 credits)

ENVS 4000 (DSS) Human Dimensions of Natural Resource Management	3
Capstone Course (AWER 4510 recommended)	3
Directed Elective or General Elective courses	9

Spring Semester (17 credits)

AWER 5200 Fish Habitat Relationships in Managed Forests	3
Capstone Course (AWER 4530 recommended)	3
Directed Elective or General Elective courses	11

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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 AWER courses used to meet requirements for this minor.

A. Fisheries Science Core Courses (9 credits)

AWER 3100 (CI) Fish Diversity and Conservation (F)	3
AWER 3700 (CI) Fundamentals of Watershed Science (Sp)	3
NR 2220 General Ecology (F,Sp)	3

B. Electives (9 credits)

Select three courses from the following:

AWER 4500 Limnology: Ecology of Inland Waters (Sp)	3
AWER 4650 Principles in Fishery Management (Sp)	3
AWER 5200 Fish Habitat Relationships in Managed Forests (Sp)	3
AWER 5550 Freshwater Invertebrates (Sp)	3
FRWS 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 535. They must also complete the requirements listed below in sections A through E.

A. Science Foundation (19 credits)

CHEM 1210¹ Principles of Chemistry I (F,Sp)	4
GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp)	4
MATH 1210 (QL)² 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

¹CHEM 1210 requires a Math ACT score of at least 25 or completion of MATH 1050 or higher. High School chemistry is recommended.

²MATH 1210 requires completion of both 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.

B. Watershed and Earth Systems Courses (15 credits)

AWER 3820 (QI) Climate Change (Sp)	3
AWER 4750 Fundamentals of Remote Sensing Science (F)	3
AWER 5150 Fluvial Geomorphology (F)	3
AWER 5170 Fluvial Geomorphology Lab (F)	2
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4

C. Capstone Courses (6 credits minimum)

AWER 4510 Aquatic Ecology Practicum (F)	3
AWER 4530 Water Quality and Pollution (Sp)	3
AWER 5330 Large River Management (F)	3
AWER 5930 Geographic Information Analysis (Sp)	4
AWER 6200 Watershed Analysis (Sp)	2
Or	
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.

AWER 5200 Fish Habitat Relationships in Managed Forests (F)	3
AWER 5250 Remote Sensing of Land Surfaces (Sp)	4

AWER 5640 Riparian Ecology and Management (Sp)	3
AWER 5760 Remote Sensing: Modeling and Analysis (Sp)	3
CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su)	4
ENVS 5320 Water Law and Policy in the United States (Sp)	3
FRWS 5350 Wildland Soils (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

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 49-57) 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>

Watershed and Earth Systems Major Recommended Four-Year Plan of Study

Students should meet regularly with their faculty advisor and carefully plan their academic program, keeping in mind that many upper-division courses have prerequisites and must be taken in sequence. Students following the recommended schedule listed below should be able to complete degree requirements in four years (eight semesters).

Freshman Year (31-32 credits)

Fall Semester (15 credits)

AWER 1020 Aquatic, Watershed, and Earth Resources Professional Orientation	1
CHEM 1210 Principles of Chemistry I	4
ECON 1550 (BSS) Introduction to Environmental and Natural Resource Economics (or other approved Breadth Social Sciences course)	3
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
GEO 1110 (BPS) The Dynamic Earth: Physical Geology	4

Spring Semester (16-17 credits)

AWER 3700 (CI) Fundamentals of Watershed Science	3
CHEM 1220 (BPS) Principles of Chemistry II (4 cr) or Other approved elective course (3-4 cr)	3 or 4
MATH 1210 (QL) Calculus I	4
Breadth Creative Arts (BCA) course	3
Breadth Humanities (BHU) course	3

Sophomore Year (29-31 credits)

Fall Semester (16-17 credits)

MATH 1220 (QL) Calculus II (4 cr) or Other approved elective course (3-4 cr)	3 or 4
PHYS 2210 (QI) General Physics—Science and Engineering I	4
STAT 3000 (QI) Statistics for Scientists	3
Breadth American Institutions (BAI) course	3
Breadth Life Sciences (BLS) course	3

Spring Semester (13-14 credits)

AWER 3820 (QI) Climate Change	3
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
PHYS 2220 (BPS/QI) General Physics—Science and Engineering II (4 cr) or Other approved elective course (3-4 cr)	3 or 4
SOIL 3000 Fundamentals of Soil Science	4

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Junior Year (30 credits)

Fall Semester (17 credits)

AWER 4490 Small Watershed Hydrology	4
AWER 4930 Geographic Information Systems	4
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management (F)	3
Communications Intensive (CI) course	3
Directed Elective or General Elective course	3

Spring Semester (13 credits)

AWER 4500 Limnology: Ecology of Inland Waters	3
Depth Humanities and Creative Arts (DHA) course	3
Directed Elective or General Elective courses	7

Senior Year (30 credits)

Fall Semester (15 credits)

AWER 4750 Fundamentals of Remote Sensing Science	3
AWER 4980 Undergraduate Seminar	1
AWER 5150 Fluvial Geomorphology	3
AWER 5170 Fluvial Geomorphology Lab	2
Directed Elective or General Elective courses	6

Spring Semester (15 credits)

Capstone Courses (AWER 4530 or 5330 recommended)	6
Directed Elective or General Elective courses	9

Geographic Information Science Minor Requirements (18-19 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 AWER courses used to meet requirements for this minor.

A. Watershed and Earth Resources Core Courses (12 credits)

AWER 4930 Geographic Information Systems (F)	4
AWER 5930 Geographic Information Analysis (Sp)	4
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

B. Electives (6-7 credits)

Select two courses from the following:

AWER 4750 Fundamentals of Remote Sensing Science (F)	3
AWER 5250 Remote Sensing of Land Surfaces (Sp)	4
FRWS 5750 Applied Remote Sensing (F)	3
AWER 5760 Remote Sensing: Modeling and Analysis (Sp)	3
CEE 6440 Geographic Information Systems in Water Resources (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 AWER courses used to meet requirements for this minor.

A. Required Courses (10 credits)

AWER 3700 (CI) Fundamentals of Watershed Science (Sp)	3
AWER 4490 Small Watershed Hydrology (F)	4
AWER 4530 Water Quality and Pollution (Sp)	3

B. Electives (6 credits)

Select two courses from the following:

AWER 3820 (DSC/QI) Climate Change (Sp)	3
AWER 4500 Limnology: Ecology of Inland Waters (Sp)	3
AWER 5150 Fluvial Geomorphology (F)	3
AWER 5640 Riparian Ecology and Management (Sp)	3

Financial Assistance

The main sources of undergraduate financial assistance include University scholarships, grants-in-aid, work-study, and loans. In addition, more than 30 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. 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@cc.usu.edu. Additional information can be found online at: <http://www.usu.edu/honors/>

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/awer>. Major requirement sheets may be obtained at the departmental office, or online at: <http://www.usu.edu/ats/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 two years 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.

Department of Watershed Sciences

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 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 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.

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 433.

Specializations

The MS and PhD degrees in Fisheries Biology and Ecology allow students to specialize in either Fisheries Management or Aquatic Ecology.

Financial Assistance

General aspects of financial support for graduate students at Utah State University are listed on pages 98-99 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 98.

Watershed Sciences Faculty

Professors

Todd A. Crowl, aquatic ecology, conservation biology, tropical biology
Charles P. Hawkins, aquatic ecology, stream and riparian ecosystems
Chris Luecke, aquatic ecology, fisheries management
Wayne A. Wurtsbaugh, limnology, fish ecology, and watershed biogeochemistry

Adjunct Professors

Christopher Neale, remote sensing
David G. Tarboton, geomorphology, hydrology

Professors Emeritus

John A. Kadlec, wetland ecology and biogeochemistry
John M. Neuhold, fisheries biology

Associate Professors

Robert R. Gillies, remote sensing and meteorology
John C. Schmidt, fluvial geomorphology and water policy
Helga Van Miegroet, wildland soils and biogeochemistry

Adjunct Associate Professors

Michelle A. Baker, ecology, hydrology
Joanna L. Endter-Wada, cultural anthropology, natural resource policy and sociology
Joel L. Pederson, geomorphology, paleoclimatology, and sedimentology
Bruce E. Rieman, fisheries management
Juergen Symanzik, computational and graphical statistics

Assistant Professors

Matthew E. Baker, riparian ecology, watershed hydrology, GIS, and spatial analysis
Phaedra E. Budy, assistant leader, fisheries, Utah Cooperative Fisheries and Wildlife Research Unit, fisheries management and conservation
Tamao Kasahara, riparian hydrology, biogeochemistry
Nancy O. Mesner, water quality, water policy, and modeling
Michael A. White, global change ecology

Research Assistant Professor

Mark R. Vinson, aquatic invertebrate ecology and biomonitoring

Department of Watershed Sciences

Adjunct Assistant Professors

Nicolaas W. Bouwes, Jr., fisheries management, aquatic ecology
Anne Brasher, ecology specialist, water quality assessment
Jayne Brim-Box, population genetics and conservation biology
David G. Chandler, hydrology
Michael N. Gooseff, hydrologic modeling
David Naftz, geochemist
Brett Roper, USDA Forest Service Aquatic Monitoring Center Program
Leader, aquatic ecologist

Michael L. Scott, riparian plant ecology
J. Christopher Wilson, director, State of Utah Division of Wildlife
Resources Fisheries Experiment Station, fish pathologist/nutritionist

Course Descriptions

Aquatic, Watershed, and Earth Resources (AWER), pages 566-569.

Department of Wildland Resources

Department Head: Johan du Toit
Location: Natural Resources 206
Phone: (435) 797-3219
FAX: (435) 797-3796
E-mail: lbarr@cc.usu.edu
WWW: http://www.cnr.usu.edu/frws

Undergraduate Advisor:
Maureen A. Wagner, Natural Resources 120, (435) 797-2448,
maureen@cc.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. Students are expected 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 specific to their major. 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, such as the Nature Conservancy or private natural resource consulting firms, 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 126-127.

Graduation Requirements

All *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 FRWS 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 49-57), 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)

BIOL 1610 Biology I (F)	4
BIOL 1620 (BLS) Biology II (Sp)	4
MATH 1050 (QL) College Algebra (F,Sp,Su)	4
MATH 1100 (QL) Calculus Techniques (F,Sp,Su)	3
SOIL 3000 Fundamentals of Soil Science (F,Sp)	4
STAT 2000 (QI) Statistical Methods (F,Sp) (3 cr) or STAT 3000 (QI) Statistics for Scientists (F,Sp) (3 cr)	3
NR 2220 General Ecology (F,Sp)	3

Select one of the following chemistry series (9 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
OR	
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

B. Departmental Common Courses (28 credits)

FRWS 2000 Introduction to Forest, Range, and Wildlife Sciences (F,Sp)	1
FRWS 3600 Wildland Plant Ecology and Identification (F)	4
FRWS 3610 Wildland Animal Ecology and Identification (F)	4
FRWS 3700 (CI) Inventory and Assessment in Natural Resource and Environmental Management (F)	3
FRWS 3710 Monitoring and Assessment in Natural Resource and Environmental Management (Sp)	3
FRWS 3800 Wildland Ecosystems (Sp)	3
FRWS 3810 Plant and Animal Populations (Sp)	3
FRWS 3850 Vegetation and Habitat Management (F)	3
FRWS 3900 Managing Dynamic Ecological Systems (Sp)	4

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
FRWS 4600 Conservation Biology (Sp)	3
FRWS 4700 Ecological Foundations of Restoration (Sp)	3

In addition, they must complete a 21-credit specialization, which is designed by the student in consultation with a faculty advisor to meet specific goals and career objectives and must be approved by the Wildland Resources department head.

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. 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 (24 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>

Conservation and Restoration Ecology Major Recommended Four-Year Plan of Study

Students should meet regularly with their faculty advisor and carefully plan their academic program, keeping in mind that many upper-division courses have prerequisites and must be taken in sequence. Students following the recommended schedule listed below should be able to complete degree requirements in four years (eight semesters).

A. First Year (28 credits)

Fall Semester (14 credits)

BIOL 1610 Biology I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ENVS 2340 (BSS) Natural Resources and Society (recommended)	3
FRWS 2000 Introduction to Forest, Range, and Wildlife Sciences	1
USU 1300 (BAI) U.S. Institutions (or other approved Breadth American Institutions course)	3

Spring Semester (14 credits)

BIOL 1620 (BLS) Biology II	4
MATH 1050 (QL) College Algebra	4
USU 1320 (BHU) Civilization: Humanities (or other approved Breadth Humanities course)	3
USU 1330 (BCA) Civilization: Creative Arts (or other approved Breadth Creative Arts course)	3

B. Second Year (31 credits)

Fall Semester (16 credits)

CHEM 1110 (BPS) General Chemistry I	4
MATH 1100 (QL) Calculus Techniques	3
NR 2220 General Ecology	3
Approved Depth Humanities and Creative Arts (DHA) course	3
Elective course(s)	3

Spring Semester (15 credits)

CHEM 1115 General Chemistry Laboratory (1 cr) or	
CHEM 1215 Chemical Principles Laboratory I (1 cr)	1
CHEM 1120 (BPS) General Chemistry II (4 cr) or	
CHEM 1220 (BPS) Principles of Chemistry II (4 cr)	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
SOIL 3000 Fundamentals of Soil Science	4
STAT 2000 (QI) Statistical Methods (3 cr) or	
STAT 3000 (QI) Statistics for Scientists (3 cr)	3

C. Third Year (30 credits)

Fall Semester (14 credits)

FRWS 3600 Wildland Plant Ecology and Identification	4
FRWS 3610 Wildland Animal Ecology and Identification	4
FRWS 3700 (CI) Inventory and Assessment in Natural Resource and Environmental Management	3
FRWS 3850 Vegetation and Habitat Management	3

Spring Semester (16 credits)

FRWS 3710 Monitoring and Assessment in Natural Resource and Environmental Management	3
FRWS 3800 Wildland Ecosystems	3
FRWS 3810 Plant and Animal Populations	3
FRWS 3900 Managing Dynamic Ecological Systems	4
Elective course(s)	3

D. Fourth Year (31 credits)

Fall Semester (16 credits)

ENVS 3000 Natural Resources Policy and Economics	4
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management	3
Elective courses	9

Spring Semester (15 credits)

FRWS 4600 Conservation Biology	3
FRWS 4700 Ecological Foundations of Restoration	3
Elective courses	9

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. Professional Coursework (32 credits)

AWER 3700 (CI) Fundamentals of Watershed Science (Sp)	3
AWER 4930 Geographic Information Systems (F)	4
ENVS 3300 Fundamentals of Recreation Resources Management (F)	3
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management (F)	3
ENVS 4400 Economic Applications in Natural Resource Management (Sp)	4
FRWS 5350 Wildland Soils (Sp)	3
FRWS 5420 (CI) Forest and Shade Tree Pathology (Sp)	3
FRWS 5700 Forest Assessment and Management (Sp)	3
FRWS 5710 Wildland Disturbance: Ecology and Management (F)	3
FRWS 5750 Applied Remote Sensing (F)	3

B. Electives (26 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 University Studies Requirements.

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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>

Forestry Major Recommended Four-Year Plan of Study

Students should meet regularly with their faculty advisor and carefully plan their academic program, keeping in mind that many upper-division courses have prerequisites and must be taken in sequence. Students following the recommended schedule listed below should be able to complete degree requirements in four years (eight semesters).

A. First Year (28 credits)

Fall Semester (14 credits)

BIOL 1610 Biology I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ENVS 2340 (BSS) Natural Resources and Society (recommended)	3
FRWS 2000 Introduction to Forest, Range, and Wildlife Sciences	1
USU 1300 (BAI) U.S. Institutions (or other approved Breadth American Institutions course)	3

Spring Semester (14 credits)

BIOL 1620 (BLS) Biology II	4
MATH 1050 (QL) College Algebra	4
USU 1320 (BHU) Civilization: Humanities (or other approved Breadth Humanities course)	3
USU 1330 (BCA) Civilization: Creative Arts (or other approved Breadth Creative Arts course)	3

B. Second Year (31 credits)

Fall Semester (16 credits)

CHEM 1110 (BPS) General Chemistry I (4 cr) or CHEM 1210 Principles of Chemistry I (4 cr)	4
MATH 1100 (QL) Calculus Techniques	3
NR 2220 General Ecology	3
Approved Depth Humanities and Creative Arts (DHA) course	3
Elective course(s)	3

Spring Semester (15 credits)

CHEM 1115 General Chemistry Laboratory (1 cr) or CHEM 1215 Chemical Principles Laboratory I (1 cr)	1
CHEM 1120 (BPS) General Chemistry II (4 cr) or CHEM 1220 (BPS) Principles of Chemistry II (4 cr)	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
SOIL 3000 Fundamentals of Soil Science	4
STAT 2000 (QI) Statistical Methods (3 cr) or STAT 3000 (QI) Statistics for Scientists (3 cr)	3

C. Third Year (30 credits)

Fall Semester (14 credits)

FRWS 3600 Wildland Plant Ecology and Identification	4
FRWS 3610 Wildland Animal Ecology and Identification	4
FRWS 3700 (CI) Inventory and Assessment in Natural Resource and Environmental Management	3
FRWS 3850 Vegetation and Habitat Management	3

Spring Semester (16 credits)

AWER 3700 (CI) Fundamentals of Watershed Science	3
FRWS 3710 Monitoring and Assessment in Natural Resource and Environmental Management	3
FRWS 3800 Wildland Ecosystems	3
FRWS 3810 Plant and Animal Populations	3
FRWS 3900 Managing Dynamic Ecological Systems	4

D. Fourth Year (31 credits)

Fall Semester (16 credits)

AWER 4930 Geographic Information Systems	4
ENVS 3300 Fundamentals of Recreation Resources Management	3
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management	3
FRWS 5710 Wildland Disturbance: Ecology and Management	3
FRWS 5750 Applied Remote Sensing	3

Spring Semester (15 credits)

ENVS 4400 Economic Applications in Natural Resource Management	4
FRWS 5350 Wildland Soils	3
FRWS 5420 (CI) Forest and Shade Tree Pathology	3
FRWS 5700 Forest Assessment and Management	3
Elective course(s)	2

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 29 credits of *Professional Coursework*, including the following:

A. Professional Coursework (29 credits)

ADVS 2080 Beef Production Practices (Sp) (2 cr) or ADVS 2090 Sheep Production Practices (Sp) (2 cr)	2
AWER 3700 (CI) Fundamentals of Watershed Science (Sp)	3
BIOL 4400 (QI) Plant Physiology (F)	4
BIOL 4420 Plant Taxonomy (Sp)	3
ENVS 3000 Natural Resources Policy and Economics (F)	4
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management (F)	3
ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources (Sp)	3
FRWS 4000 Principles of Rangeland Management (Sp)	3
SOIL 5130 Soil Genesis, Morphology, and Classification (F)	4

B. Electives (29 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 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/GS0400/0454.HTM>

Rangeland Resources Major

Recommended Four-Year Plan of Study

Students should meet regularly with their faculty advisor and carefully plan their academic program, keeping in mind that many upper-division courses have prerequisites and must be taken in sequence. Students following the recommended schedule listed below should be able to complete degree requirements in four years (eight semesters).

A. First Year (28 credits)

Fall Semester (14 credits)

BIOL 1610 Biology I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ENVS 2340 (BSS) Natural Resources and Society (recommended)	3
FRWS 2000 Introduction to Forest, Range, and Wildlife Sciences	1
USU 1300 (BAI) U.S. Institutions (or other approved Breadth American Institutions course)	3

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Spring Semester (14 credits)	
BIOL 1620 (BLS) Biology II.....	4
MATH 1050 (QL) College Algebra.....	4
USU 1320 (BHU) Civilization: Humanities (or other approved Breadth Humanities course)	3
USU 1330 (BCA) Civilization: Creative Arts (or other approved Breadth Creative Arts course)	3

B. Second Year (30 credits)

Fall Semester (13-14 credits)	
CHEM 1110 (BPS) General Chemistry I (4 cr) or	
CHEM 1210 Principles of Chemistry I (4 cr).....	4
CHEM 1215 Chemical Principles Laboratory I (not required if taking CHEM 1115)	(1)
MATH 1100 (QL) Calculus Techniques	3
NR 2220 General Ecology.....	3
Approved Depth Humanities and Creative Arts (DHA) course	3

Spring Semester (16-17 credits)

ADVS 2080 Beef Production Practices (2 cr) or	
ADVS 2090 Sheep Production Practices (2 cr).....	2
CHEM 1115 General Chemistry Laboratory (not required if taking CHEM 1215).....	(1)
CHEM 1120 (BPS) General Chemistry II (4 cr) or	
CHEM 1220 (BPS) Principles of Chemistry II (4 cr).....	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
SOIL 3000 Fundamentals of Soil Science.....	4
STAT 2000 (QI) Statistical Methods (3 cr) or	
STAT 3000 (QI) Statistics for Scientists (3 cr).....	3

C. Third Year (30 credits)

Fall Semester (14 credits)	
FRWS 3600 Wildland Plant Ecology and Identification	4
FRWS 3610 Wildland Animal Ecology and Identification	4
FRWS 3700 (CI) Inventory and Assessment in Natural Resource and Environmental Management	3
FRWS 3850 Vegetation and Habitat Management.....	3

Spring Semester (16 credits)

AWER 3700 (CI) Fundamentals of Watershed Science.....	3
FRWS 3710 Monitoring and Assessment in Natural Resource and Environmental Management	3
FRWS 3800 Wildland Ecosystems.....	3
FRWS 3810 Plant and Animal Populations	3
FRWS 3900 Managing Dynamic Ecological Systems.....	4

D. Fourth Year (32 credits)

Fall Semester (15 credits)	
BIOL 4400 (QI) Plant Physiology	4
ENVS 3000 Natural Resources Policy and Economics.....	4
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management	3
SOIL 5130 Soil Genesis, Morphology, and Classification	4

Spring Semester (17 credits)

BIOL 4420 Plant Taxonomy	3
ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources.....	3
FRWS 4000 Principles of Rangeland Management.....	3
Elective courses	8

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 28 credits of Degree Program Courses, including the following:

A. Degree Program Courses (25 credits)

BIOL 5250 (CI) Evolutionary Biology (F).....	3
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
FRWS 3300 Management Aspects of Wildlife Behavior (Sp).....	3
FRWS 4500 Principles of Wildlife Management (Sp).....	3
FRWS 4880 Genetics in Conservation and Management (F).....	3

B. Electives (33 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 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>

Wildlife Science Major Recommended

Four-Year Plan of Study

Students should meet regularly with their faculty advisor and carefully plan their academic program, keeping in mind that many upper-division courses have prerequisites and must be taken in sequence. Students following the recommended schedule listed below should be able to complete degree requirements in four years (eight semesters).

A. First Year (28 credits)

Fall Semester (14 credits)	
BIOL 1610 Biology I	4
ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
ENVS 2340 (BSS) Natural Resources and Society (recommended)....	3
FRWS 2000 Introduction to Forest, Range, and Wildlife Sciences	1
USU 1300 (BAI) U.S. Institutions (or other approved Breadth American Institutions course).....	3

Spring Semester (14 credits)

BIOL 1620 (BLS) Biology II.....	4
MATH 1050 (QL) College Algebra.....	4
USU 1320 (BHU) Civilization: Humanities (or other approved Breadth Humanities course)	3
USU 1330 (BCA) Civilization: Creative Arts (or other approved Breadth Creative Arts course)	3

B. Second Year (31 credits)

Fall Semester (16-17 credits)	
CHEM 1110 (BPS) General Chemistry I (4 cr) or	
CHEM 1210 Principles of Chemistry I (4 cr).....	4
CHEM 1215 Chemical Principles Laboratory I (not required if taking CHEM 1115)	(1)
MATH 1100 (QL) Calculus Techniques	3
NR 2220 General Ecology.....	3
Approved Depth Humanities and Creative Arts (DHA) course	3
Elective course(s).....	3

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Spring Semester (14-15 credits)

CHEM 1115 General Chemistry Laboratory (not required if taking CHEM 1215).....	(1)
CHEM 1120 (BPS) General Chemistry II (4 cr) or	
CHEM 1220 (BPS) Principles of Chemistry II (4 cr).....	4
ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode.....	3
SOIL 3000 Fundamentals of Soil Science.....	4
STAT 2000 (QI) Statistical Methods (3 cr) or	
STAT 3000 (QI) Statistics for Scientists (3 cr).....	3

C. Third Year (30 credits)

Fall Semester (14 credits)

FRWS 3600 Wildland Plant Ecology and Identification.....	4
FRWS 3610 Wildland Animal Ecology and Identification.....	4
FRWS 3700 (CI) Inventory and Assessment in Natural Resource and Environmental Management.....	3
FRWS 3850 Vegetation and Habitat Management.....	3

Spring Semester (16 credits)

FRWS 3300 Management Aspects of Wildlife Behavior.....	3
FRWS 3710 Monitoring and Assessment in Natural Resource and Environmental Management.....	3
FRWS 3800 Wildland Ecosystems.....	3
FRWS 3810 Plant and Animal Populations.....	3
FRWS 3900 Managing Dynamic Ecological Systems.....	4

D. Fourth Year (31 credits)

Fall Semester (16 credits)

BIOL 5580 Mammalogy.....	3
ENVS 3000 Natural Resources Policy and Economics.....	4
ENVS 4000 (DSS) Human Dimensions of Natural Resource Management.....	3
FRWS 4880 Genetics in Conservation and Management.....	3
Elective course(s).....	3

Spring Semester (15 credits)

BIOL 5250 (CI) Evolutionary Biology.....	3
BIOL 5560 Ornithology (3 cr) or	
BIOL 5570 Herpetology (3 cr).....	3
FRWS 4500 Principles of Wildlife Management.....	3
Elective course(s).....	6

Financial Assistance

The main opportunities for undergraduates to find financial support through grants, work-study, and loans are listed on pages 23-28 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. 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@cc.usu.edu. Additional information can be found online at: <http://www.usu.edu/honors/>

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/frws>

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/ats/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 433.

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 99-100. 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.

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.

Department of Wildland Resources

Degree Programs

The MS degree is offered for students motivated toward a management or administrative career in natural resources management. The MS may be obtained through either a Plan A (research thesis) or Plan B (nonthesis) program, as described on page 104. 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 98-99 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/frws>

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
Martyn M. Caldwell, plant physiological ecology
Michael R. Conover, 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 M. Jaeger, behavioral ecology
Frederick F. Knowlton, Predator Ecology and Behavior Project, predator ecology, behavior and management
Michael R. Kuhns, forestry extension specialist, urban forestry, tree physiology
James N. Long, forest ecology, silviculture
John C. Malechek, rangeland management
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
Michael L. Wolfe, wildlife ecology and management

Research Professor

Leila McReynolds Shultz, plant taxonomy and geography

Adjunct Professors

James E. Bowns, range ecology
Mark W. Brunson, social and psychological aspects of forest and rangeland management
John W. Connelly, game bird ecology and management, avian ecology
Norbert V. DeByle, forest ecology
Douglas A. Johnson, plant ecophysiology
Karel Klinka, forest ecology
Jesse A. Logan, forest insect ecology, disturbance ecology, dynamical systems analysis
Bret Olson, range ecology
G. Allen Rasmussen, rangeland fire ecology and prescribed burning, rangeland management
David W. Roberts, forest ecology, forest modeling, vegetation ecology
Scott R. Winterstein, wildlife population dynamics and management

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Professors Emeritus

Thadis W. Box, range management
John A. Kadlec, wetlands ecology, wildlife management
Ronald M. Lanner, forest genetics, dendrology
Frederic H. Wagner, wildlife ecology, natural resources policy
Neil E. West, rangeland desertification/condition/trend
John P. Workman, range economics

Associate Professors

Frederick A. Baker, forest pathology, computer applications
Roger E. Banner, range extension specialist
Christopher A. Call, vegetation manipulation/management
Eric M. Gese, Predator Ecology and Behavior Field Station, predator behavior and ecology
Michael J. Jenkins, disturbance ecology and management, insects, fire, snow avalanches
R. Douglas Ramsey, remote sensing, geographic information systems, landscape ecology, spatial analysis
Eugene W. Schupp, plant population ecology and restoration ecology
John A. Shivik, predator ecology
Helga Van Miegroet, forest soils and biogeochemistry

Adjunct Associate Professors

Derek Bailey, large herbivore animal behavior
Dale L. Bartos, forest ecology, aspen conservation
D. Layne Coppock, animal production systems/technology transfer and international pastoral development
John L. Crane Jr., environmental resource management
Ellen S. Dierenfeld, zoo and wildlife nutrition, conservation biology
Richard C. Etchberger, wildlife-habitat interactions, natural resource education
Frank P. Howe, avian ecology and management, riparian and shrubsteppe ecology
Thomas A. Jones, native grass breeding
Bruce A. Kimball, range ecology
William J. McShea, ungulate ecology, conservation of Asian mammals, small mammal ecology
Patricia D. Moehlman, behavioral ecology of large mammals
Niki S. Nicholas, biogeochemistry
Kenneth C. Olson, grazing livestock nutrition
James A. Pfister, poisonous range plants
Howard B. Quigley, carnivore conservation biology
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

Karen H. Beard, community ecology, ecosystem ecology, conservation biology
Karen E. Mock, conservation genetics and applied molecular ecology
Ronald J. Ryel, plant physiological ecology

Research Assistant Professors

Mary M. Conner, wildlife population ecology
Juan J. Villalba, foraging behavior

Adjunct Assistant Professors

Peter B. Adler, plant community ecology
Barbara J. Bentz, forest entomology
Randall B. Boone, wildlife ecology and ecosystem modeling
Larry M. Conner, wildlife ecologist, wildlife damage management, mammalogist
Jeanne M. Fair, epidemiology, avian biology
Jennifer A. Gervais, ecotoxicology, population dynamics
Jeannette K. Howard, stream ecology, biogeography, fluvial geomorphology
Kyran E. Kunkel, carnivores, predator/prey ecology, mammal restoration ecology
Chris L. Lauver, range ecology
Tamsin C. McCormick, desert ecology
Nicole L. McCoy, natural resource economics
Thomas A. Monaco, research ecologist
Dale L. Nolte, foraging behavior
William C. Pitt, predator ecology and behavior
Daniel K. Rosenberg, population, conservation, and landscape ecology
John D. Shaw, forest inventory, quantitative silviculture
Johanna M. Ward, population dynamics, avian ecology, conservation biology

Assistant Professor Emeritus

Barrie K. Gilbert, wildlife ethology, behavioral ecology

Adjunct Instructor

Jon Keith Schnare, timber harvest planning and logging methods

Course Descriptions

Forest, Range, and Wildlife Sciences (FRWS), pages 630-633.

Women and Gender Studies

Director: Brenda Cooper
Location: Animal Science 319C
Phone: (435) 797-3253
E-mail: bcooper@cc.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 faculty members from a variety of disciplines, including Anthropology, Journalism and Communication, English, Fine Arts, Health and Physical Education, History, Natural Resources, Political Science, Psychology, Special Education, 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 Student Center 302.

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 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.

ANTH 5100 (DSS)/6100 Anthropology of Sex and Gender (Sp).....	3
ART 4790 Art History Seminar: Gender Issues in Art (F,Sp,Su)	3
BIOL 4750/6750 ST: Women in Science (Sp)	3
ENGL 3030 (DHA) Perspectives in Literature:	
Gender Focus (F,Sp,Su).....	3
ENGL 3300 Period Studies in American Literature:	
Gender Focus (F,Sp)	3
ENGL 3510 Young Adult Literature: Reading and Writing Gender (F,Sp).....	3
ENGL 3520 Multicultural American Literature: Gender Focus (F,Sp)....	3
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ENGL 4360 Studies in Film: Genre and Gender in Hollywood (Sp).....	3
ENGL 4370 Studies in Nonfiction Prose: Gender Focus (F).....	3
ENGL 4610 Western American Literature: Utah Women Writers and/or Western Women Writers (F).....	3
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ENGL 5320 (CI) Literature and Cultural Difference: Gender Focus (Sp).....	3
ENGL 5340 (CI) Studies in Literary Theory: Feminist Theory (F)	3
ENGL 6330 Topics in Literary Studies: Women's Literature of the American West and/or Politics and the American Woman Writer (1776-1886) (F,Sp)	3
FCHD 3110 Human Sexuality (F,Su).....	3
FCHD 3280 Economic Issues: Gender, Family, and Work Roles (Sp).....	3
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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 (Student Center 302).

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Course Descriptions

Accounting (ACCT)

See *School of Accountancy, pages 131-135.*

ACCT 1050	Accounting Essentials	3
Overview of accounting concepts, with special emphasis on practical applications. Taught only as a special extension course as requested.		
ACCT 1550	Accounting Software for Small Business Applications	3
Instruction in the use of small business accounting software. Prerequisite: ACCT 1050 or equivalent.		
ACCT 2010	Survey of Accounting I	3[®]
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 College of Business majors); and GPA of 2.5 or higher. (F,Sp,Su)		
ACCT 2020	Survey of Accounting II	3[®]
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)		
ACCT 3110	Intermediate Financial Accounting and Reporting I	3
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)		
ACCT 3120	Intermediate Financial Accounting and Reporting II	3
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)		
ACCT 3310	Strategic Cost Management	3[®]
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)		
ACCT 3410	Income Taxation I	3
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)		
ACCT 4200	Advanced Accounting	3
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,Su)		
ACCT 4410	Income Taxation II	3
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)		
ACCT 4500	Accounting Information Systems	3
Theoretical concepts underlying accounting systems' computerized support of business processes. Topics include accounting systems development, controls, security, and audit. Prerequisites: ACCT 3110 and BIS 2450; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
ACCT 4510 CI	Auditing Principles and Techniques	3
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)

ACCT 4900	Independent Research and Readings	1-3[®]
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)		
ACCT 4950H	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)		
ACCT 6010	Financial and Managerial Accounting	3
Introduction to financial and managerial accounting at the graduate level. Prerequisite: Admission to a College of Business graduate program. (Su)		
ACCT 6200	Advanced Topics in Financial Reporting	3
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)		
ACCT 6350	Accounting Strategies for Achieving Profit Goals	3
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,Sp)		
ACCT 6410	Tax Research and Procedures	3
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)		
ACCT 6420	Taxation of Corporations and Shareholders	3
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)		
ACCT 6440	Taxation of Partnerships, Estates, and Trusts	3
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)		
ACCT 6460	Tax Topics	3
Topics of current interest to tax professionals. Prerequisites: ACCT 3410 and 4410. (Su)		
ACCT 6500	Advanced Accounting Information Systems	3
Contemporary issues in accounting information systems, including emerging information technologies, systems evaluation and selection, and computer-based audit and security. Prerequisite: ACCT 4500. (Sp)		
ACCT 6510	Financial Auditing	3
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)		
ACCT 6540	Forensic Accounting	3
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)		
ACCT 6600	Information Systems Auditing and Control	3
Study of information systems auditing methodologies, including risk assessment, systems controls, and the use of computer-assisted audit techniques. (F)		
ACCT 6610	Accounting Theory and Research	3
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)		

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ACCT 6800 Accounting Communications and Professional Conduct 3
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. (F,Sp)

ACCT 6900 Independent Reading and Research 1-3®
Independent work in accounting areas: theory, auditing, taxation, and other related areas. Prerequisite: Departmental permission. (F,Sp,Su)

ACCT 6960 Professional Paper 1-3
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)

ACCT 6990 Continuing Graduate Advisement 1-3®
Continuing enrollment at the University required after completing coursework. Prerequisite: Departmental permission. (F,Sp,Su)

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

©This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Animal, Dairy and Veterinary Sciences (ADVS)

See Department of Animal, Dairy and Veterinary Sciences, pages 146-157.

ADVS 1010 Artificial Insemination and Reproduction 2
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)

ADVS 1020 Dairy Cattle Nutrition and Feeding 3
Applied approach to nutrients, feeds, digestion, and nutrient utilization by dairy cattle. Dietary requirements and feeding practices. (F)

ADVS 1030 Lactation and Milking Systems 3
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)

ADVS 1040 Records and Financial Aspects of Dairy Herd Operations 3
Record keeping systems, tax records, estate planning, DHI records, and computer record systems. Principles of credit and finance. Accessing loan sources. (Sp)

ADVS 1050 Dairy Genetics 3
Principles of dairy genetics, mating, pedigrees, and breeding. Purebred cattle type traits and classification. (F)

ADVS 1060 Applied Feeding and Management of Dairy Calves and Basic Construction of Facilities 3
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)

ADVS 1100 Small Scale Animal Production 3
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)

ADVS 1110 Introduction to Animal Science 4
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)

ADVS 1250 QI Applied Agricultural Computations 2
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)

ADVS 1600 Western Horsemanship I 2
Grooming, saddling, bridling, mounting, seats and hands, horseback riding both bareback and on western saddle. For students with limited or no previous riding experience. Western-type riding boots and health insurance required. (F,Sp)

ADVS 1720 Dairy Cattle Evaluation and Judging 1
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)

ADVS 1910 Orientation to Animal and Dairy Science 0.5
Introduction to the Animal Science and Dairy Science programs, and to the opportunities in animal agriculture and related fields. (F)

ADVS 1920 Orientation to Bioveterinary Science 1
Introduction to the profession of veterinary medicine and related fields, and to the preparation required for veterinary medical careers. (F)

ADVS 2040 Introduction to Biotechnology 1
Introduces students to the emerging field of biotechnology and the impact this technology has on society. Also taught as BIOL 2040, NFS 2040, and PSB 2040. (Sp)

ADVS 2080 Beef Production Practices 2
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)

ADVS 2090 Sheep Production Practices 2
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)

ADVS 2120 Swine Production Practices 2
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. (Su)

ADVS 2130 Dairy Production Practices 3
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)

ADVS 2190 Horse Production Practices 2
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)

ADVS 2200 Anatomy and Physiology of Animals 4
Normal structure and function studied systematically. Comparative livestock, poultry, pleasure and companion animals, laboratory animals, and humans. (Sp)

ADVS 2250 Cooperative Work Experience 1-12®
For students who require animal industry experience to prepare them for advanced curriculum in Animal, Dairy, or Bioveterinary Science. (F,Sp,Su)

ADVS 2600 Western Horsemanship II 2
Alternative training techniques for western pleasure and western reining horses, teaching leads, cueing techniques, reining maneuvers, and show-style riding. Western-type riding boots and health insurance required. Prerequisite: ADVS 1600. (F,Sp)

ADVS 2920 Orientation to Veterinary Medicine 0.5
Preparation of preveterinary students for successful application and admission to professional veterinary schools. Taught first half of spring semester. (Sp)

ADVS 3000 Animal Health and Hygiene 3
Introduction to basic principles of disease. Agents, mechanisms, and preventive measures for common diseases of farm animals will be emphasized. Prerequisite: ADVS 2200. (Sp)

Course Descriptions

<p>ADVS 3020 Biotechnology in Agriculture 3 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 1220, CHEM 2310. (F)</p> <p>ADVS 3200 DSC Ethical Issues in Genetic Engineering and Biotechnology 3 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>ADVS 3500 Principles of Animal Nutrition 3 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 or 2320. (F)</p> <p>ADVS 3510 QI Applied Animal Nutrition 3 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>ADVS 3600 Western Horsemanship III 2 Utilization of current training methods relating to basic equine behavior, ground breaking skills, and riding and training of the unbroken and freshly broken horse. Prerequisite: ADVS 2600. (F,Sp)</p> <p>ADVS 3650 Live Animal and Carcass Evaluation 3 Judging, grading, and pricing of market animals and carcasses, with emphasis on comparative evaluation of live animals and carcasses. (F)</p> <p>ADVS 3710 Advanced Livestock Judging 2 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>ADVS 3900 Special Problems and Readings 1-3® 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>ADVS 3910 Special Topics 1-5® Topics of special interest to those who have needs not satisfied by courses currently offered. (F,Sp,Su)</p> <p>ADVS 3920 Internship in Veterinary Medicine 1-3® A directed and evaluated work experience with a veterinarian. For each credit, student must document at least 54 hours of work time. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p>ADVS 4200 CI Physiology of Reproduction and Lactation 4 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 or 2310. (Sp)</p> <p>ADVS 4250 Internship in Animal Industry 1-12® 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>ADVS 4260 Internship in Animal Biotechnology Industry 2-12® 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> <p>ADVS 4560 QI Principles of Animal Breeding 3 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>ADVS 4800 Undergraduate Research or Creative Opportunity 1-6® 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>ADVS 4910 Preprofessional Orientation 0.5 Survey of the professional opportunities in the animal industries to enable graduating students to make the transition to careers and/or postgraduate study. Prerequisite: Senior standing. (F)</p> <p>ADVS 4920 CI Undergraduate Seminar 2 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>ADVS 5030 Sustainable Agricultural Production Systems with Animals 3 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>ADVS 5080 Beef Cattle Management 3 (dual listing 6080) 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>ADVS 5090 Sheep Management and Wool Technology 4 (dual listing 6090) 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>ADVS 5120 Swine Management 3 (dual listing 6120) 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>ADVS 5130 Dairy Cattle Management 3 (dual listing 6130) 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>ADVS 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 BIOL 5160, NFS 5160, and PSB 5160. (F)</p> <p>ADVS 5190 Horse Management 3 (dual listing 6190) 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>ADVS 5220 Endocrine Aspects of Nutrition 2 (dual listing 6220) 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>
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Course Descriptions

<p>ADVS 5240 Methods in Biotechnology: Protein Purification Techniques 3</p> <p>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 PSB 5240. (Sp)</p>	<p>ADVS 5260 Methods in Biotechnology: Molecular Cloning 3</p> <p>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 PSB 5260. (F)</p>	<p>ADVS 5280 Animal Molecular Biology 3 (dual listing 6280)</p> <p>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>ADVS 5350 Introductory Pharmacology and Pharmacokinetics 3 (dual listing 6350)</p> <p>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>ADVS 5370 Molecular Methods in Nutrition Science 2 (dual listing 6370)</p> <p>Theory of modern techniques used to study macromolecules and ions. Prerequisite: CHEM 3700. Also taught as BIOL/NFS/PSB 5370/6370. (F)</p>	<p>ADVS 5400 Environmental Toxicology 3 (dual listing 6400)</p> <p>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. Prerequisite: CHEM 3700. (Sp)</p>	<p>ADVS 5520 Grazing Livestock Nutrition and Management** 2 (dual listing 6520)</p> <p>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; FRWS 4000 (recommended). (Sp)</p>	<p>ADVS 5530 Nutritional Management of Farm Animals* 3 (dual listing 6530)</p> <p>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>ADVS 5690 Animal Histology 3 (dual listing 6690)</p> <p>Microscopic anatomy and physiology of normal domestic animal's cells, tissues, organs, and system. Prerequisite: ADVS 2200 or permission of instructor. (F)</p>	<p>ADVS 5700 CI General Animal Pathobiology 3 (dual listing 6700)</p> <p>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>ADVS 5750 Parasitology 4</p> <p>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>ADVS 5820 Animal Cytogenetics and Gene Mapping** 3 (dual listing 6820)</p> <p>Structure and properties of chromosomes, chromosome behavior during cell division, chromosomal influence on phenotype, and factors causing changes</p>	<p>in chromosome structure and number. Gene markers and gene mapping, with emphasis on applications for livestock. Prerequisite: ADVS 4560 or BIOL 3200. (F)</p>	<p>ADVS 5860 Poisonous Range Plants Affecting Livestock** 3</p> <p>Poisonous plants of rangelands and their effects on grazing animals, especially livestock. Management practices to reduce or prevent poisoning. Also taught as FRWS 5860. (Sp)</p>	<p>ADVS 6010 Animal Research Orientation 1</p> <p>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>ADVS 6080 Beef Cattle Management 3 (dual listing 5080)</p> <p>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>ADVS 6090 Sheep Management and Wool Technology 4 (dual listing 5090)</p> <p>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>ADVS 6120 Swine Management 3 (dual listing 5120)</p> <p>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>ADVS 6130 Dairy Cattle Management 3 (dual listing 5130)</p> <p>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>ADVS 6190 Horse Management 3 (dual listing 5190)</p> <p>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>ADVS 6200 Physiology of Reproduction** 3</p> <p>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>ADVS 6210 Molecular Reproduction and Development* 3 (dual listing 7210)</p> <p>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>ADVS 6220 Endocrine Aspects of Nutrition 2 (dual listing 5220)</p> <p>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>ADVS 6280 Animal Molecular Biology 3 (dual listing 5280)</p> <p>Laboratory-based course designed to present the theory and provide an in-depth laboratory experience in RNA detection, differential gene expression analysis,</p>
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Course Descriptions

real-time RT-PCR, protein detection and purification, 2-D gel electrophoresis, and microarrays. Prerequisite: ADVS 5260 or permission of instructor. (Sp)

ADVS 6300 Animal Breeding Theory* **3**
Basic theoretics of populations as applied to breeding and improvement of domestic animals with emphasis on effects of directed selection and mating and design of effective breeding plans. Prerequisite: ADVS 4560. (F)

ADVS 6320 Animal Genomics and Proteomics* **3**
(dual listing 7320)
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)

ADVS 6350 Introductory Pharmacology and Pharmacokinetics **3**
(dual listing 5350)
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)

ADVS 6370 Molecular Methods in Nutrition Science **2**
(dual listing 5370)
Theory of modern techniques used to study macromolecules and ions. Prerequisite: CHEM 3700. Also taught as BIOL/NFS/PSB 6370/5370. (F)

ADVS 6400 Environmental Toxicology **3**
(dual listing 5400)
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. Prerequisite: CHEM 3700. (Sp)

ADVS 6500 Animal Nutrition Research Techniques **2**
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. Prerequisite: ADVS 3510. (F)

ADVS 6510 Rumen Physiology and Metabolism* **2**
(dual listing 7510)
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)

ADVS 6520 Grazing Livestock Nutrition and Management** **2**
(dual listing 5520)
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; FRWS 4000 (recommended). (Sp)

ADVS 6530 Nutritional Management of Farm Animals* **3**
(dual listing 5530)
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)

ADVS 6540 Animal Energetics and Nutrient Metabolism** **3**
(dual listing 7540)
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)

ADVS 6550 Protein Metabolism and Utilization** **3**
(dual listing 7550)
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)

ADVS 6560 Mineral and Vitamin Metabolism* **3**
(dual listing 7560)
Principal roles of minerals and vitamins in nutrient metabolism as they apply to animal nutrition. Prerequisite: ADVS 6510/7510. (F)

ADVS 6600 Principles of Toxicology** **3**
(dual listing 7600)
Mechanisms of action and effects of toxicants on living organisms. Prerequisite: ADVS 5350/6350. (F)

ADVS 6690 Animal Histology **3**
(dual listing 5690)
Microscopic anatomy and physiology of normal domestic animal's cells, tissues, organs, and system. Prerequisite: ADVS 2200 or permission of instructor. (F)

ADVS 6700 General Animal Pathobiology **3**
(dual listing 5700)
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)

ADVS 6800 Graduate Student Seminar **1**
Seminars on topics of interest in Animal, Dairy and Veterinary Sciences. (F,Sp)

ADVS 6810 Seminar in Toxicology **1**[®]
Graduate seminar in toxicology and related topics. (Sp)

ADVS 6820 Animal Cytogenetics and Gene Mapping** **3**
(dual listing 5820)
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)

ADVS 6890 Mechanisms of Animal Disease **3**
(dual listing 7890)
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.

ADVS 6900 Special Problems **1-3**[®]
Readings, discussions, lectures, literature reviews, and research problems in animal, dairy, and bioveterinary sciences. Prerequisite: Consent of instructor and department. (F,Sp,Su)

ADVS 6910 Readings and Conference in Pharmacology and Toxicology **1-3**[®]
Independent readings and conferences in the area of pharmacology and toxicology with particular emphasis on current literature. Prerequisite: ADVS 6350/5350. (F)

ADVS 6970 Research and Thesis **1-12**[®]
(F,Sp,Su)

ADVS 6990 Continuing Graduate Advisement **1-3**[®]
(F,Sp,Su)

ADVS 7210 Molecular Reproduction and Development * **3**
(dual listing 6210)
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)

ADVS 7320 Animal Genomics and Proteomics* **3**
(dual listing 6320)
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)

Course Descriptions

ADVS 7510 (dual listing 6510)	Rumen Physiology and Metabolism*	2
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)		
ADVS 7540 (dual listing 6540)	Animal Energetics and Nutrient Metabolism**	3
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)		
ADVS 7550 (dual listing 6550)	Protein Metabolism and Utilization**	3
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)		
ADVS 7560 (dual listing 6560)	Mineral and Vitamin Metabolism*	3
Principal roles of minerals and vitamins in nutrient metabolism as they apply to animal nutrition. Prerequisite: ADVS 7510/6510. (F)		
ADVS 7600 (dual listing 6600)	Principles of Toxicology*	3
Mechanisms of action and effects of toxicants on living organisms. Prerequisite: ADVS 5350/6350. (F)		
ADVS 7890 (dual listing 6890)	Mechanisms of Animal Disease	3
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.		
ADVS 7970	Dissertation Research	1-12®
(F,Sp,Su)		
ADVS 7990	Continuing Graduate Advisement	1-9®
(F,Sp,Su)		

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.
*Taught 2006-2007.
**Taught 2007-2008.

Agriculture (AG)

See *College of Agriculture*, pages 109-110.

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 exchange students interested in a broad agricultural experience. (F,Sp,Su)		

Anthropology (ANTH)

See *Department of Sociology, Social Work and Anthropology*, pages 500-511.

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,Sp)		
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)

ANTH 2010 BSS (formerly ANTH 2100 BSS)	Peoples of the Contemporary World	3
Surveys archaeology and the means by which inferences about the past are made. Focuses on how contemporary societies have evolved in ecological, historical, and political context. Introduces problems arising from third world social change. (F)		
ANTH 2030 BSS/CI (formerly ANTH 1030 BSS/CI)	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)		
ANTH 2210 BHU (formerly ANTH 1710 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)		
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) ¹		
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. ⁴		
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. (F,Sp) ^{1,2}		
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)		
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)		
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) ²		
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) ¹		
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. (Sp) ^{1,2}		

Course Descriptions

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. (F)¹

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)¹

ANTH 3990 History and Theories of Anthropology 3
Traces history of anthropology, main currents of theoretical thought shaping claimed anthropological knowledge, and major figures associated with the discipline. Conceptualizes anthropology among the social sciences, life sciences, and humanities. Prerequisite: ANTH 1010. (F)³

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 (dual listing 6110) 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. (F)¹

ANTH 4120 CI/DSS Ethnography of Childhood 3
Focuses on ethnographic methods and the anthropological study of childhood. Students design and carry out ethnographic study of children in school, family, or other setting. Readings of ethnographic studies of childhood from the U.S. and abroad. Includes methods component. (F)^{1,2}

ANTH 4130 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)^{1,2}

ANTH 4150 QI Problems in Cultural Anthropology 3
Introduction to the wide range of information obtainable through the study of cross-cultural data. Methods and techniques of scientific inquiry in cultural anthropology explored through critical evaluation of quantitative, cross-cultural research literature and analysis of cultural data using SPSS. Prerequisites: ANTH 1010 and STAT 1040. (F,Sp)¹

ANTH 4250 QI Problems in Bioarchaeology 3[®]
Examines various approaches to the study of human biocultural adaptation through the analysis of human remains from archaeological sites. Includes methods component. Prerequisite: STAT 1040 or ANTH 3250 or permission of instructor. (Sp)^{1,2,3}

ANTH 4350 Archaeological Method/Theory and Cultural Resource Management 3
Examines contemporary theories, as well as methods used by archaeologists to address questions arising from theory. Also considers contributions of cultural resource management to meeting anthropological and public concerns. Includes methods component. Prerequisite: ANTH 2030; and one of the following courses: ANTH 3300, 3350, 4360, or 4380. (Sp)^{1,2,3}

ANTH 4360 DSS Ancient Desert West 3-4
Prehistoric to historic human ecology and paleoenvironments of the Great Basin, Southwest, and southern California deserts. Emphasizes perspective of human evolutionary ecology and detailed examination of the archaeological record in conjunction with paleoenvironmental data. For classroom work only, 3 credits are granted. For 4 credits, one or more weekend field trips are required. Prerequisite: ANTH 2030 or permission of instructor. (F)^{1,3}

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)

ANTH 4380 Peopling of the New World 3
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)¹

ANTH 4800 Topics in Anthropology 1-3[®]
Focuses on special topics in anthropology. Topics and course format vary.

ANTH 4990 Contemporary Issues in Anthropology 3
Capstone course in anthropological theory and method, required for all majors. Prerequisite: ANTH 1010. Recommended Prerequisite: ANTH 3990. (Sp)^{1,3}

ANTH 5100 DSS Anthropology of Sex and Gender (dual listing 6100) 3
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. (Sp)¹

ANTH 5120 Applied Rural Development (dual listing 6120) 3
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. (Sp)¹

ANTH 5130 Ethnographic Field School (dual listing 6130) 3-6
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 (dual listing 6160) 3
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. (Sp)¹

ANTH 5190 Applied Anthropology Practicum 1-5[®]
Supervised projects in applied anthropology for advanced students. Integrates academic knowledge and field technique. Minimum contact hours, requirements, and credits available vary. Includes methods component. Prerequisite: Application and instructor approval.^{2,3}

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.^{2,3}

ANTH 5300 Archaeology Field School 1-5[®]
Internship on archaeological field project, including survey, excavation, recording, mapping, and scientific conduct of archaeological problem solving. Application process begins in March. Additional field support fee required. Prerequisites: ANTH 2030 and instructor's permission. (Su)^{2,3}

ANTH 5310 Archaeology Lab 1-3[®]
Laboratory experience enabling participation in analysis/reporting stages of archaeology projects. Includes methods component. Prerequisite: Permission of instructor.^{2,3}

ANTH 5650 DSS Developing Societies (dual listing 6650) 3
Reviews how sociology, cultural geography, and economic anthropology analyze processes of globalization in postcolonial societies. Examines changing

Course Descriptions

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. (F)¹

ANTH 5700 Folk Narrative 3
Forms and functions of folk narrative genres: myth, legend, folktale, memorate, and ballad. Also taught as ENGL 5700 and HIST 5700. (Sp)

ANTH 5800 Museum Development 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)^{2,3}

ANTH 5900 Independent Studies 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.

ANTH 5980 Senior Project 1
Develops advanced research and writing skills in a specialty area, and results in a research project/report. Must register in combination with a 4000- or 5000-level anthropology course, in consultation with instructor and subject to approval.

ANTH 6100 Anthropology of Sex and Gender 3
(dual listing 5100)
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. (Sp)¹

ANTH 6110 Southwest Indian Cultures, Past and Present 3
(dual listing 4110)
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. (F)¹

ANTH 6120 Applied Rural Development 3
(dual listing 5120)
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. (Sp)¹

ANTH 6130 Ethnographic Field School 3-6
(dual listing 5130)
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)

ANTH 6160 Cities and Development 3
(dual listing 5160)
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. (Sp)¹

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. (F)¹

ANTH 6900 Independent Studies 1-3[®]
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.

¹This course is taught alternating years. Check with department for information about when course will be taught.

²This course may be used to satisfy the methods component requirement for the anthropology major.

³This course has one or more prerequisites. Check with the department for details.

⁴This course is offered infrequently. 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 is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Art (ART)

See *Department of Art, pages 158-168.*

ART 1010 BCA Exploring Art 3[®]
(formerly ART 1100)

Introduction to the visual arts, including the language, elements, and history of art. (F)

ART 1020 Drawing I 3
(formerly ART 1110)

Introduction to the visual language of drawing, the graphic elements, various drawing media, and the creative problems involved. (F,Sp)

ART 1050 Introduction to Photography 3
(formerly ART 2800)

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)

ART 1110 Drawing I (Art Majors Only) 3
(formerly ART 1140)

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
(formerly ART 2140)

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)

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)

Course Descriptions

<p>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)</p> <p>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)</p> <p>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 <i>only</i>. (F)</p> <p>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)</p> <p>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)</p> <p>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)</p> <p>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)</p> <p>ART 3000 Secondary Art Methods I 3® 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>ART 3050 Japanese Calligraphy 1® Study of Japanese writing system through practicing the art of calligraphy. No prerequisites. Also taught as JAPN 3050. (Sp)</p> <p>ART 3110 DHA/CI Ancient Near East 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 HIST 3110. (F,Sp)</p> <p>ART 3200 Painting II 3 Continuation of concepts and techniques covered in ART 2200, emphasizing more complex formal and conceptual problems. Prerequisite: ART 2200. (Sp)</p> <p>ART 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 CLAS 3210. (Sp)</p> <p>ART 3220 Screen Printing 3 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>ART 3230 Lithography 3 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)</p> <p>ART 3240 Intaglio 3 Investigation of the basic processes employed in intaglio, including acid (line etch, aquatint, lift grounds, soft ground) and nonacid (dry point, mezzotint,</p>	<p>engraving) techniques, as well as transfer and color methods. Prerequisite: ART 2230. (Sp)</p> <p>ART 3250 Relief Prints 3® Introduction to relief printing, including woodcut, linoleum cut, and wood engraving. Prerequisite: ART 2230. (F)</p> <p>ART 3260 Anatomy for Artists 3 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>ART 3270 Color: Theory and Practice 3 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>ART 3300 Clinical Experience I 1® First clinical practicum (30 hours minimum) in middle and secondary schools, arranged by special methods instructors in department. Required at level I. (Sp)</p> <p>ART 3350 Drawing for Illustration 3® 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>ART 3370 Illustration Concepts* 3® 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>ART 3400 Typography 3® 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>ART 3420 Communication Arts Seminar 1® Lecture seminars by professional guest artists in illustration and graphic design. (F,Sp)</p> <p>ART 3610 Intermediate Sculpture 3 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>ART 3650 Intermediate Ceramics: Handbuilding 3® Application of traditional ceramic construction techniques to vessel and sculptural subjects. Prerequisite: ART 2650. (F)</p> <p>ART 3660 Intermediate Ceramics: Throwing on the Potter's Wheel 3® Focuses on throwing and trimming techniques using the potter's wheel. Emphasizes production of multiples. Prerequisite: ART 2650. (Sp)</p> <p>ART 3700 Elementary Art Methods 3® 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)</p> <p>ART 3710 Fine Art Seminar 1® Lecture seminars given by professionals as part of the Art Department visiting artist program. (F,Sp)</p> <p>ART 3810 Photography II 3 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>
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Course Descriptions

<p>ART 3820 History of Early Photography* 3 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)</p> <p>ART 3830 History of Contemporary Photography** 3 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)</p> <p>ART 4000 Secondary Art Methods II 3® Focuses on developing methodologies for presenting art concepts and techniques in the secondary schools. Prerequisite: ART 3000. (F)</p> <p>ART 4200 Advanced Painting Studio 3-6® Advanced individual painting projects. Students may use a variety of painting methods to execute a series of closely related paintings that are intended to develop a focused and personal portfolio. Prerequisite: ART 2200. (F,Sp)</p> <p>ART 4210 Figure Painting 3® Painting from the model, with emphasis on solving problems of the planar structure of the human form. Prerequisites: ART 3200 and 3260. (Sp)</p> <p>ART 4250 Advanced Printmaking Studio 1-9® 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>ART 4260 Life Drawing 3® Drawing from live models with emphasis on exploring interpretation, techniques, and compositional approach. Prerequisites: ART 1020 or 1110; and ART 2110. (Sp)</p> <p>ART 4300 Clinical Experience II 1® Second clinical practicum (30 hours minimum) in middle and secondary schools, arranged by special methods instructors in department. Required at level II. Prerequisite: ART 3300. (F)</p> <p>ART 4370 Illustration Studio 3® 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> <p>ART 4410 Graphic Interface Design I 3® 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>ART 4420 Brand Identity Design 3 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>ART 4430 Graphic Interface Design II 3® 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>ART 4440 Type, Image, and Visual Continuity 3® 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>ART 4450 Portfolio Preparation 1-9® 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>ART 4460 Advanced Computer Graphics Studio 1-9® Independent research and development of advanced projects in the field of digital graphics. Prerequisite: ART 4440. (F,Sp,Su)</p> <p>ART 4470 Special Topics in Graphic Design and Illustration 1-9® 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>ART 4610 Sculpture Projects 3® 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>ART 4620 Sculpture Seminar 3 Designed to focus on and challenge current assumptions in regard to contemporary issues in sculpture. Prerequisite: ART 4660. (F)</p> <p>ART 4640 Technology of Ceramic Art 3® 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>ART 4650 Advanced Ceramic Studio 3-6® 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>ART 4660 Advanced Sculpture Studio 1-9® Advanced directed study in specific technical, aesthetic, and/or conceptual issues in sculpture. Prerequisite: ART 4610. (Sp)</p> <p>ART 4780 Sacred Art: Art of the World's Major Religions 3 Designed to give students understanding of the world's seven major religions or "wisdom traditions" (Hinduism, Buddhism, Confucianism, Taoism, Judaism, Christianity, and Islam) through the history of their art. (Alt Sp)</p> <p>ART 4790 Art History Seminar and Special Problems 1-6® Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p>ART 4810 Digital Photography** 3® 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>ART 4820 Nineteenth Century Photography Printing Processes* 3 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>ART 4830 Independent Projects in Photography 1-9® 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>
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Course Descriptions

ART 4840	Color Photography I*	3
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)		
ART 4850	Color Photography II*	3
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)		
ART 4860	Photographic Studio**	3
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)		
ART 4870	Photographic Portfolio**	3
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)		
ART 4880	Imaging Services	3
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)		
ART 4900	Advanced Internship/Coop	1-9[®]
Internship/cooperative education work experience in art. For those students needing complexity and a more professional level of experience in the workplace. (F,Sp)		
ART 4910	Senior BFA Exhibition	2
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)		
ART 4920	Independent Projects	1-9[®]
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)		
ART 4930	Student Teaching at University Level	3
Teaching methods and procedures for university-level classes, working directly with faculty in lower-division classes. Prerequisite: Approval of instructor. (F,Sp,Su)		
ART 5500	Student Teaching Seminar	2
Capstone seminar focused upon student teaching issues, professional development, and principles of effective instruction, emphasizing a reflective methodology. Prerequisites: Level 1 and Level 2 completion, and student teaching placement. (F,Sp)		
ART 5630	Student Teaching in Secondary Schools	10
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. (F,Sp)		
ART 6200	Graduate Drawing and Painting Studio	1-9[®]
Emphasizes individual attainment of personal conviction or direction in painting. Prerequisite: Graduate status. (F,Sp,Su)		
ART 6250	Graduate Printmaking Studio	1-9[®]
Intensive individual production in advanced printmaking techniques. Prerequisite: Graduate status. (F,Sp,Su)		

ART 6370	Graduate Illustration Studio	3-9[®]
(Advertising, Editorial, Fashion.) Techniques in advertising illustration meeting the needs of client and his or her audience. Prerequisite: Graduate status. (F,Sp,Su)		
ART 6400	Graduate Graphic Design Studio	3-9[®]
Graphic design problems leading to understanding of major concepts in this area. Prerequisite: Graduate status. (F,Sp,Su)		
ART 6640	Technology of Ceramic Art	3[®]
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)		
ART 6650	Graduate Ceramic Studio	3-9[®]
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)		
ART 6660	Graduate Sculpture Studio	3-9[®]
Advanced individual problems in various media and technique. Prerequisite: Graduate status. (F,Sp,Su)		
ART 6710	Graduate Greek and Roman Art	3
Origin and development of the art and architecture of Crete, Mycenae, Greece, and the Roman world. Prerequisite: Graduate status. (Sp)		
ART 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.		
ART 6790	Art History Seminar and Special Problems	1-6[®]
Prerequisite: Graduate status and consent of instructor. (F,Sp,Su)		
ART 6800	Graduate Photography Studio	3-9[®]
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)		
ART 6900	Graduate Seminar	3[®]
Deals with general topic of professional practice, including art criticism and how contemporary work relates to current social issues. Prerequisite: Graduate status. (F,Sp)		
ART 6910	Graduate Interdisciplinary Critique	1[®]
Focuses on current work of critique participants. Brings disciplinary analysis to specific problem. Prerequisite: Graduate status. (F,Sp)		
ART 6920	Graduate Independent Projects in Art	1-9[®]
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)		
ART 6940	Graduate Internship/Coop	1-9[®]
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)		
ART 6970	Research and Thesis	3[®]
Prerequisite: Candidacy status. (F,Sp,Su)		
ART 6990	Continuing Graduate Advisement	1-3[®]
(F,Sp,Su)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.
[©]This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.
^{*}Taught 2006-2007.
^{**}Taught 2007-2008.

Course Descriptions

Art History (ARTH)

See Department of Art, pages 158-168.

ARTH 2710 BHU	Survey of Western Art: Prehistoric to Medieval	3[®]
(formerly ART 2710 BHU)		
Prehistoric art through the end of the Gothic era. (F)		
ARTH 2720 BHU	Survey of Western Art: Renaissance to Post-Modern	3[®]
(formerly ART 2720 BHU)		
Renaissance through modern. (Sp)		
ARTH 4510 DHA	Islamic Visual Cultures*	3
(dual listing 6510)		
(formerly ART 3720 DHA)		
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 4610	Greek and Roman Art*	3
(dual listing 6610)		
(formerly ART 4710)		
Origin and development of art and architecture of Crete, Mycenae, Greece, and the Roman world.		
ARTH 4620 DHA	Byzantine Art*	3
(dual listing 6620)		
(formerly ART 3130 DHA)		
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 4630 DHA	Medieval Art*	3
(dual listing 6630)		
(formerly ART 3140 DHA)		
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 4720	Renaissance Art	3
(formerly ART 4720)		
Development of European art and architecture from the thirteenth to the sixteenth century.		
ARTH 4730	Baroque and Rococo Art	3
(formerly ART 4730)		
Development of painting, sculpture, and architecture in Europe from the late sixteenth through the eighteenth centuries.		
ARTH 4740	Nineteenth Century Art	3
(formerly ART 4740)		
Painting and sculpture from Neoclassicism to Symbolism. Prerequisite: ARTH 2720.		
ARTH 4750	Twentieth Century Art*	3
(formerly ART 4750)		
History of painting, sculpture, and architecture from post-impressionists to the present. Prerequisite: ARTH 4610.		
ARTH 4760	American Art	3
(formerly ART 4760)		
History of painting, sculpture, and architecture in America from colonial times to the present. Prerequisite: ARTH 2720. (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
(formerly ART 4770)		
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
(formerly ART 4110)		
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 6510 DHA	Islamic Visual Cultures*	3
(dual listing 4510)		
(formerly ART 3720 DHA)		
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)		
(formerly ART 4710)		
Origin and development of art and architecture of Crete, Mycenae, Greece, and the Roman world.		
ARTH 6620	Byzantine Art*	3
(dual listing 4620)		
(formerly ART 3130 DHA)		
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)		
(formerly ART 3140 DHA)		
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
(formerly ART 6720)		
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
(formerly ART 6730)		
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
(formerly ART 6740)		
Painting and sculpture from Neoclassicism to Symbolism. Prerequisites: ARTH 2720 or consent of instructor, graduate status. (F)		
ARTH 6750	Graduate Twentieth Century Art	3
(formerly ART 6750)		
History of painting, sculpture, and architecture from the post-impressionists to the present. Prerequisite: Graduate status. (Sp)		

Course Descriptions

ARTH 6760 Graduate American Art 3
(formerly ART 6760)
 History of painting, sculpture, and architecture from the post-impressionists to the present. Prerequisite: Graduate status. (F)

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)

©This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*Taught alternate years. For further information, consult department.

Aerospace Studies (AS)

See Department of Aerospace Studies, pages 136-137.

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. 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. AS 2110 must be taken concurrently with AS 2010; AS 2120 must be taken concurrently with AS 2020. (F) (Sp)

AS 3010 Air Force Leadership and Management 3
AS 3020 Air Force Leadership and Management 3

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)

AS 3060 Physical Fitness Training 2[®]

Early morning workout to build stamina. Organized to keep cadets in shape to pass the Physical Fitness Test (PFT). Team instructed. (F) (Sp)

AS 3110 Leadership Laboratory III 1
AS 3120 Leadership Laboratory III 1

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. AS 3110 must be taken concurrently with AS 3010; AS 3120 must be taken concurrently with AS 3020. (F) (Sp)

AS 3400 Field Training (4 Weeks) 1-4

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. (Su)

AS 3500 Field Training (5 Weeks) 1-5

Students in the two-year program participate in five weeks of Field Training. Major areas of study include junior officer training, career orientation, survival training, base functions, Air Force environment, and physical training. (Su)

AS 4010 National Security Affairs/Preparation for Active Duty 3

AS 4020 National Security Affairs/Preparation for Active Duty 3

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)

AS 4110 Leadership Laboratory IV 1
AS 4120 Leadership Laboratory IV 1

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. AS 4110 must be taken concurrently with AS 4010; AS 4120 must be taken concurrently with AS 4020. (F) (Sp)

®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 138-145.

ASTE 1010 Introduction to Agricultural Systems Technology 3

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)

ASTE 1120 Forage and Harvest Equipment 3

Fundamentals and principles in operations, adjustments, and maintenance of technologies utilized in agricultural forage and combine harvesting. (F)

ASTE 1130 Planting and Tillage Equipment 3

Fundamentals and principles in operation, maintenance, and repair of planting and tillage equipment. Exploration of different systems and their applications. (Sp)

ASTE 1610 Agricultural Machinery Engines 6

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)

ASTE 1620 Agricultural Machinery Power Trains 6

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)

ASTE 1640 Agricultural Equipment and Parts Marketing and Communications 3

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. (F)

ASTE 1710 Introduction to Agricultural Communication 3

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)

ASTE 2200 Electricity in Agricultural Systems 3

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)

ASTE 2250 Occupational Experience in Agriculture 1-6

Supervised occupational experiences for technical vocational preparation. (F,Sp)

Course Descriptions

<p>ASTE 2710 Orientation to Agricultural Education 2® 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)</p> <p>ASTE 2830 Agribusiness Sales and Marketing 3 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)</p> <p>ASTE 2900 BSS Humanity in the Food Web 3 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)</p> <p>ASTE 2930 Individualized Projects in Agricultural Mechanics 1-3® Basic skill preparation for employment in agricultural industry. (F,Sp)</p> <p>ASTE 3030 Metal Welding Processes and Technology in Agriculture 3 Selection of ferrous and nonferrous welding techniques in agricultural applications. Welding, cold- and hot-working metal in agricultural construction and maintenance. (F)</p> <p>ASTE 3040 QI Fabrication Practices in Agricultural Buildings 2 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)</p> <p>ASTE 3050 CI Technical and Professional Communication Principles in Agriculture 3 Technical communication principles and practices used in the agricultural industry. Emphasizes technical writing of reports and correspondence using electronic information retrieval and presentation. Prerequisite: ENGL 2010. (F,Sp)</p> <p>ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications 3 Operation and application of agricultural and turfgrass equipment powered by internal combustion engines having less than 40 horsepower. (Sp)</p> <p>ASTE 3090 Computer Applications in Agriculture 3 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>ASTE 3100 Leadership Applications in Agricultural Science, Management, and Development 2 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>ASTE 3200 Irrigation Principles and Practices 3 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>ASTE 3240 CI Teaching in Laboratory Settings 3® Basic principles of teaching students in laboratory settings. Overview of major concepts, considerations, and practices used for developing and evaluating agriscience curricula. Prerequisite: ASTE 2710. (Sp)</p> <p>ASTE 3300 Clinical Experience I in Agricultural Education 1 In-school clinical observation experience. Students involved in observing management and assisting in teaching. Designed to provide familiarity with agricultural education classroom. (Sp)</p>	<p>ASTE 3440 DSC Science, Technology, and Modern Society 3 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>ASTE 3500 Teaching Apprenticeship in Agricultural Education 2 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>ASTE 3600 QI Management of Agricultural Machinery Systems 3 Management principles for evaluation and selection of agricultural complements for performance, optimization, economics, environmental impact, and long-term sustainable agricultural practices. Prerequisite: MATH 1050 or STAT 1040. (Sp)</p> <p>ASTE 3620 Managing the FFA and SAE Programs 2 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>ASTE 3710 Agricultural Machinery Hydraulic Systems and Diagnosis 3 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>ASTE 3720 Agricultural DC Electrical Systems and Diagnosis 3 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. (F)</p> <p>ASTE 3730 Agricultural Machinery Auxiliary Systems and Diagnosis 3 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. (Sp)</p> <p>ASTE 3900 Special Problems in Agricultural Systems Technology and Education 1-6 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>ASTE 4100 Agricultural Structures and Environment** 3 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>ASTE 4150 CI Methods of Teaching Agriculture 3® 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>ASTE 4250 Occupational Experiences in Agriculture 1-6 Supervised occupational experience for technical and professional preparation in teacher education and/or agricultural business. (F,Sp,Su)</p> <p>ASTE 4300 Clinical Experience II in Agricultural Education 1 Continued in-school observation of agricultural education teaching. Requires student participation in teaching, management, and program development in agricultural education. (F)</p>
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Course Descriptions

ASTE 4400 Advising Applied Technology Education Student Organizations 1

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.

ASTE 4900 Senior Project Research and Creative Opportunity 1-6

Returning student teachers work to strengthen their weaknesses in areas such as scaled drawing, cost estimating, machine shop practices, construction, and small engines. (Sp)

ASTE 5100 Electrical Controls and Motors for (dual listing 6100) Agri-Industrial Applications 3

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.

ASTE 5200 Assessment in Applied Technology Education 3

Principles and practices in assessing performance and development of applied technology students. Emphasizes testing and evaluation techniques used in applied technology education. (Sp,Su)

ASTE 5260 CI Environmental Impacts of (dual listed 6260) Agricultural Systems 3

Investigation of relationship between agricultural practices and environmental quality, including control of agricultural nonpoint-source pollution. (F)

ASTE 5500 Agricultural Education Secondary Curriculum Seminar 2®

Cooperative examination of considerations and processes for teaching secondary students. Reflection on the practice of teaching. Preparation for entry into the teaching profession. (Sp)

ASTE 5630 Agricultural Education Student Teaching in Secondary Schools 10

Students teach agriscience and technology courses in secondary and middle school settings under the guidance of clinical and Utah State University supervisors. (Sp)

ASTE 6000 Methods of Equipment Testing, Diagnosis, and Repair 3

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.

ASTE 6070 Program and Curriculum Development in Career and Technical Education 3

Program planning for locally applied curriculum design to meet student interests and community needs for career and technical educators. (F,Sp,Su)

ASTE 6100 Electrical Controls and Motors for (dual listing 5100) Agri-Industrial Applications 3

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.

ASTE 6110 Applied Technology Education Program Planning and Evaluation 3

Program planning and evaluation. Study of strategies used in applied technology. Demonstration of manpower surveys and job analysis for curriculum development. (F)

ASTE 6130 Electrical and Hydraulic Component Testing, Diagnosis, and Repair 3

Involves supervision and demonstration of procedures for testing, diagnosis, and repair of all types of electrical and hydraulic components on modern agricultural equipment. (F)

ASTE 6140 Agricultural Development and Evaluation 3

Principles and strategies for developing, implementing, and evaluating agricultural technology and educational programs for U.S. and international organizations. (Sp)

ASTE 6170 Supervision and Administration of International Extension Programs 3

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)

ASTE 6240 Strategies for Teaching Adults 3

Features contemporary strategies and guided practice for teaching adults in group and individualized learning settings. (F,Sp,Su)

ASTE 6250 Special Problems in Agricultural Systems Technology 1-5®

A consideration of needs and special types of service in FFA, young farmers, and adult programs for applied technology teachers. (F,Sp,Su)

ASTE 6260 Environmental Impacts (dual listing 5260) of Agricultural Systems 3

Investigation of relationship between agricultural practices and environmental quality, including control of agricultural nonpoint-source pollution. (F)

ASTE 6300 Foundations of Adult Education and Program Evaluation 3

Addresses the context and providers of adult education. In addition, adult learning theories and participation models are examined. (F)

ASTE 6400 Food, Land and People Workshop 0.5-3®

Designed for practicing K-12 teachers. Offers in-service development for infusing agriculture and the concepts of Food, Land and People into existing curriculum standards and objectives. Presentation of Agriculture in the Classroom instructional units, as well as hands-on methods and materials. (F,Sp,Su)

ASTE 6510 Principles and Practices of Extension Education 3

History, philosophy, and organizational structure of U.S. and international extension organizations, including programming models, teaching strategies, and accountability. (F)

ASTE 6700 Research Methods 3

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)

ASTE 6750 Agricultural Safety and Health: Issues and Decisions 3

Review of agricultural safety and health issues. Public and private concerns addressed through problem identification, data gathering, resolution, and evaluation. (Sp)

ASTE 6970 Research and Thesis 1-9®

(F,Sp,Su)

ASTE 6990 Continuing Graduate Advisement 1-3®

(F,Sp,Su)

ASTE 7000 Principles and Practices of Community College Education 3

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)

ASTE 7400 Community and Interagency Partnerships 3

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)

Course Descriptions

ASTE 7500 Diffusion of Innovations 3
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)

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

**Taught 2007-2008.

Aviation Technology (AV)

See Department of Engineering and Technology Education, pages 273-277.

AV 1100 The Aviation Profession 1
Covers attributes of aviation professional, career planning, and certification process. (F,Sp)

AV 1130 Flight Principles 2
Basic flight theory and physics of flight. Aircraft control systems related to flight. Ground handling and servicing of aircraft. Special lab fee. (F)

AV 1140 Aircraft Components and Principles 2
Materials and hardware, as well as nondestructive inspection applicable to aircraft. Plumbing methods, maintenance publications, and aircraft weight and balance control. (F)

AV 1170 Aircraft Structures 3
Accepted methods and repair for metal structures. Organic finishes and application techniques with laboratory applications and practical experience. (F)

AV 1240 Aircraft Maintenance 3
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)

AV 2100 Aircraft Reciprocating Powerplants and Accessories 3
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)

AV 2110 Aircraft Reciprocating Powerplants and Accessories Lab 3
Laboratory application of principles studied in AV 2100. Prerequisite: AV 2100 (must be taken concurrently). (F)

AV 2140 Aircraft Turbine Powerplants and Maintenance Operations 3
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)

AV 2150 Aircraft Turbine Powerplant Maintenance Operations Lab 3
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)

AV 2170 Aircraft Systems 2
Theory and operation of aerospace environmental systems, communication, navigation and guidance systems, fuel and propellant systems, fire detection, and warning. (Sp)

AV 2180 Aircraft Hydraulic and Pneumatic Systems 2
Theory and operation of aircraft hydraulic, landing gear, and brake systems. (F)

AV 2190 Aircraft Systems Lab 1
Laboratory application of principles and components studied in AV 2170. Prerequisite: AV 2170 (must be taken concurrently). (Sp)

AV 2200 Aircraft Hydraulics and Pneumatics Systems Lab 1
Laboratory application of principles and components studied in AV 2180. Prerequisite: AV 2180 (must be taken concurrently). (F)

AV 2250 Internship 1-4®
Planned supervised work experience in industry. Must have departmental approval. (F,Sp,Su)

AV 2330 Private Pilot Ground School 4
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)

AV 2350 Private Pilot Certification 1
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)

AV 2420 FAA Regulations, Records, and Certification 2
Maintenance forms, records, and regulations releasing aircraft to airworthy status. Certification of maintenance technicians is also included. (Sp)

AV 2430 Aircraft Electrical Systems and Components 2
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)

AV 2440 Aircraft Electrical Systems Laboratory 2
Laboratory application of principles and systems studied in AV 2430. Prerequisites: ETE 2300; AV 2430 (must be taken concurrently). (Sp)

AV 2510 Intermediate Flight 1
FAA approved flight training program that fulfills the cross country requirements for commercial and instrument ratings. Prerequisite: AV 2350. (F,Sp,Su)

AV 2520 Instrument Pilot Ground School 4
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 2350. (F,Sp)

AV 2540 Instrument Pilot Certification I 1
FAA approved flight training program introducing requirements for issuance of the Instrument Pilot Airplane Rating. Prerequisites: AV 2350; AV 2520 (may be taken concurrently). (F,Sp,Su)

AV 2550 Instrument Pilot Certification II 1
Continuation of AV 2540. Completes all requirements for issuance of the instrument pilot airplane rating. Prerequisite: AV 2540. (F,Sp,Su)

AV 2620 Commercial Pilot Ground School 2
Commercial flight operations including performance, cross country planning, advanced systems operations, complex airplanes, and flight maneuvers. Prerequisites: AV 2350 and 2520. (F,Sp)

AV 2660 Commercial Pilot Certification 1
Flight instruction to meet FAA requirements and completion of tests for certification. Prerequisites: AV 2540; AV 2620 (may be taken concurrently). (F,Sp,Su)

AV 2720 CFI and CFII Ground School 3
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. Prerequisite: AV 2660. (F,Sp)

AV 2740 CFI Certification 1
FAA-approved flight training program meeting all requirements for the issuance of the Certified Flight Instructor Airplane Rating. Prerequisite: AV 2720 (may be taken concurrently). (F,Sp,Su)

Course Descriptions

AV 2860	CFII Certification	1
FAA approved flight training program meeting all the requirements for, and issuance of, the Certified Flight Instructor, Airplane Instrument Rating. Prerequisites: AV 2720 and 2740 (may be taken concurrently). (F,Sp,Su)		
AV 2880	Multi-Engine Certification	1
FAA approved flight training program meeting all the requirements for, and the issuance of, the Multi-Engine Airplane Rating. Prerequisite: AV 2660. (F,Sp,Su)		
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. (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. Prerequisite: AV 1100. (F)		
AV 3140	Advanced Avionics Systems and Flight Simulation	3
In-depth study of state-of-the-art aircraft instrumentation systems and advanced flight training utilizing a flight simulator. Prerequisite: AV 2540. (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. Prerequisite: AV 2150. (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. (Sp)		
AV 4200	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)		
AV 4250	Internship	1-6[®]
Planned supervised work experience in industry. Prerequisite: Departmental approval. (F,Sp,Su)		
AV 4280	Airline Operations	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. Prerequisite: AV 1100. (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. No prerequisites; however, AV 4280 is <i>highly recommended</i> . (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. Prerequisite: AV 1100. (Sp)		

AV 4610	CI AeroTechnology Design II	3
Execution and completion of a team or individual project. Requires design reviews and written reports. Prerequisite: AV 3610. (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. Prerequisite: AV 4610. (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. (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. Prerequisite: AV 2660. (Sp)		
AV 5410	Regional Jet Ground School II	4
Continuation of AV 5400. Prerequisite: AV 2660. (F)		

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Aquatic, Watershed, and Earth Resources (AWER)

See *Department of Watershed Sciences*, pages 535-540.

Note: Effective Spring Semester 2007, courses listed with the AWER prefix will use the Watershed Sciences (WATS) prefix.

AWER 1020	Aquatic, Watershed, and Earth Resources 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. (F)		
AWER 1200	BLS Biodiversity: Its Conservation and Future	3
Today, species extinctions are occurring at an unprecedented rate. People in developed countries are concerned with this loss. Solving this problem requires knowledge of what determines biodiversity, how it is being threatened, and how its loss can be countered. (F,Sp)		
AWER 2250	Introductory Internship/Co-op	1-3[®]
Introductory-level educational experience in internship/cooperative education position approved by department. Prerequisite: Permission of department. (F,Sp,Su)		
AWER 3000	DSC Oceanography	3
Examines fundamental interrelationships between physical environment of the oceans and the life forms they support. Suitable for nonbiologists. (Sp)		
AWER 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)		
AWER 3110	Fish Diversity Laboratory	1
Focuses on field collection, identification, and habitat relationships of freshwater fishes in North America. Prerequisite: AWER 3100 (may be taken concurrently). (F)		
AWER 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)		

Course Descriptions

<p>AWER 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)</p> <p>AWER 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: BMET 2000 or GEOG 1000. Also taught as BMET 3820. (Sp)</p> <p>AWER 3900 Spatial Analysis 3 Analysis of geographic data, including spatial economic theory, spatial quantitative methods, and spatial distributions. Prerequisite: STAT 2000. (Sp)</p> <p>AWER 4250 Advanced Internship/Co-op 1-9® Internship/cooperative education work experience; increased complexity to help student gain a more professional level of experience. Prerequisite: Permission of department. (F,Sp,Su)</p> <p>AWER 4490 Small Watershed Hydrology*** (dual listing 5490) 4 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, AWER 3700. (F)</p> <p>AWER 4500 Limnology: Ecology of Inland Waters 3 Ecosystem analysis of physical, chemical, and biological interactions in lakes and streams. Application of these concepts for managing aquatic system. Prerequisite: CHEM 1210. (Sp)</p> <p>AWER 4510 Aquatic Ecology Practicum 3 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: AWER 4500; STAT 3000 (may be taken concurrently). (F)</p> <p>AWER 4530 Water Quality and Pollution (dual listing 6530) 3 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>AWER 4650 Principles in Fishery Management (dual listing 6650) 3 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)</p> <p>AWER 4750 Fundamentals of Remote Sensing Science (dual listing 6740) 3 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>AWER 4930 Geographic Information Systems (dual listing 6920) 4 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. (F)</p>	<p>AWER 4950 Special Topics 1-3® Individual study and research upon selected watershed sciences problems. (F,Sp,Su)</p> <p>AWER 4960 Directed Readings 1-3® Provides one-on-one interaction between student and instructor. Prerequisite: Permission of department. (F,Sp,Su)</p> <p>AWER 4970 Undergraduate Research 1-3® Individual or team research. Prerequisite: Permission of department. (F,Sp,Su)</p> <p>AWER 4980 Undergraduate Seminar 1 Intended to bring upperclassmen up-to-date on watershed sciences topics. (F,Sp)</p> <p>AWER 5150 Fluvial Geomorphology (dual listing 6150) 3 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. Prerequisite: GEO/AWER 3600. Also taught as GEO 5150/6150. (F)</p> <p>AWER 5170 Fluvial Geomorphology Lab (dual listing 6170) 2 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. Prerequisite: GEO/AWER 3600. Also taught as GEO 5170/6170. (F)</p> <p>AWER 5200 Fish Habitat Relationships in Managed Forests 3 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. (Sp)</p> <p>AWER 5250 Remote Sensing of Land Surfaces (dual listing 6250) 4 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 BMET 5250/6250. (Sp)</p> <p>AWER 5330 Large River Management (dual listing 6330) 3 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. (F)</p> <p>AWER 5490 Small Watershed Hydrology*** (dual listing 4490) 4 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, AWER 3700. (F)</p> <p>AWER 5550 Freshwater Invertebrates 3 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>AWER 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</p>
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Course Descriptions

several hydrologic measurements and water sampling in natural and manmade environments. Prerequisite: SOIL 3000 or instructor's permission. Also taught as SOIL 5600/6600. (Sp)

AWER 5640 Riparian Ecology and Management 3
(dual listing 7640)

Explores structure and function of riparian ecosystems and management options for maintaining sustainable ecological function. Prerequisite: NR/BIOL 2220, AWER 3700. (Sp)

AWER 5660 Watershed and Stream Restoration 2

Overview of the current theory and practice of watersheds and streams. Emphasizes field visits with restoration projects and specialists. Prerequisites: AWER/FRWS 5490/4490, AWER/GEO 5150, FRWS 5610 (or equivalent). Currently taught through Continuing Education as a summer short course. (Su)

AWER 5670 Watersheds and Stream Restoration Practicum 2

Capstone experience. Development of a restoration plan for a site, involving site planning and design. Currently taught through Continuing Education as a summer short course. (Su)

AWER 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/AWER 3600 or permission of instructor. Also taught as GEO 5680/6680 and BMET 5680/6680. (Sp)

AWER 5760 Remote Sensing: Modeling and Analysis 3
(dual listing 6760)

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)

AWER 5930 Geographic Information Analysis 4
(dual listing 6930)

Techniques of geographic information systems, data structures, data input and output, and data manipulation and analysis. Prerequisites: STAT 2000 or higher; AWER 4930 or ENVS 3500, or instructor's permission. (Sp)

AWER 6120 Aquatic Production Biology 2**
(dual listing 7120)

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)

AWER 6150 Fluvial Geomorphology 3
(dual listing 5150)

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. Prerequisite: GEO/AWER 3600. Also taught as GEO 6150/5150. (F)

AWER 6160 Hillslope and Landscape Geomorphology 3**

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/AWER 3600. Also taught as GEO 6160. (Sp)

AWER 6170 Fluvial Geomorphology Lab 2
(dual listing 5170)

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. Prerequisite: GEO/AWER 3600. Also taught as GEO 6170/5170. (F)

AWER 6200 Watershed Analysis 2**

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)

AWER 6230 Fish Ecology 2**
(dual listing 7230)

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)

AWER 6240 Graduate Internship/Co-op 1-9®

Graduate-level educational experience in internship/cooperative education position approved by department. (F,Sp,Su)

AWER 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 5250/6250 and BMET 5250/6250. (Sp)

AWER 6330 Large River Management 3
(d5330)

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. (F)

AWER 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: AWER 5490/4490; MATH 2280 (recommended). Also taught as CEE 6520. (Sp)

AWER 6530 Water Quality and Pollution 3
(dual listing 4530)

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)

AWER 6550 Assessment of Abundance and Related Parameters for Biological Populations 3

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)

AWER 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 SOIL 6600/5600. (Sp)

AWER 6650 Principles in Fishery Management 3
(dual listing 4650)

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)

AWER 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/AWER 3600 or permission of instructor. Also taught as GEO 6680/5680 and BMET 6680/5680. (Sp)

Course Descriptions

AWER 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)

AWER 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)

AWER 6800 Aquatic, Watershed, and Earth Resources Departmental Seminar 1®
(dual listing 7800)

Exposes students to new developments in research and management in the fields of aquatic, watershed, and earth resources. Features participation by students, faculty, and guest lecturers. Students should register for only one semester per year, but attend all year. (F,Sp)

AWER 6820 Stream Ecology 3
(dual listing 7820)

Explores structure, function, and dynamics of flowing water ecosystems. Prerequisites: NR/BIOL 2220 and AWER 4500. (F)

AWER 6870 Ecology Seminar 1®

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. Students should register for fall semester, but attend through spring semester. Also taught as BIOL 6870, ENVS 6870, and FRWS 6870. (F,Sp)

AWER 6900 Graduate Special Topics 1-6®

Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)

AWER 6910 Directed Study 1-6®

Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)

AWER 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. (F)

AWER 6930 Geographic Information Analysis 4
(dual listing 5930)

Techniques of geographic information systems, data structures, data input and output, and data manipulation and analysis. Prerequisites: STAT 2000; AWER 4930 or NR 3600 or instructor's permission. (Sp)

AWER 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: AWER 3700 or 4600 or SOIL 4600 or CEE 3430, or permission of instructor. Also taught as CEE 6940. (Sp)

AWER 6960 Graduate General Ecology 5

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, and FRWS 6960. (F)

AWER 6970 Thesis Research 1-12®

Offers credit for field or laboratory research at master's level. (F,Sp,Su)

AWER 6990 Continuing Graduate Advisement 1-9®

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. (F,Sp,Su)

AWER 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)

AWER 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)

AWER 7640 Riparian Ecology and Management 3
(dual listing 5640)

Explores structure and function of riparian ecosystems and management options for maintaining sustainable ecological function. Prerequisite: NR/BIOL 2220, AWER 3700. (Sp)

AWER 7800 Aquatic, Watershed, and Earth Resources Departmental Seminar 1®
(dual listing 6800)

Exposes students to new developments in research and management in the fields of aquatic, watershed, and earth resources. Features participation by students, faculty, and guest lecturers. Students should register for only one semester per year, but attend all year. (F,Sp)

AWER 7820 Stream Ecology 3
(dual listing 6820)

Explores structure, function, and dynamics of flowing water ecosystems. Prerequisites: NR/BIOL 2220 and AWER 4500. (F)

AWER 7900 Graduate Special Topics 1-6®

Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)

AWER 7910 Directed Study 1-6®

Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)

AWER 7970 Dissertation Research 1-12®

Offers credit for field or laboratory research at doctoral level. (F,Sp,Su)

AWER 7990 Continuing Graduate Advisement 1-9®

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. (F,Sp,Su)

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

*Taught 2006-2007.

**Taught 2007-2008.

***This course is taught alternating years. Check with department for information about when course will be taught.

Business Administration (BA)

See *Department of Business Administration, pages 191-198.*

BA 1350 Introduction to Business 3®

Investigation of the role of business in contemporary society, including an introduction to the general problems of business operation. (F)

BA 3080 QI Operations Research 3®

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)

BA 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)

Course Descriptions

<p>BA 3460 Fundamentals of Personal Investing 3 Examination of investment vehicles available to personal investor. Principal emphasis on corporate and government securities. Credit cannot be used toward requirements for finance major.</p>	<p>theory and creation. Prerequisites: Grade of <i>B-</i> (2.67) or better in BA 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>
<p>BA 3500 Fundamentals of Marketing 3[®] 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)</p>	<p>BA 4510 Buyer Behavior 3[®] 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 <i>B-</i> (2.67) or better in BA 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)</p>
<p>BA 3700 Operations Management 3[®] 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)</p>	<p>BA 4530 Marketing Research 3 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 <i>B-</i> (2.67) or better in BA 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>BA 4050 International Retailing 3 (dual listing 6050) Issues related to retailing in international markets, such as motivations, cultural influence on consumer behavior, and entry strategies. Prerequisites: Grade of <i>B-</i> (2.67) or better in BA 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 BA 6050.)</p>	<p>BA 4540 Marketing Institutions 3[®] 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 <i>B-</i> (2.67) or better in BA 3500; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>
<p>BA 4070 CI Retail Management 3 (dual listing 6070) Basic issues related to retail management, such as merchandising, location, promotion, store management, and retail image. Prerequisites: Grade of <i>B-</i> (2.67) or better in BA 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 BA 6070.)</p>	<p>BA 4550 Promotion Management 3 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 <i>B-</i> (2.67) or better in BA 3500; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>
<p>BA 4240 Merchandise Planning and Control 3 Issues related to pricing, budgeting, open-to-buy, and planning inventory. Prerequisites: Grade of <i>B-</i> (2.67) or better in BA 3500; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits.</p>	<p>BA 4590 Global Marketing Strategy 3[®] 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 <i>B-</i> (2.67) or better in BA 3500; BA 4540, 4550; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>
<p>BA 4300 International Finance 3 Overview of international financial management, including international financial markets, exchange rate behavior, and financing international trade. Prerequisites: Grade of <i>B-</i> (2.67) or better in BA 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>	<p>BA 4720 Production Planning and Control 3 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 <i>B-</i> (2.67) or better in BA 3700; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F)</p>
<p>BA 4410 Financial Institutions 3 Role of domestic and international financial institutions in supplying services to consumers, businessmen, and government. Prerequisites: Grade of <i>B-</i> (2.67) or better in BA 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>	<p>BA 4750 Production Simulation 3 Computer simulation of production environment, including scheduling, routing, labor capacity, inventory, and delivery. Emphasizes just-in-time concepts. Prerequisites: Grade of <i>B-</i> (2.67) or better in BA 3700; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (Sp)</p>
<p>BA 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 <i>B-</i> (2.67) or better in BA 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F)</p>	<p>BA 4790 Supply Chain Management 3 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 design. Prerequisites: Grade of <i>B-</i> (2.67) or better in BA 3700; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (Sp)</p>
<p>BA 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 <i>B-</i> (2.67) or better in BA 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (Sp)</p>	<p>BA 4800 Independent Research and Reading 1-3[®]</p>
<p>BA 4450 Financial Policy 3 Analyzes working capital management, capital budgeting, capital management, and other short-term and long-term financial decisions. Prerequisites: Grade of <i>B-</i> (2.67) or better in BA 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F,Sp)</p>	<p>BA 4950H 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)</p>
<p>BA 4460 Investments 3 Provides an understanding of security analysis and portfolio management. Market operations; risk and return; stock, bond, and option analysis; and portfolio</p>	<p>BA 5730 Process Analysis and Improvement 3 Application of quality management concepts to business processes. Students learn a variety of methods for documenting, analyzing, and improving a process. Topics include the DMAIC Cycle, process mapping, capacity analysis, root cause</p>

Course Descriptions

analysis, mistake proofing, and creative problem solving. Prerequisites: Grade of B- (2.67) or better in BA 3700; STAT 2300 or 3000; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits. (F)

BA 6050 International Retailing 3
(dual listing 4050)
Issues related to retailing in international markets, such as motivations, cultural influence on consumer behavior, and entry strategies.

BA 6070 Retail Management 3
(dual listing 4070)
Basic issues related to retail management, such as merchandising, location, promotion, store management, and retail image.

BA 6180 Intrasession MBA Workshop 0.5-1*
Intensive workshops designed to enhance the MBA experience.

BA 6350 Managerial Economics 3
Application of concepts and theories, based on managerial economics, to business problems. Addresses cost theory, pricing, market structures, and forecasting. (Sp)

BA 6410 Corporate Finance Essentials 1.5
Introduction of corporate finance principles for students entering a master's degree program in the College of Business. Prerequisite: Acceptance into a College of Business master's degree program. (Su)

BA 6420 Financial Problems 3
Corporate finance case course, dealing with problems in working capital management, capital budgeting, cost of capital problems, and corporate restructuring. (F)

BA 6440 Financial Decision Making 3
Presentation of financial modelling techniques impacting firm decisions. (Sp)

BA 6510 Marketing Techniques 1.5
Introduction of marketing principles for students entering a master's degree program in the College of Business. Prerequisite: Acceptance into a College of Business master's degree program. (Su)

BA 6520 Marketing Strategy 3
Advanced case approach to current marketing management problems. Emphasizes concepts, research, techniques, decision making, and marketing strategy development. (Sp)

BA 6540 Special Topics in Marketing 3
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: BA 6520. (Sp)

BA 6560 Market Analysis and Decision Making 3
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)

BA 6710 Essentials of Operations Management 1.5
Introduction of operations management principles for students entering a master's degree program in the College of Business. Prerequisite: Acceptance into a College of Business master's degree program. (Su)

BA 6720 Operations Management 3
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)

BA 6740 Decision Making in Operations Management 3
Selected topics in operations management pursued in depth. Topics and instructors vary from semester to semester. Prerequisite: BA 6720. (Sp)

BA 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)

BA 6900 Independent Research and Reading 1-3*
(F,Sp,Su)

BA 6960 Professional Paper 3
A paper of professional quality prepared by each student. Designed to demonstrate the ability to complete a major business-related project and to effectively present the results. (F,Sp,Su)

BA 6970 Thesis 1-6*
(F,Sp,Su)

BA 6990 Continuing Graduate Advisement 1-3*
(F,Sp,Su)

*Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

*This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Biological and Irrigation Engineering (BIE)

See Department of Biological and Irrigation Engineering, pages 171-176.

BIE 1880 Engineering Quantification of Biological Processes 3

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)

BIE 2330 Engineering Properties of Biological Materials 3

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)

BIE 3000 Instrumentation for Biological Systems 2

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: ECE 2210 or ETE 2300. (Sp)

BIE 3200 Introduction to Unit Operations in Biological Engineering 3

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)

BIE 3670 Transport Phenomena in Bio-Environmental Systems 3

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. Prerequisites: CEE 3500 and MAE 2300. Also taught as CEE 3670. (Sp)

BIE 3870 Biological Engineering Design I 1

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)

BIE 4250 Cooperative Practice 3

Planned work experience in industry or government. Detailed program must be approved prior to registration. Written report required. (F,Sp,Su)

BIE 4880 CI Biological Engineering Design II 3

Execution and completion of a comprehensive senior design project. Design reviews and written reports are required. Prerequisite: BIE 3870. (F,Sp,Su)

Course Descriptions

<p>BIE 4890 CI Biological Engineering Design III 3 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)</p> <p>BIE 4930 Special Studies 1-4® Independent or group study of biological and irrigation engineering subjects not covered in regular course offerings. (F,Sp,Su)</p> <p>BIE 5010 Principles of Irrigation Engineering 3 (dual listing 6010) Soil-water-plant relationships; evapotranspiration and water requirements; effective water use; irrigation scheduling; infiltration; irrigation systems planning. Prerequisites: CEE 3430, 3500, ENGR 2200. (F, Sp online, Su)</p> <p>BIE 5110 Sprinkle and Trickle Irrigation 4 (dual listing 6110) 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)</p> <p>BIE 5150 Surface Irrigation Design 3 (dual listing 6150) 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)</p> <p>BIE 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 AWER 5250/6250 and BMET 5250/6250. (Sp)</p> <p>BIE 5300 Irrigation Conveyance 3 (dual listing 6300) and Control Systems 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>BIE 5350 Drainage and Water Quality Engineering 3 (dual listing 6350) 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)</p> <p>BIE 5450 Field Evaluation of Agricultural 2 (dual listing 6450) Irrigation Systems Field measurements in pressurized and surface irrigation systems for performance evaluation and determination of water application uniformity and efficiency. (Su)</p> <p>BIE 5520 Irrigation Project Operation 3 (dual listing 6520) and Maintenance 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)</p> <p>BIE 5550 Groundwater Systems Engineering I 3 (dual listing 6550) 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)</p> <p>BIE 5610 Food and Bioprocess Engineering 3 (dual listing 6610) 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>BIE 5680 Soil-based Waste Management 2 (dual listing 6680) 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>BIE 5810 Biochemical Engineering 3 (dual listing 6810) 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>BIE 5830 Management and Utilization of 3 (dual listing 6830) Biological Solids and Wastewater 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>BIE 5850 Biomaterials Engineering 3 (dual listing 6850) 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. Prerequisites: BIE 2330, BIE/NFS 5610/6610. (F)</p> <p>BIE 5890 Tissue Engineering 3 (dual listing 6890) 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>BIE 5910 Introduction to Biosensors 3 (dual listing 6910) 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>BIE 5930 Special Studies 1-4® Independent or group study of biological and irrigation engineering subjects not covered in regular course offerings. (F,Sp,Su)</p> <p>BIE 6010 Principles of Irrigation Engineering 3 (dual listing 5010) Soil-water-plant relationships; evapotranspiration and water requirements; effective water use; irrigation scheduling; infiltration; irrigation systems planning. Prerequisites: CEE 3430, 3500, ENGR 2200. (F, Sp online, Su)</p> <p>BIE 6110 Sprinkle and Trickle Irrigation 4 (dual listing 5110) 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>BIE 6150 Surface Irrigation Design 3 (dual listing 5150) 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>
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Course Descriptions

<p>BIE 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 AWER 6250/5250 and BMET 6250/5250. (Sp)</p>	<p>BIE 6830 Management and Utilization of (dual listing 5830) Biological Solids and Wastewater 3 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>BIE 6260 Hydrology of Irrigation Agriculture 3 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>BIE 6850 Biomaterials Engineering 3 (dual listing 5850) 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. Prerequisites: BIE 2330, BIE/NFS 6610/5610. (F)</p>
<p>BIE 6300 Irrigation Conveyance (dual listing 5300) and Control Systems 3 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>BIE 6860 Research Orientation 1 (dual listing 7860) Promotes familiarization with departmental and graduate school rules, procedures, and research. (F)</p>
<p>BIE 6350 Drainage and Water Quality Engineering 3 (dual listing 5350) 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>BIE 6870 Research Planning 1 (dual listing 7870) Tools and techniques for writing research proposals and giving presentations. (Sp)</p>
<p>BIE 6450 Field Evaluation of Agricultural (dual listing 5450) Irrigation Systems 2 Field measurements in pressurized and surface irrigation systems for performance evaluation and determination of water application uniformity and efficiency. (Su)</p>	<p>BIE 6890 Tissue Engineering 3 (dual listing 5890) 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>BIE 6520 Irrigation Project Operation (dual listing 5520) and Maintenance 3 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>BIE 6910 Introduction to Biosensors 3 (dual listing 5910) 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>BIE 6550 Groundwater Systems Engineering I 3 (dual listing 5550) 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>BIE 6930 Special Problems 1-4® Independent study of problems in biological and agricultural engineering. (F,Sp,Su)</p>
<p>BIE 6610 Food and Bioprocess Engineering 3 (dual listing 5610) 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>BIE 6970 Thesis Research 1-8® Credit for MS research and report requirements. (F,Sp,Su)</p>
<p>BIE 6680 Soil-based Waste Management 2 (dual listing 5680) 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>BIE 6990 Continuing Graduate Advisement for MS and PhD Students 1-9® (F,Sp,Su)</p>
<p>BIE 6810 Biochemical Engineering 3 (dual listing 5810) 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>BIE 7350 Groundwater Systems Engineering II 4 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>BIE 7600 Advanced Research Topics 3 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>BIE 7860 Research Orientation 1 (dual listing 6860) 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 7970 Dissertation Research 1-10®
 (F,Sp,Su)

BIE 7990 Continuing Graduate Advisement for PhD Students 1-9®
 (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 177-190.

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)

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 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. Not open to students with credit in BIOL 1110. (F,Sp,Su)

BIOL 1110 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)

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 BLS Biology I (formerly BIOL 1210 BLS) 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. (F)

BIOL 1620 BLS Biology II (formerly BIOL 1220 BLS) 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 PSB 2040. (Sp)

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 FRWS 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 FRWS 2310. (F)

BIOL 2320 Human Anatomy (formerly BIOL 2010) 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)

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 (formerly BIOL 2000) 4®
 Functioning of the human body, with emphasis upon major organ systems. Medical and athletic examples used to illustrate important concepts. (F,Sp,Su)

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)

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)

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)

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)

BIOL 3040 DSC Plants and Civilization 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)

BIOL 3060 QI Principles of Genetics (formerly BIOL 3200 QI) 4
 Introduction to transmission, population, and molecular aspects of modern genetics. Prerequisites: BIOL 1610; MATH 1050; CHEM 1110 or 1220. (F,Sp,Su)

BIOL 3065 Genetics Laboratory (formerly BIOL 4100) 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)

BIOL 3100 CI Bioethics 3
 Discussion of current controversial ethical issues in medicine, animal rights, and environmental conservation. (Sp)

Course Descriptions

<p>BIOL 3220 QI Field Ecology 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>BIOL 3300 BLS General Microbiology 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. (F,Sp)</p> <p>BIOL 3500 DSC Plagues, Pests, and People 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>BIOL 3760 Independent Study 1-3® 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)</p> <p>BIOL 4000 Human Dissection 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>BIOL 4060 CI Exploring Animal Behavior 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>BIOL 4230 QI Applied Mathematics in Biology** 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>BIOL 4250 Internship/Co-op 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>BIOL 4400 QI Plant Physiology 4 Introduction to plant metabolism, water relations, and growth. Prerequisites: BIOL 1620; MATH 1050 or higher. (F)</p> <p>BIOL 4410 Plant Structure 3 Morphology, anatomy, and development of seed plants, with an emphasis on angiosperms. Two lectures and one lab. Prerequisites: BIOL 1610, 1620. (Sp)</p> <p>BIOL 4420 Plant Taxonomy 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)</p> <p>BIOL 4500 Applied Entomology 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>BIOL 4710 Teaching Internship 1® Advanced undergraduates function as teaching interns under supervision of faculty member. Only 1 credit may be counted toward Biology degree electives. Prerequisite: Consent of instructor. (F,Sp,Su)</p>	<p>BIOL 4750 Topics in Biology (Topic) 1-3® (F,Sp,Su)</p> <p>BIOL 5010 Biogeography 3 (dual listing 6010) 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>BIOL 5020 QI Modeling Biological Systems* 3 (dual listing 6020) 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>BIOL 5030 Individual-Based Models in Ecology and Evolution* 3 (dual listing 6030) 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>BIOL 5100 Neurobiology** 3 (dual listing 6100) 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 5600 or 5620; CHEM 1220; and PHYX 2120 or 2220. (F)</p> <p>BIOL 5150 Immunology 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>BIOL 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, NFS 5160, and PSB 5160. (F)</p> <p>BIOL 5190 Molecular Genetics 3 (dual listing 6190) 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>BIOL 5210 Cell Biology 3 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>BIOL 5220 Endocrine Aspects of Nutrition 2 (dual listing 6220) 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>BIOL 5230 Developmental Biology 3 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>BIOL 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</p>
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Course Descriptions

BioCAD. Prerequisite: CHEM 3700. Also taught as ADVS 5240, NFS 5240, and PSB 5240. (Sp)

BIOL 5250 CI Evolutionary Biology 3
Current topics in organic evolution from molecular to macroevolutionary scales. Prerequisite: BIOL 3060 or FRWS 4880 or permission of instructor; BIOL/NR 2220 recommended. (F,Sp)

BIOL 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, NFS 5260, and PSB 5260. (F)

BIOL 5300 QI Microbial Physiology 4
Lectures, discussions, and laboratory investigations concerning the physiology, structure, and metabolism of prokaryotic and eukaryotic microbes. Prerequisites: BIOL 3300, MATH 1210. (Sp)

BIOL 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 SOIL 5310. (F)

BIOL 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 SOIL 5320. (F)

BIOL 5330 Virology 3
Structure, replication, genetics, and molecular biology of viruses. Virus-host interactions. Viral diseases and antiviral agents. Prerequisites: BIOL 3060 and 3300. (Sp)

BIOL 5370 Molecular Methods in Nutrition Science (dual listing 6370) 2
Theory of modern techniques used to study macromolecules and ions. Prerequisite: CHEM 3700. Also taught as ADVS/NFS/PSB 5370/6370. (F)

BIOL 5380 Evolutionary Genetics (dual listing 6380) 4
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)

BIOL 5410 Introduction to Plant Pathology 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. Prerequisites: BIOL 1610, 1620; BIOL 3300 recommended. (Sp)

BIOL 5420 CI Forest and Shade Tree Pathology 3
Nature, cause, and management of forest diseases. Also taught as FRWS 5420 and PLSC 5420. (Sp)

BIOL 5440 Plant Molecular, Cellular, and Developmental Biology I* (dual listing 6440) 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 PLSC 5440/6440. (Sp)

BIOL 5450 Plant Molecular, Cellular, and Developmental Biology II* (dual listing 6450) 3**
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)

BIOL 5530 Insect Systematics and Evolution 3
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)

BIOL 5550 Freshwater Invertebrates 3
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 AWER 5550. (Sp)

BIOL 5560 Ornithology 3
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)

BIOL 5570 Herpetology 3
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)

BIOL 5580 Mammalogy 3
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)

BIOL 5590 Animal Community Ecology (dual listing 6590) 4**
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)

BIOL 5600 Comparative Animal Physiology (dual listing 6600) 3
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 CHEM 1220; or permission of instructor. (F)

BIOL 5610 QI Animal Physiology Laboratory 2
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 5600 or 5620 (either may be taken concurrently). (F,Sp)

BIOL 5620 Medical Physiology* 3
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. (Sp)

BIOL 5730 Genomic Technologies 4
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)

BIOL 5800 Undergraduate Research 1-3®
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)

BIOL 5810 Bachelor's Thesis 3
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)

BIOL 5850 Microbiology Seminar (dual listing 6850) 1®
(F,Sp,Su)

Course Descriptions

BIOL 6010 (dual listing 5010)	Biogeography	3	BIOL 6370 (dual listing 5370)	Molecular Methods in Nutrition Science	2
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)			Theory of modern techniques used to study macromolecules and ions. Prerequisite: CHEM 3700. Also taught as ADVS/NFS/PSB 6370/5370. (F)		
BIOL 6020 (dual listing 5020)	Modeling Biological Systems*	3	BIOL 6380 (dual listing 5380)	Evolutionary Genetics	4
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)			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)		
BIOL 6030 (dual listing 5030)	Individual-Based Models in Ecology and Evolution*	3	BIOL 6440 (dual listing 5440)	Plant Molecular, Cellular, and Developmental Biology I***	3
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)			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)		
BIOL 6100 (dual listing 5100)	Neurobiology**	3	BIOL 6450 (dual listing 5450)	Plant Molecular, Cellular, and Developmental Biology II***	3
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 5600 or 5620; CHEM 1220; and PHYX 2120 or 2220. (F)			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)		
BIOL 6180	Molecular Population Genetics Laboratory**	5	BIOL 6510	Insect-Plant Interactions**	2
Application of molecular techniques to population genetics, ecology, and systematics. Includes experimental and sampling design, and data analysis. Prerequisite: BIOL 6170/5170 or permission of instructor. Also taught as FRWS 6180. (F)			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)		
BIOL 6190 (dual listing 5190)	Molecular Genetics	3	BIOL 6520	Ecological Vertebrate Physiology***	3
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)			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)		
BIOL 6200	Biogeochemistry of Terrestrial Ecosystems**	3	BIOL 6590 (dual listing 5590)	Animal Community Ecology**	4
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 FRWS 6200 and SOIL 6200. (F)			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)		
BIOL 6210	Advanced Cell Biology**	3	BIOL 6600 (dual listing 5600)	Comparative Animal Physiology	3
Presents most recent advances in cell biology research. Prerequisites: BIOL 3060 and 5210. (Sp)			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 CHEM 1220; or permission of instructor. (F)		
BIOL 6220 (dual listing 5220)	Endocrine Aspects of Nutrition	2	BIOL 6740	Cellular Communication by Small Molecules and Proteins**	3
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)			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 equivalent. Also taught as CHEM 6740. (Sp)		
BIOL 6250	Graduate Internship	1-6	BIOL 6750	Topics in Biology (Topic)	1-3[®]
Work experience, for which the student is paid, tied to academics in a graduate student's field of study. Prerequisite: Permission of department head prior to enrollment. (F,Sp,Su)			(F,Sp,Su)		
BIOL 6260	Behavioral Ecology***	3	BIOL 6800	Biology Seminar	1[®]
Focuses on current topics, emphasizing critical reading and thinking skills. Includes lectures, student presentations, and discussions of primary literature. (Sp)			Format for general graduate-level seminar topics. (F,Sp)		
			BIOL 6820	Plant Biology/Pathology Seminar	1[®]
			(F,Sp)		
			BIOL 6830	Entomology Seminar	1[®]
			(F,Sp)		

Course Descriptions

BIOL 6840 (F,Sp)	Zoology Seminar	1®
BIOL 6850 (dual listing 5850) (F,Sp,Su)	Microbiology Seminar	1®
BIOL 6870	Ecology Seminar	1®
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. Students should register for fall semester, but attend through spring semester. Also taught as AWER 6870, ENVS 6870, and FRWS 6870. (F)		
BIOL 6910	Special Problems	1-3®
Individual or group study under faculty guidance. Prerequisite: Permission of instructor. (F,Sp,Su)		
BIOL 6960	Graduate General Ecology	5
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 AWER 6960, ENVS 6960, and FRWS 6960. (F)		
BIOL 6970 (F,Sp,Su)	Thesis Research	1-12®
BIOL 6990 (F,Sp,Su)	Continuing Graduate Advisement	1-9®
BIOL 7750 (F,Sp,Su)	Topics in Biology	1-3
BIOL 7970 (F,Sp,Su)	Dissertation Research	1-12®
BIOL 7990 (F,Sp,Su)	Continuing Graduate Advisement	1-9®

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

©This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*Taught 2006-2007.

**Taught 2007-2008.

***This course is taught alternating years. Check with department for information about when course will be taught.

Business Information Systems (BIS)

See Department of Business Information Systems, pages 199-204.

BIS 2100	Principles of Management Information Systems	3
Covers principles of management information systems on 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. Prerequisites: Cumulative GPA of 2.5 or higher; Computer Information Literacy (CIL) Exam or equivalent, or OSS 1400; STAT 1040 or MATH 1030 or MATH 1050 (MATH 1050 or equivalent is required for College of Business majors). (F,Sp,Su)		
BIS 2200 CI (formerly BIS 2550 CI)	Business Communication	3
Development and application of effective oral and written business communication skills. Language/mechanics, grammar, and document formatting. Prerequisites: ENGL 1010; STAT 1040 or MATH 1030 or 1050 or 1100 (MATH 1050 or 1100 is required for College of Business majors); GPA of 2.5 or higher; and passing score on College of Business English Usage Exam or ACT English section score of 29. (F,Sp,Su)		

BIS 3000	Principles of Business and Marketing Education	1
Covers principles of business and marketing education, including professionalism, historical overview of the field, student organizations, advisory committees, applied technology education, and school-to-careers program. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
BIS 3300	Clinical Experience I	1
First business/marketing clinical practicum (40 hours minimum) in middle and secondary schools; must be taken concurrently with BIS 3400 methods class. Required at Level I. Prerequisites: Program admission; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
BIS 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: One programming language; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
BIS 3400	Methods of Teaching Keyboarding and Microcomputing	3
Psychological principles and methodology for teaching keyboarding, word processing, microcomputing, and accounting. Includes equipment and laboratory needs, classroom management, and lesson planning. Prerequisites: OSS 1420; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F)		
BIS 3500	Management Information Systems Development	3
Creation of applications to solve business problems or support common functions, such as inventory control, sales management, or personnel management. Students create working systems using widely-used Windows software. Prerequisites: CS 1400; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
BIS 4100	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: BIS 2100; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
BIS 4300	Clinical Experience II	1
Second business/marketing clinical practicum (40 hours minimum) in middle and secondary schools; must be taken concurrently with BIS 4400 methods class. Required at Level 2. Prerequisites: Program admission and completion of Level 1; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
BIS 4330 (dual listing 6330)	Database Implementation	3
Application of database concepts using industrial database products. Includes structured query language (SQL) development, database programming development, front- and back-end interface development, web database design, database administration basics, and integration of database tools within a project context. Prerequisites: BIS 3330 or equivalent; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)		
BIS 4350	Introduction to Training and Development	3
Introductory course in training and development. Examines various roles of the human resource manager in the training domain. Students learn systems approach to developing and implementing training programs in business. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (Sp)		
BIS 4400	Business Education and Marketing Education Methods	3
Instructional methods for conceptual business and marketing classes. Includes methods for advising student organizations, school to careers programs, and relationships between general and applied technology education. Prerequisites: ECON 1500, MHR 2050, ACCT 2010; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (Sp)		

Course Descriptions

BIS 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)			
BIS 4950H		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)			
BIS 5100		Systems Design and Implementation	3
Management, evaluation, documentation, maintenance, and reengineering of business information systems projects. Prerequisites: BIS 3330; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. Corequisite: BIS 5110. (F,Sp)			
BIS 5110		Systems Design Laboratory	1
Required laboratory for BIS 5100, allowing students to complete assigned team projects. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)			
BIS 5300		Advanced Data Communications	3
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; and completion of at least 40 credits. (F,Sp)			
BIS 5450 (dual listing 6450)		Designing Graphical User Interfaces for Electronic Commerce	3
Integration of specialized web-design software, current multimedia technology (e.g., video/audio streaming, computerized slide shows, graphic animations, digital graphics) and web-design principles to create graphical user interfaces for e-commerce sites. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)			
BIS 5500		Business/Marketing Teaching Seminar	2
Capstone seminar focused upon student business teaching issues, professional development, and principles of effective instruction, emphasizing reflective teaching. Must be taken concurrently with BIS 5600. Prerequisites: Level 1 and Level 2 completion; student teaching placement; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)			
BIS 5630		Business/Marketing Student Teaching	10
A 13-week culminating student teaching experience in which students assume full-time teaching responsibilities under the direction of cooperating teachers in major and minor fields. Must be taken concurrently with BIS 5500. Prerequisites: Level 1 and Level 2 completion; student teaching placement; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)			
BIS 5650 (dual listing 6650)		Advanced Website Development	3
Creation of static and dynamic HTML pages, CGI, Perl, and Java script. Students create websites using Access or Oracle as the database backend. This technical course maintains a business focus as a transaction-oriented commercial site. Prerequisites: BIS 3330 and 3500; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)			
BIS 5700	DSS	Internet Management and Electronic Commerce	3
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. (F,Sp)			

BIS 5800 (dual listing 6800)		Security of Business Information Systems	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: BIS 3500 or graduate admission; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F)			
BIS 5950		Independent Readings	1-5[®]
Designed for individual student projects as approved by the department. (F,Sp,Su)			
BIS 6050		Advanced Web-Based Management Information Systems Development	3
Students learn how to design, develop, and implement an Internet commerce website. Includes instruction in modeling and building an advanced management website system. Prerequisites: BIS 3330 and 3500. (F,Sp)			
BIS 6110		Workshop	1-3[®]
Intensive workshops. (F,Sp,Su)			
BIS 6120		Business Information Systems Development	3
Business information systems development, including analysis, design, and implementation. Students develop a working prototype to solve a real-world information systems problem. (Sp)			
BIS 6150		Communication for Business	3
In-depth study of the process for preparing written business communications and related oral presentations. Preparation of reports relevant to student's major. Prerequisite: BIS 2200 or equivalent. (F,Su)			
BIS 6180		Intrasection MBA Workshop	0.5-1[®]
Intensive workshops designed to enhance the MBA experience.			
BIS 6200		Business Data Communication Systems	3
Introduction to business data communications, including concepts, network architecture, data communication software and hardware, distributed information systems, and business communication system services. (F)			
BIS 6250		Graduate Internship	1-6[®]
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)			
BIS 6330 (dual listing 4330)		Database Implementation	3
Application of database concepts using industrial database products. Includes structured query language (SQL) development, database programming development, front- and back-end interface development, web database design, database administration basics, and integration of database tools within a project context. Prerequisite: BIS 3330 or equivalent. (F,Sp)			
BIS 6350		Managing Business Training Programs	3
Examines various management topics in the training and development field, including program development, implementation, and evaluation. Discusses the various roles of training program managers. (F)			
BIS 6400		Local Area Network Management for Business	3
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)			
BIS 6410		Human-Computer Interface Design	3
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.			

Course Descriptions

<p>BIS 6440 Information and Decision Making 3 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)</p>	<p>Internet, basic business, accounting, marketing, economics, and other business subjects in cognitive, psychomotor, and affective instructional domains. Taught online.</p>
<p>BIS 6450 Designing Graphical User Interfaces 3 (dual listing 5450) for Electronic Commerce Integration of specialized web-design software, current multimedia technology (e.g., video/audio streaming, computerized slide shows, graphic animations, digital graphics) and web-design principles to create graphical user interfaces for e-commerce sites. (F,Sp)</p>	<p>BIS 6750 Business Process Reengineering 3 Using Information Technology 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.</p>
<p>BIS 6500 Developing Business Information Systems 3 with Advanced Software Concepts 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. (F,Sp,Su)</p>	<p>BIS 6760 The Administration and Organization of 3 School-to-Careers Programs in Business Covers the philosophy of the school-to-careers movement in the U.S., as well as how to organize and administer such a program. Includes discussion of the school-based, linking, and work-based components of such a program.</p>
<p>BIS 6510 Information Systems for Business 3 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. (F,Sp,Su)</p>	<p>BIS 6770 Competency-based Instruction 3 Business teachers learn how to develop competency-based instruction by completing a CBI project. (F,Sp,Su)</p>
<p>BIS 6550 International Business Communication 3 Culture-general and culture-specific study of business communication in the diverse world of international business, from both theoretical and applied perspectives. (F,Su)</p>	<p>BIS 6800 Security of Business Information Systems 3 (dual listing 5800) In-depth exploration of security issues in business information systems. Includes workstation, workgroups, 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: BIS 3500 or graduate admission. (F)</p>
<p>BIS 6600 Business Teaching Internship 1-3® Graduate-level business teaching experience at approved corporate, secondary, or post-secondary sites. (F,Sp,Su)</p>	<p>BIS 6810 Introduction to the Research Process 3® Essential scientific research concepts of theory development and data collection. 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. (Sp,Su)</p>
<p>BIS 6640 E-Commerce Data Interchange Using XML 3 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: BIS 3100, 3330, and 3500.</p>	<p>BIS 6950 Independent Readings 1-3® Specialized projects for graduate students. (F,Sp,Su)</p>
<p>BIS 6650 Advanced Website Development 3 (dual listing 5650) Creation of static and dynamic HTML pages, CGI, Perl, and Java script. Students create websites using Access or Oracle as the database backend. This technical course maintains a business focus as a transaction-oriented commercial site. Prerequisites: BIS 3330 and 3500. (F,Sp,Su)</p>	<p>BIS 6970 Master's Paper 1-6® Master's-level thesis or Plan B research credit. (F,Sp,Su)</p>
<p>BIS 6660 The Adult Business Learner 3 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.</p>	<p>BIS 6990 Continuing Graduate Advisement 1-3® (F,Sp,Su)</p>
<p>BIS 6700 Information Systems Strategies 3 for Electronic Commerce 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. (F)</p>	<p>BIS 7250 Graduate Research Internship 1-3® For doctoral students desiring to improve their research capability. Prior approval required. Repeatable to a maximum of six credits. (F,Sp,Su)</p>
<p>BIS 6720 Instruction and Training in Business 3 and Marketing Education Designed for experienced training and educational personnel. Focuses on ways to improve instructional techniques and approaches. Compares traditional teacher/trainer-style teaching to student-centered teaching and training. (Su)</p>	<p>BIS 7330 School-Based Internship 3-9® Internship for doctoral candidates preparing to be school supervisors. Repeatable to a maximum of 9 credits. (F,Sp,Su)</p>
<p>BIS 6730 Teaching Methods in Business 3 Education, Marketing Education, and Information Systems Advanced methodology for teaching business, marketing, and information system subjects, including techniques for teaching word processing, keyboarding,</p>	<p>BIS 7610 Critical Analysis of Issues 3 Examines critical analysis/thinking techniques, creative problem solving, and the identification of issues and trends in the field.</p>
	<p>BIS 7950 Independent Readings 1-3® Independent readings for graduate students. Repeatable to a maximum of 6 credits. (F,Sp,Su)</p>
	<p>BIS 7970 Doctoral Dissertation 1-12® Doctoral-level dissertation research credit. (F,Sp,Su)</p>
	<p>BIS 7990 Continuing Graduate Advisement 1-9® Enrollment restricted to doctoral-level students only. Signature of department head required. (F,Sp,Su)</p>

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Course Descriptions

Biometeorology (BMET)

See *Department of Plants, Soils, and Biometeorology*, pages 459-472.

BMET 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)		
BMET 3250	Aviation Weather	3
Discussion, observation, and analysis of weather important for pilots and those associated with air travel. (Sp)		
BMET 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: BMET 2000 or GEOG 1130. Also taught as AWER 3820. (Sp)		
BMET 4300	General Meteorology	3
Introductory meteorology for students with background in physical sciences. Emphasis placed on physical processes (quantitatively) in the atmosphere, resulting in general weather phenomena around the world. Prerequisite: BMET 2000. Will not be taught during Fall 2005. Contact department for further information. (F)		
BMET 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 AWER 5250/6250 and BIE 5250/6250. (Sp)		
BMET 5400	Introduction to 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)		
BMET 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)		
BMET 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: GEOL/AWER 3600 or permission of instructor. Also taught as GEOL 5680/6680 and AWER 5680/6680.		
BMET 5700	Environmental Measurements	3
(dual listing 6700) Examination of critical instrumentation and principles involved in measuring key properties of terrestrial environment. Consideration of measurements in soils, plants, and atmosphere. Will not be taught during Spring 2006. Contact department for further information. (Sp)		
BMET 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 AWER 6250/5250 and BIE 6250/5250. (Sp)		

BMET 6400	Introduction to 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)		
BMET 6410	Applied Agricultural Meteorology	2
Explores applied concepts in agricultural meteorology, with emphasis on weather-agriculture and microclimate-agriculture relationships. Includes crop modeling applications. Course materials, resources, and teaching provided in cooperation with Iowa State University. Not currently being taught. Contact department for further information.		
BMET 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)		
BMET 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: GEOL/AWER 3600 or permission of instructor. Also taught as GEOL 6680/5680 and AWER 6680/5680.		
BMET 6700	Environmental Measurements	3
(dual listing 5700) Examination of critical instrumentation and principles involved in measuring key properties of terrestrial environment. Consideration of measurements in soils, plants, and atmosphere. Will not be taught during Spring 2006. Contact department for further information. (Sp)		
BMET 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)		
BMET 6910	Special Problems in Climatology	3[®]
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)		

[®]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.

Business (BUS)

See *College of Business*, pages 111-115.

BUS 1000	Business Orientation	0.5
Orients freshmen and transfer students to College 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 College of Business.		
BUS 2250	Introductory Internship	1-9[®]
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 College of Business. Prerequisite: Permission of instructor. (F,Sp,Su)		
BUS 3010	Intermediate Accounting I	3
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.		

Course Descriptions

BUS 3020	Intermediate Accounting II	3
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.		
BUS 3100	DSS Survey of Management Information Systems	3
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)		
BUS 3110	DSS Management Fundamentals	3
Study of the role of management, leadership theory, defining goals, organizing work, and managing performance. Prerequisite: Cumulative GPA of 2.5 or higher.		
BUS 3250	Discussions With Business Leaders	1
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. (F,Sp)		
BUS 3310	Managerial Cost Accounting	3
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.		
BUS 3330	Essentials of Database Systems	3
Includes essential theory of database systems in areas such as E/R design, relational design, the SQL language, and distributed databases. Prerequisites: BIS 2100, completion of at least 40 credits, and cumulative GPA of 2.5 or higher.		
BUS 3400	QI Finance Fundamentals	3
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.		
BUS 3410	Federal Income Tax I	3
Study of tax law and procedures for individuals, with an introduction to corporations and other entities. Prerequisite: Cumulative GPA of 2.5 or higher.		
BUS 3500	Marketing Principles	3
Study of basic marketing principles, functions, concepts, and terminology. Prerequisite: Cumulative GPA of 2.5 or higher.		
BUS 3510	Business Programming	3
Includes basics of business systems development using programming languages supporting the Windows environment. Prerequisites: BIS 2100, completion of at least 40 credits, and cumulative GPA of 2.5 or higher.		
BUS 3700	Operations Management Fundamentals	3
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.		
BUS 4010	Selected Topics in Finance	3
Selected topics in finance pursued in depth. Topics may vary. Prerequisites: Cumulative GPA of 2.5 or higher; BUS 3400.		
BUS 4020	Selected Topics in Marketing	3
Selected topics in marketing pursued in depth. Topics may vary. Prerequisites: Cumulative GPA of 2.5 or higher; BUS 3500.		
BUS 4030	Selected Topics in Management	3
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.		
BUS 4040	Selected Topics in Human Resources	3
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.		

BUS 4050	Selected Topics in Information Systems	3
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.		
BUS 4250	Advanced Internship	1-9[®]
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)		
BUS 4880	CI Business Strategy	3
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.		
BUS 5100	Systems Analysis and Design and Project Management	3
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.		
BUS 6250	Graduate Internship	1-6[®]
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)		
BUS 6310	MBA Career Development	0.5[®]
Provides background in theory and practice of career development, including student assessment, organizational entry, and career planning and mentoring. (F,Sp,Su)		
BUS 6860	Applied Business Research	3
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)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Civil and Environmental Engineering (CEE)

See Department of Civil and Environmental Engineering, pages 212-219.

CEE 1880	Civil and Environmental Engineering Orientation and Computer Applications	1
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)		
CEE 2240	Engineering Surveying	3
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. Prior to taking this course, students should have taken at least high school trigonometry. (F,Su)		
CEE 2250	Cooperative Practice I	3
Planned work experience in industry. Detailed program must have prior approval. Written report required. Prerequisite: Preprofessional enrollment in either the Civil or Environmental Engineering program. (F,Sp,Su)		
CEE 2870	Sophomore Seminar	1
Supervised discussion and review of problems encountered by professional engineers. (Sp)		

Course Descriptions

<p>CEE 2890 Environmental Engineering Sophomore Seminar 1</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>CEE 3010 Mechanics of Materials 2</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 laboratories to demonstrate the mechanical behavior of materials. Prerequisites: ENGR 2000 and 2040. (F)</p> <p>CEE 3020 Structural Analysis 2</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>CEE 3030 Uncertainty in Engineering Analysis 2</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>CEE 3080 Design of Reinforced Concrete Structures 3</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>CEE 3210 Introduction to Transportation Engineering 3</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>CEE 3430 Engineering Hydrology 3</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>CEE 3500 Civil and Environmental Engineering Fluid Mechanics 3</p> <p>Explores fluid properties, hydrostatics, fluid dynamics similitude, energy and momentum principles, closed conduit flow, open channel flow, and flow measurement. Includes laboratory exercises in flow measurement, open channel flow, pipe friction, physical modeling, and data collection. Prerequisites: MATH 1220; MATH 2210 or 2250; ENGR 2010, 2030. (F,Sp)</p> <p>CEE 3510 Civil and Environmental Engineering Hydraulics 3</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>CEE 3610 Environmental Management 3</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. Also taught as PUBH 3610. (F)</p> <p>CEE 3640 Water and Wastewater Engineering 4</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. Prerequisite: CEE/PUBH 3610. (Sp)</p>	<p>CEE 3670 Transport Phenomena in Bio-Environmental Systems 3</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. Prerequisites: CEE 3500 and MAE 2300. Also taught as BIE 3670. (Sp)</p> <p>CEE 3780 Solid and Hazardous Waste Management 3</p> <p>Introduction to integrated management of municipal and industrial solid waste; household, commercial, and industrial hazardous waste; and resource recovery and recycling 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>CEE 3870 Professional/Technical Writing in Civil and Environmental Engineering 2</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. (F)</p> <p>CEE 3880 Civil Engineering Design I 1</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>CEE 3890 Environmental Engineering Design I 1</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>CEE 4200 Engineering Economics 2</p> <p>Applications of the mathematics of finance to engineering decision making. (F)</p> <p>CEE 4300 Engineering Soil Mechanics 4</p> <p>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. Prerequisites: CEE 3500 (taken previously or concurrently) and ENGR 2140. (Sp)</p> <p>CEE 4790 CI Environmental Engineering Design II 2</p> <p>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>CEE 4870 CI Civil Engineering Design II 2</p> <p>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>CEE 4880 CI Civil Engineering Design III 2</p> <p>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>CEE 4890 CI Environmental Engineering Design III 2</p> <p>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>CEE 4930 Independent Study 1-3*</p> <p>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>
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Course Descriptions

<p>CEE 5010 Matrix Analysis/Finite Element 3 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>CEE 5020 Finite Element Methods in Solid Mechanics I 3 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>CEE 5050 Design of Wood and Masonry Structures 3 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>CEE 5060 Mechanics of Composite Materials I 3 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>CEE 5070 Structural Steel Design 3 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>CEE 5080 Numerical Methods in Elasticity 3 (dual listing 6080) 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>CEE 5100 Infrastructure Evaluation and Renewal 3 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>CEE 5190 Geographic Information Systems for Civil Engineers 3 (dual listing 6190) 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>CEE 5220 Traffic Engineering 3 (dual listing 6220) 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>CEE 5230 Geometric Design of Highways 3 (dual listing 6230) 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>CEE 5240 Urban and Regional Transportation Planning 3 (dual listing 6240) 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>CEE 5250 Environmental Engineering Cooperative Practice 2 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>CEE 5350 Foundation Analysis and Design 3 (dual listing 6350) 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>CEE 5380 Earthquake Engineering 3 (dual listing 6380) 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>CEE 5430 Groundwater Engineering 3 (dual listing 6430) 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>CEE 5450 Hydrologic Modeling 3 (dual listing 6450) Case studies of hydrologic modeling and decision methods: (1) Real-time flood warning; (2) extended streamflow prediction; (3) probabilistic water resource management; and (4) physical modeling of ungaged basins. Prerequisite: CEE 3430. (Sp)</p> <p>CEE 5460 Water Resources Engineering 3 (dual listing 6460) 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. (F)</p> <p>CEE 5470 Sedimentation Engineering 3 (dual listing 6470) Explores river response, sediment transport, sediment and watershed yield, flow resistance, scour and erosion, and floodplain management. Prerequisite: CEE 3500. (Sp)</p> <p>CEE 5500 Open Channel Hydraulics with an Emphasis on Gradually Varied Flow 3 (dual listing 6500) 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>CEE 5540 Hydraulic Structures Design 3 (dual listing 6540) 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>CEE 5550 Hydraulics of Closed Conduits 3 (dual listing 6550) 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>CEE 5610 Environmental Quality Analysis 3 (dual listing 6610) 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>
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Course Descriptions

<p>CEE 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 SOIL 5620. (F)</p> <p>CEE 5670 Hazardous Chemicals Handling and Safety 2 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>CEE 5680 Soil-based Waste Management 2 (dual listing 6680) 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> <p>CEE 5690 Natural Systems Engineering 3 (dual listing 6690) Application of modeling tools commonly utilized in water resources systems for assessment of environmental impacts associated with engineered systems. Topics include: water resources modeling; physical, chemical, and biological process effects; assessment methods; data integration techniques; and impact assessment. Prerequisites: CEE/PUBH 3610, CEE 3500, 3510, 3640. (F)</p> <p>CEE 5700 Field Sampling Techniques for 3 (dual listing 6700) Natural Systems Engineering Provides students with hands-on approach to utilizing several of the most commonly applied spatial and temporal sampling techniques for data acquisition in support of natural systems modeling. Explores standard and advanced surveying techniques for water quality, stream geomorphology, and hydraulics, utilizing levels, total stations, laser levels, GPS, and hydroacoustic technologies. Integrative sampling strategies across spatial and temporal scales emphasized for multi-disciplinary studies. Prerequisite: CEE 5690/6690. (F)</p> <p>CEE 5710 Pollution Prevention and 2 Industrial Ecology*** 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. Prerequisites: CEE/BIE 3670, CEE 3780, MAE 2400. (Sp)</p> <p>CEE 5720 Natural Systems Modeling 3 (dual listing 6720) 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 limitation of specific modeling approaches, while also stressing integrative multi-disciplinary nature of impact assessment frameworks. Prerequisite: CEE 5690/6690. (Sp)</p> <p>CEE 5730 Analysis and Fate of 3 (dual listing 6730) Environmental Contaminants 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. Prerequisites: CHEM 1210, 2300. Also taught as PUBH 5730/6730. (Sp)</p> <p>CEE 5750 Air Quality Measurements 2 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>CEE 5760 Hydraulic Structures Field Course 1 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>CEE 5790 Accident and Emergency Management*** 3 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>CEE 5810 Biochemical Engineering 3 (dual listing 6810) 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>CEE 5830 Management and Utilization of 3 (dual listing 6830) Biological Solids and Wastewater 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>CEE 5860 Air Quality Management 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>CEE 5870 Hazardous Waste Incineration 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/BIE 3670, CEE 3780, MAE 2300; CEE 5860 (may be taken concurrently). (Sp)</p> <p>CEE 5880 Remediation Engineering 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 3430, 3640, 3780, CEE/PUBH 3610. (F)</p> <p>CEE 5900 Cooperative Practice II 3 A planned work experience in industry. Detailed program must have prior approval. Written report required. (F,Sp,Su)</p> <p>CEE 6010 Finite Element Methods in 3 Solid Mechanics II Advanced theory and applications of finite element methods to both static and dynamic solid mechanics problems. Prerequisite: MAE 5020. (Sp)</p> <p>CEE 6020 Structural Stability** 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>CEE 6030 Structural Optimization* 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>CEE 6040 Structural Reliability* 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>
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Course Descriptions

<p>CEE 6050 Experimental Methods in Structural Engineering** 3</p> <p>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. Also taught as MAE 6050. (Sp)</p>	<p>alignment design. Introduction to design software through coursework and term projects. Prerequisite: CEE 3210. (Sp)</p>
<p>CEE 6070 Mechanics of Composite Materials II 3</p> <p>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>CEE 6240 Urban and Regional Transportation Planning 3</p> <p>(dual listing 5240) 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>CEE 6080 Numerical Methods in Elasticity 3</p> <p>(dual listing 5080) 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>CEE 6250 Transportation Data/Safety Analysis 3</p> <p>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>CEE 6090 Theory of Plates and Shells 3</p> <p>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>CEE 6260 Public Transportation 3</p> <p>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>CEE 6110 Probabilistic and Statistical Methods in Engineering 3</p> <p>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>CEE 6270 Traffic Operations Analysis 3</p> <p>Traffic flow fundamentals, macroscopic and microscopic models of traffic flow, shock wave analysis, car following principles, queuing systems, and simulation. (Sp)</p>
<p>CEE 6130 Structural Dynamics and Seismic Design 3</p> <p>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>CEE 6290 Transportation Network Analysis 3</p> <p>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>CEE 6180 Dynamics and Vibrations 3</p> <p>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 6130. Also taught as MAE 6180. (Sp)</p>	<p>CEE 6300 Earth Structures 3</p> <p>Design and construction of earth and rockfill dams, embankments, excavations, and retaining structures. Prerequisites: CEE 4300, 5350/6350. (Sp)</p>
<p>CEE 6190 Geographic Information Systems for Civil Engineers 3</p> <p>(dual listing 5190) 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>CEE 6310 Environmental Geotechniques 3</p> <p>Geotechnical aspects of environmental systems, with concentration on waste containment facilities. Prerequisite: CEE 4300. (F)</p>
<p>CEE 6200 Pavement Design 3</p> <p>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>CEE 6320 Deep Foundations 3</p> <p>Analysis, design, and construction of deep foundations with emphasis on driver piles and drilled shafts. Prerequisites: CEE 4300, 5350/6350. (Sp)</p>
<p>CEE 6210 Transportation Systems Analysis 3</p> <p>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>CEE 6330 Ground Reinforcement, Improvement, and Treatment 3</p> <p>Theory, design, and construction methods for ground reinforcement, improvement, and treatment applications. Prerequisites: CEE 4300, 5350/6350. (F)</p>
<p>CEE 6220 Traffic Engineering 3</p> <p>(dual listing 5220) 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>CEE 6340 Laboratory and Field Methods in Geotechnical Engineering 3</p> <p>Subsurface investigation, field testing and instrumentation, and laboratory testing. Prerequisites: CEE 4300, 5350/6350. (F)</p>
<p>CEE 6230 Geometric Design of Highways 3</p> <p>(dual listing 5230) 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</p>	<p>CEE 6350 Foundation Analysis and Design 3</p> <p>(dual listing 5350) 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>CEE 6360 Geotechnical Principles 3</p> <p>Theoretical soil behavior. Hydraulic conductivity, compression, and shearing properties. Prerequisites: CEE 4300, 5350/6350. (F)</p>
	<p>CEE 6370 Buried Structures 3</p> <p>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>

Course Descriptions

<p>CEE 6380 Earthquake Engineering 3 (dual listing 5380) 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>CEE 6400 Physical Hydrology 3 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>CEE 6410 Water Resource Systems Analysis 3 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>CEE 6420 Engineering Risk Assessment and Risk Management 3 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>CEE 6430 Groundwater Engineering 3 (dual listing 5430) 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>CEE 6440 Geographic Information Systems in Water Resources 3 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>CEE 6450 Hydrologic Modeling 3 (dual listing 5450) Case studies of hydrologic modeling and decision methods: (1) Real-time flood warning; (2) extended streamflow prediction; (3) probabilistic water resource management; and (4) physical modeling of ungaged basins. Prerequisite: CEE 3430. (Sp)</p> <p>CEE 6460 Water Resources Engineering 3 (dual listing 5460) 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. (F)</p> <p>CEE 6470 Sedimentation Engineering 3 (dual listing 5470) Explores river response, sediment transport, sediment and watershed yield, flow resistance, scour and erosion, and floodplain management. Prerequisite: CEE 3500. (Sp)</p> <p>CEE 6480 Groundwater Contamination: Modeling, Monitoring, and Management 3 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>CEE 6490 Integrated River Basin/Watershed Planning and Management 3 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>CEE 6500 Open Channel Hydraulics with an Emphasis on Gradually Varied Flow 3 (dual listing 5500) 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>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)</p> <p>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: AWER 5490/4490; MATH 2280 (recommended). Also taught as AWER 6520. (F)</p> <p>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)</p> <p>CEE 6540 Hydraulic Structures Design 3 (dual listing 5540) 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)</p> <p>CEE 6550 Hydraulics of Closed Conduits 3 (dual listing 5550) 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>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)</p> <p>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)</p> <p>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. Prerequisite: CEE/SOIL 5620. (Sp)</p> <p>CEE 6610 Environmental Quality Analysis 3 (dual listing 5610) 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>
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Course Descriptions

<p>CEE 6620 Field Sampling and Analysis of Environmental Systems 3</p> <p>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)</p>	<p>CEE 6710 Environmental Engineering Microbial Ecology 2</p> <p>Principles of microbial ecology applied to engineered and natural systems. Prerequisites: BIOL 3300, CEE/PUBH 3610. (F)</p>
<p>CEE 6630 Process Dynamics in Environmental Engineering Systems 2</p> <p>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)</p>	<p>CEE 6720 Natural Systems Modeling 3</p> <p>(dual listing 5720)</p> <p>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 limitation of specific modeling approaches, while also stressing integrative multi-disciplinary nature of impact assessment frameworks. Prerequisite: CEE 6690/5690. (Sp)</p>
<p>CEE 6640 Physical and Chemical Environmental Process Engineering 3</p> <p>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/SOIL 5620, CEE 6630. Corequisite: CEE 6670. (Sp)</p>	<p>CEE 6730 Analysis and Fate of Environmental Contaminants 3</p> <p>(dual listing 5730)</p> <p>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 spring semester. Prerequisites: CHEM 1210, 2300. Also taught as PUBH 6730/5730. (Sp)</p>
<p>CEE 6650 Biological Processes in Environmental Engineering 2</p> <p>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, 6640, 6710. (Sp)</p>	<p>CEE 6740 Environmental Quality Modeling 3</p> <p>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. Prerequisite: CEE 6630. (Sp)</p>
<p>CEE 6660 Environmental Data Analysis and Experimentation 2</p> <p>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)</p>	<p>CEE 6750 Eco-Hydraulics for Natural Systems Engineering 4</p> <p>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>CEE 6670 Environmental Process Laboratory 2</p> <p>Laboratory testing to demonstrate physical, chemical, and biological principles utilized in environmental engineering processes. Corequisites: CEE 6640, 6650. (Sp)</p>	<p>CEE 6800 Division of Environmental Engineering Seminar 1</p> <p>Environmental engineering graduate seminar for faculty, student, and guest lecturer research presentations. (F,Sp)</p>
<p>CEE 6680 Soil-based Waste Management 2</p> <p>(dual listing 5680)</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 BIE 6680/5680. (Sp)</p>	<p>CEE 6810 Biochemical Engineering 3</p> <p>(dual listing 5810)</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 BIE 6810/5810. (F)</p>
<p>CEE 6690 Natural Systems Engineering 3</p> <p>(dual listing 5690)</p> <p>Application of modeling tools commonly utilized in water resources systems for assessment of environmental impacts associated with engineered systems. Topics include: water resources modeling; physical, chemical, and biological process effects; assessment methods; data integration techniques; and impact assessment. Prerequisites: CEE/PUBH 3610, CEE 3500, 3510, 3640. (F)</p>	<p>CEE 6830 Management and Utilization of Biological Solids and Wastewater 3</p> <p>(dual listing 5830)</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. Prerequisite: BIE/CEE 3670. Also taught as BIE 6830/5830. (F)</p>
<p>CEE 6700 Field Sampling Techniques for Natural Systems Engineering 2</p> <p>(dual listing 5700)</p> <p>Provides students with hands-on approach to utilizing several of the most commonly applied spatial and temporal sampling techniques for data acquisition in support of natural systems modeling. Explores standard and advanced surveying techniques for water quality, stream geomorphology, and hydraulics, utilizing levels, total stations, laser levels, GPS, and hydroacoustic technologies. Integrative sampling strategies across spatial and temporal scales emphasized for multi-disciplinary studies. Taught first half of fall semester. Prerequisite: CEE 6690/5690. (F)</p>	<p>CEE 6840 Application of Technology Transfer for Teachers 2[®]</p> <p>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>CEE 6850 Atmospheric and Air Pollution Chemistry 3</p> <p>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>

Course Descriptions

CEE 6900	Directed Reading	1-3[®]
Prerequisite: Instructor's consent. (F,Sp,Su)		
CEE 6930	Special Problems	1-4[®]
Independent or group study of engineering problems not covered in regular course offerings. Prerequisite: Instructor's consent. (F,Sp,Su)		
CEE 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: AWER 3700 or 4600 or SOIL 4600 or CEE 3430, or permission of instructor. Also taught as AWER 6940. (Sp)		
CEE 6970	Thesis Research	1-6[®]
Prerequisite: Instructor's consent. (F,Sp,Su)		
CEE 6990	Continuing Graduate Advisement	1-9[®]
Prerequisite: Instructor's consent. (F,Sp,Su)		
CEE 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 MAE 7050. (Sp)		
CEE 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 MAE 7080. (F)		
CEE 7110	Constitutive Modeling and Structural Response of Engineering Materials**	3
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)		
CEE 7120	Advanced Topics in Civil Engineering	3
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)		
CEE 7150	Effective Engineering Instruction	1
Seminar-style course designed to give PhD candidates insight and guidance for becoming effective engineering instructors. (F)		
CEE 7160	Successful Faculty Strategies	1
Seminar-style course designed to give PhD candidates insight and guidance into the expectations and approaches for becoming successful university faculty members. (Sp)		
CEE 7170	Research Methods in Engineering	1
Seminar-style course designed to give PhD candidates insight and guidance into research methods in engineering. (F)		
CEE 7270	Travel Demand and Supply Analysis	3
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)		
CEE 7300	Theoretical Soil Mechanics	3
Advanced studies of stress distribution in soil masses, shear strength, consolidation, constitutive modeling, and finite applications. Prerequisite: CEE 6360. (Sp)		
CEE 7310	Fundamentals of Soil Behavior**	3
The influence of clay mineralogy, clay chemistry, and soil origin on the engineering properties of soil. Prerequisite: CEE 6360. (F)		
CEE 7320	Advanced Soil Dynamics**	3
Advanced studies in the response of soil structures and foundations to dynamic loads. Prerequisite: CEE 6360. (F)		

CEE 7430	Stochastic Hydrology***	3
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)		
CEE 7460	Advanced Topics in Hydrology	3[®]
Topics of prominent current interest for advanced MS and PhD students. Can be repeated for credit with consent of instructor. (Sp)		
CEE 7470	Continuous and Macro-Scale Hydrologic Modeling	3
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)		
CEE 7520	Mathematical Methods for Civil and Environmental Engineers	3
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)		
CEE 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, CEE/MAE 6570; or MAE 3420, 5020. Also taught as MAE 7580. (Sp)		
CEE 7970	Dissertation Research	1-10[®]
Prerequisite: Instructor's consent. (F,Sp,Su)		
CEE 7990	Continuing Graduate Advisement	1-9[®]
Prerequisite: Instructor's consent. (F,Sp,Su)		

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.
^{*}Taught 2006-2007.
^{**}Taught 2007-2008.
^{***}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 205-211.*

CHEM 1010 BPS	Introduction to Chemistry	3[®]
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)		
CHEM 1110 BPS	General Chemistry I	4
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. (F,Sp)		
CHEM 1115	General Chemistry Laboratory (formerly CHEM 1130)	1
Laboratory course designed to accompany CHEM 1110. Covers basic aspects of general chemistry. (Sp)		
CHEM 1120 BPS	General Chemistry II	4
Continuation of CHEM 1110. Continued coverage of organic chemistry, along with introduction to biochemistry. Prerequisite: CHEM 1110. (Sp)		

Course Descriptions

CHEM 1210	Principles of Chemistry I	4	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. High school chemistry recommended. (F,Sp)
CHEM 1215 (formerly CHEM 1230)	Chemical Principles Laboratory I	1	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)
CHEM 1220 BPS	Principles of Chemistry II	4	Continuation of CHEM 1210. Prerequisite: CHEM 1210. (F,Sp,Su)
CHEM 1225 (formerly CHEM 1240)	Chemical Principles Laboratory II	1	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)
CHEM 1990	Introduction to the Chemistry and Biochemistry Professions	1[®]	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. (Sp)
CHEM 2300	Principles of Organic Chemistry	3	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)
CHEM 2310	Organic Chemistry I	4	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)
CHEM 2315 (formerly CHEM 2330)	Organic Chemistry Laboratory I	1	Laboratory course designed to accompany CHEM 2310. Covers basic aspects of experimental organic chemistry. Prerequisites: CHEM 1210 and 1215. (F)
CHEM 2320	Organic Chemistry II	4	Continuation of CHEM 2310. Prerequisite: CHEM 2310 or CHEM 2300 and permission of instructor. (Sp)
CHEM 2325 (formerly CHEM 2340)	Organic Chemistry Laboratory II	1	Continuation of CHEM 2315. Prerequisite: CHEM 2315. (Sp)
CHEM 3000 QI (formerly CHEM 3600 QI)	Quantitative Analysis	3	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)
CHEM 3005 (formerly CHEM 3610)	Quantitative Analysis Laboratory	1	One three-hour laboratory per week. Must be taken concurrently with CHEM 3000. Prerequisites: CHEM 1215, 1225, MATH 1050. (F)
CHEM 3060 QI	Physical Chemistry	3	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)
CHEM 3070 QI	Physical Chemistry	3	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)
CHEM 3080 CI	Physical Chemistry Laboratory I	1	Experimental work to accompany CHEM 3060. Corequisite: CHEM 3060. (F)
CHEM 3090 CI	Physical Chemistry Laboratory II	1	Continuation of CHEM 3080. Experimental work to accompany CHEM 3070. Corequisite: CHEM 3070. (Sp)
CHEM 3510	Intermediate Inorganic Chemistry	2	Survey of basic structure, bonding, and reactivity across the periodic table. Prerequisites: CHEM 1220, 2310, and 2315. (Sp)
CHEM 3520	Inorganic Chemistry Laboratory	1	Covers basic aspects of inorganic synthesis and compound characterization. Corequisite: CHEM 3510. (Sp)
CHEM 3650 DSC	Environmental Chemistry***	3	Survey of issues and chemical nature of environmental problems, including air, soil, and water pollution. Prerequisite: CHEM 1010 or 1120 or 1220. (Sp)
CHEM 3700	Introductory Biochemistry	3	Brief survey of the chemistry of biologically important compounds and their role in microbial, animal, and plant metabolism. Prerequisite: CHEM 2300 or 2310. (Sp)
CHEM 3710	Introductory Biochemistry Laboratory	1	Laboratory course designed to accompany CHEM 3700. Corequisite: CHEM 3700. (Sp)
CHEM 4250	Cooperative Experience	1-2[®]	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)
CHEM 4800 CI	Research Problems	1-3[®]	Directed undergraduate research. Departmental permission required. (F,Sp,Su)
CHEM 4890 CI	Undergraduate Biochemistry Seminar I	1	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)
CHEM 4891 CI	Undergraduate Biochemistry Seminar II	1	Continuation of CHEM 4890. Prerequisite: CHEM 4890. (Sp)
CHEM 4990 CI	Undergraduate Seminar	2[®]	Writing and speaking skills necessary for presenting scientific information. (F,Sp)
CHEM 5070	Biophysical Chemistry	3	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)
CHEM 5520	Advanced Inorganic Chemistry	2	Advanced treatment of the structure/bonding/reactivity relationships across the periodic table. Prerequisites: CHEM 3070, 3510. (F)
CHEM 5530	Advanced Synthesis Laboratory	2	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)
CHEM 5640	Instrumental Analysis	3	Theory and application of physicochemical methods of analysis. Chromatography. Selected electrochemical and optical methods. Prerequisites: CHEM 3005, 3080. (Sp)
CHEM 5650	Instrumental Analysis Laboratory	2	Laboratory course to accompany CHEM 5640. Two three-hour labs per week. Prerequisites: CHEM 3005, 3080. (Sp)
CHEM 5670	Intermediate Environmental Chemistry**	3	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)

Course Descriptions

CHEM 5680	Environmental Chemistry Laboratory**	2	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)
CHEM 5700	General Biochemistry I	3	General biochemistry for science majors, including proteins, enzymes, catalysis, bioenergetics, and catabolic metabolism. Prerequisite: CHEM 2320. (F)
CHEM 5710	General Biochemistry II	3	Continuation of CHEM 5700. General biochemistry for science majors, including anabolic metabolism, DNA, RNA, and protein synthesis. Prerequisite: CHEM 5700. (Sp)
CHEM 5720	General Biochemistry Laboratory	2	Prerequisite: CHEM 5710 (may be taken concurrently). (Sp)
CHEM 5730	Genomic Technologies	4	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)
CHEM 6010	Quantum Chemistry***	3	Quantum mechanics applied to chemical problems. Theory of atoms and molecules. Prerequisites: CHEM 3070, MATH 2250. (F)
CHEM 6020	Molecular Spectroscopy***	3	Spectroscopy of atoms and molecules. Prerequisite: CHEM 6010. (Sp)
CHEM 6250	Curricular Practical Training	1-6®	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)
CHEM 6300	Advanced Modern Organic Chemistry***	3	Covers topics in molecular structure, reaction mechanisms of organic molecules, and physical organic chemistry. Prerequisites: CHEM 2320, 3070. (F)
CHEM 6500	Reactivity and Mechanisms in Inorganic Chemistry***	3	Inorganic reactions and mechanisms relevant to areas of main group, transition metals, and bioinorganic and organometallic chemistry. Prerequisite: CHEM 5520. (Sp)
CHEM 6510	Chemical Applications of Group Theory	1	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)
CHEM 6600	Modern Chemical Analysis***	3	Methodology and statistical treatment of chemical data, experimental design, quality control, and chemical separations. Prerequisite: CHEM 5640. (Sp)
CHEM 6700	Advanced Biochemistry I	3	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)
CHEM 6710	Advanced Biochemistry II	3	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)
CHEM 6720	Advanced Biochemistry Laboratory	2®	To obtain advanced laboratory skills, students complete specific laboratory experiments in research laboratories of departmental faculty members. (F,Sp)
CHEM 6730	Principles of Enzymology*	3	Mechanisms of enzyme action, emphasizing recent advances in enzymology, including theory and modern experimental approaches to elucidation of mechanism. Prerequisite: CHEM 5700 or equivalent. (Sp)
CHEM 6740	Cellular Communication by Small Molecules and Proteins**	3	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 equivalent. Also taught as BIOL 6740. (Sp)
CHEM 6750	Principles of Structural Biology	3	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)
CHEM 6760	Principles of Bioenergetics***	3	Global biological energy cycles including carbon, nitrogen, and sulfur cycles; respiration; electron transfer; and energy transduction. Prerequisite: CHEM 5700 or equivalent. (F)
CHEM 6910	Special Problems in Chemistry and Biochemistry	1-4	Selected problems in chemistry and biochemistry. Registration permitted only with written permission from department head. (F,Sp,Su)
CHEM 6970	Thesis Research	1-10®	Research for MS degree. (F,Sp,Su)
CHEM 6990	Continuing Graduate Advisement	1-9®	(F,Sp,Su)
CHEM 7020	Statistical Mechanics ***	3	Statistical mechanics with applications to research problems of current interest. Prerequisite: CHEM 6010.
CHEM 7030	Special Topics in Physical Chemistry (Topic)***	3®	Covers special areas of current interest and activity in physical chemistry. (F,Sp)
CHEM 7300	Reactions and Synthesis in Modern Organic Chemistry**	3	Reactions of modern organic chemistry and their application to organic synthesis. Prerequisite: CHEM 6300. (Sp)
CHEM 7310	Molecular Structure/Spectroscopy of Organic Compounds*	3	Modern methods of predicting and determining molecular structure of organic compounds using advanced computational and spectroscopic tools. Prerequisite: CHEM 6300. (F)
CHEM 7330	Special Topics in Organic Chemistry (Topic)***	3®	Covers special areas of current interest and activity in organic chemistry. Prerequisite: CHEM 6300. (F,Sp)
CHEM 7500	Coordination Chemistry***	3	Theory and spectroscopy of transition metal coordination complexes. Prerequisites: CHEM 3070, 6500, 6510. (Sp)
CHEM 7510	Bioinorganic Chemistry***	1-3	Advanced systematic study of metallochemical structure and function. Prerequisite: CHEM 6500. (F)
CHEM 7530	Special Topics in Inorganic Chemistry (Topic)***	3®	Topics of current interest in inorganic chemistry. Prerequisite: CHEM 6500. (Sp)
CHEM 7600	Analytical Spectroscopy**	3	Practical description of spectroscopy-based analysis, emphasizing instrumentation and methods. Prerequisites: CHEM 5640, graduate standing, or instructor's permission. (Sp)

Course Descriptions

CHEM 7610	Chemical Separations*	3
Survey of theory and practice of modern chemical separations, including extractions, chromatography, distillation, and phase separations. Prerequisite: CHEM 5640 or instructor's permission. (F)		
CHEM 7620	Electrochemistry***	3
Survey of electrochemistry with emphasis on electrochemical analysis. Prerequisite: CHEM 5640. (F)		
CHEM 7640	Special Topics in Analytical Chemistry (Topic)***	1-3®
Topics may include electronics from the scientist's perspective, laser-based spectroscopy, mass spectrometry, and chemometrics. Prerequisite: CHEM 6600. (F,Sp)		
CHEM 7770	Special Topics in Biochemistry (Topic)*	2-3®
Topics of current interest in biochemistry.		
CHEM 7800	Seminar	1®
Graduate seminar. (F,Sp)		
CHEM 7970	PhD Dissertation Research	1-12®
(F,Sp,Su)		
CHEM 7990	Continuing Graduate Advisement	1-9®
(F,Sp,Su)		

*Taught 2006-2007.

**Taught 2007-2008.

***Contact Department of Chemistry and Biochemistry for information about when this 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 is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Chinese (CHIN)

See *Department of Languages, Philosophy, and Speech Communication*, pages 364-379.

CHIN 1010	Chinese First Year I	5
Communicative competencies in the four language skills: speaking, listening, reading, and writing with exposure to cultures and customs. Native speaker instructor. (F)		
CHIN 1020	Chinese First Year II	5
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)		
CHIN 2010	Chinese Second Year I	5
Second-year overview of speaking, listening, reading, and writing with exposure to cultures and customs. Native speaker instructor. Prerequisite: CHIN 1020 or equivalent. (F)		
CHIN 2020	Chinese Second Year II	5
Second-year overview of speaking, listening, reading, and writing with exposure to cultures and customs. Native speaker instructor. Prerequisite: CHIN 2010 or equivalent. (Sp)		
CHIN 3010	Chinese Third Year I	4
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)		
CHIN 3020	Chinese Third Year II	4
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)		

CHIN 3100 DHA	Readings in Contemporary Chinese Culture	3
Introduction to contemporary Chinese culture through readings from newspapers and other source materials. Prerequisite: CHIN 2020 or equivalent. (Sp)		
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)		
CHIN 4920	Chinese 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. Prerequisite: Permission of instructor. (F,Sp)		

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Classics (CLAS)

See *Classics Minor*, page 220.

Also see *Department of History*, pages 332-337.

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. (F,Sp)		

*Taught 2006-2007.

Communicative Disorders and Deaf Education (COMD)

See *Department of Communicative Disorders and Deaf Education*, pages 221-227.

COMD 2400	Orientation and Observation	1®
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. (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. Nature, causes, and prevention of language, speech, and hearing disorders. (F,Sp)		
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)		

Course Descriptions

<p>COMD 3050 Practicum and Methods in Teaching Children who are Deaf and Hard of Hearing 1-3®</p> <p>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)</p> <p>COMD 3080 American Sign Language Practicum 1®</p> <p>Provides opportunities for practice and continued improvement of receptive and expressive skills in American Sign Language. (F,Sp)</p> <p>COMD 3100 Fundamentals of Anatomy for Speech and Language 3</p> <p>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 2000 or 2010. (F)</p> <p>COMD 3120 Disorders of Articulation and Phonology 3</p> <p>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)</p> <p>COMD 3400 Acoustics and Anatomy of the Ear 3</p> <p>Principles of physical acoustics as applied to Communicative Disorders. Course includes anatomy, physiology, and metabolism of the human auditory system. (Sp)</p> <p>COMD 3500 Phonetics/Developmental Phonology 3</p> <p>Study of the development of the phonological subsystem in English and the acoustic and physiological characteristics of speech sounds. (F)</p> <p>COMD 3650 CI Clinical Processes and Behavior 2</p> <p>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)</p> <p>COMD 3700 Basic Audiology 3</p> <p>Study of pure tone audiometry, including clinical masking, speech audiometry, and clinical immittance measures. Laboratory exercises are required. Prerequisite: COMD 3400. (F)</p> <p>COMD 3910 Sign Language II 4</p> <p>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)</p> <p>COMD 4100 CI Clinical Practicum in Speech-Language Pathology 1-2®</p> <p>Supervised diagnostic and treatment practicum with individuals with communication disorders. Prerequisites: COMD 2500, 3120, 3650, and permission of instructor. (F,Sp,Su)</p> <p>COMD 4400 Clinical Practicum in Audiology 1-2®</p> <p>Supervised diagnostic and treatment practicum with individuals with hearing loss. Prerequisites: COMD 3400, 3650, 3700, and consent of instructor. (F,Sp,Su)</p> <p>COMD 4600 Senior Thesis 1-6®</p> <p>Student-initiated research project under faculty supervision. Prerequisites: Satisfactory grade point average, instructor recommendation, and approval of Honors Committee. (F,Sp,Su)</p> <p>COMD 4630 Teaching Speech to Deaf and Hard of Hearing Children 3</p> <p>Evaluative and instructional models, processes, and methodologies in the development of speech for children who are deaf and hard of hearing. (Sp)</p>	<p>COMD 4750 Teaching the English Language to Individuals who are Deaf and Hard of Hearing 3</p> <p>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)</p> <p>COMD 4760 Early Intervention for Children who are Deaf and Hard of Hearing 3</p> <p>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)</p> <p>COMD 4770 Audiology and Teachers of Children who are Deaf and Hard of Hearing 3</p> <p>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)</p> <p>COMD 4780 Socio-Cultural Aspects of Deafness 3</p> <p>(dual listing 6780)</p> <p>Leads students to understand how society, political institutions, and education have impacted the Deaf culture. (F)</p> <p>COMD 4790 Psychological Principles and Individuals who are Deaf and Hard of Hearing 3</p> <p>(dual listing 6790)</p> <p>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)</p> <p>COMD 4910 CI Sign Language III 4</p> <p>(dual listing 6910)</p> <p>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>COMD 4920 Sign Language IV 4</p> <p>(dual listing 6920)</p> <p>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>COMD 5000 Institute in Communicative Disorders and Deaf Education 0.5-3®</p> <p>Special colloquial offerings in communicative disorders and deaf education. (F,Sp,Su)</p> <p>COMD 5070 Speech Science 3</p> <p>Explores contemporary theory, research findings, clinical applications, and laboratory experiences in measurement and analysis of normal speech production. Speech subsystems of respiration, phonation, articulation, and resonance are examined in detail through the collection and analysis of physiologic data. (F)</p> <p>COMD 5100 Language Science 3</p> <p>Study of clinical analysis of syntactic and morphological properties of speech. (Sp)</p> <p>COMD 5200 Language Assessment and Intervention for Preschool Children 4</p> <p>Preschool assessment and intervention, including language sampling and analysis procedures, test administration and interpretation, informal language assessment, intervention goals and objectives, planning clinical management, language facilitation strategies, teaching approaches, classroom-based language intervention, and enhancing emergent literacy. Prerequisite: COMD 2500 or equivalent. (Sp)</p> <p>COMD 5330 Aural Rehabilitation 3</p> <p>Ramifications of hearing loss among children and adults and rehabilitative audiological techniques and programs. (Sp)</p>
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Course Descriptions

<p>COMD 5600 Classroom Teaching Using American Sign Language 3 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)</p> <p>COMD 5610 Introduction to Education of the Deaf and Hard of Hearing 3 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)</p> <p>COMD 5620 Teaching School Subjects to Students who are Deaf and Hard of Hearing 3 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)</p> <p>COMD 5730 Children with Multiple Disabilities (dual listing 6730) 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)</p> <p>COMD 5740 Teaching Reading to Deaf and (dual listing 6740) 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)</p> <p>COMD 5860 Interdisciplinary Training (dual listing 6860) in Assistive Technology I 3 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>COMD 5870 Interdisciplinary Training (dual listing 6870) in Assistive Technology II 3 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>COMD 5900 Independent Study 1-6® Selected work individually assigned, handled, and directed. Problems of mutual interest to students and the instructor are investigated and reported. (F,Sp,Su)</p> <p>COMD 6020 Language Assessment and Intervention for School-age Children and Adolescents 4 Curriculum-based assessment and intervention. Emphasizes communication and literacy development of students with language impairments. Narrative and written language assessment procedures. Intervention strategies for language acquisition in conversation, narration, and expository discourse. Prerequisite: COMD 5200 or equivalent. (F, Alt Su)</p> <p>COMD 6030 Disorders of Fluency—Stuttering 3 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>COMD 6040 Communication Disorders Related to Orofacial Anomalies 3 Nature, etiologies, and principles of diagnosis and treatment of communication disorders related to orofacial anomalies. Prerequisite: Graduate standing. (Sp)</p> <p>COMD 6050 Professional Practice in Speech-Language Pathology 1 Lecture, discussion, and guest presenters on various professional practice topics pertaining to speech-language pathology. Prerequisite: Graduate standing. (F)</p> <p>COMD 6100 Advanced Clinical Practicum in Speech-Language Pathology 1-4 Supervised diagnostic and treatment practicum with individuals with communication disorders. Prerequisites: COMD 2500, 3120, 3650, or equivalent, and permission of instructor. (F,Sp,Su)</p>	<p>COMD 6120 Adult Disorders of Motor Speech and Swallowing 4 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)</p> <p>COMD 6130 Neuropathologies of Speech and Language 4 Study of neuropathologies of speech and language associated with aphasia, traumatic brain injury, right hemisphere syndrome, dementia, and degenerative neurological diseases. (F)</p> <p>COMD 6140 Pediatric Neurogenic Disorders 3 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>COMD 6200 Internship in Public Schools—Speech-Language Pathology 4-5® Supervised public school practicum in speech-language pathology. (F,Sp,Su)</p> <p>COMD 6210 Bilingual/Bicultural Services 2 Study of the cultural, linguistic, educational, and socioeconomic status of individuals with speech-language disabilities from ethnic or linguistic minority groups. (F)</p> <p>COMD 6220 Severe Communication Impairments 3 Study of assessment and treatment strategies for individuals with severe communication impairments, including those requiring augmentative and alternative communication systems. (Sp)</p> <p>COMD 6230 Introduction to Research in Communicative Disorders 3 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. (Sp)</p> <p>COMD 6300 Externship in Speech-Language Pathology 1-12® Supervised off-campus practicum externship in speech-language pathology. Prerequisite: Consent of instructor. (F,Sp,Su)</p> <p>COMD 6370 Educational Audiology 3 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>COMD 6430 Speech Communication and Hearing Loss 3 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>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)</p> <p>COMD 6640 Strategies for Teaching Children who are Deaf and Hard of Hearing 3 Provides clinical experience in practicing teaching strategies. Emphasizes evaluation, teaching groups, and tutoring children in speech, listening, and English. Includes lecture, demonstration, observation, and practice in classrooms for the deaf. Prerequisite: COMD 4630/6630. (F)</p> <p>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)</p>
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Course Descriptions

<p>COMD 6660 INSITE Training 1-3 Training in implementation of the INSITE Model. Early home intervention for infants and young children having a combination of sensory impairments and other disabilities. (F,Sp,Su)</p> <p>COMD 6670 AHEAD Training 1-3 Training in implementation of the AHEAD Model. Early intervention services for families and child care providers of children with noncategorical disabilities, birth to three years, in home and child care settings. (F,Sp,Su)</p> <p>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)</p> <p>COMD 6690 Early Intervention for Infants and Toddlers with Vision Impairment and Their Families 1-3 Students will gain an understanding of and develop skills in working with infants and toddlers who are visually impaired and their families. (F,Sp,Su)</p> <p>COMD 6700 Practicum in Education of Children who are Deaf and Hard of Hearing 1-3® Supervised diagnostic and remedial casework in education of the deaf and hard of hearing. (F,Sp,Su)</p> <p>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)</p> <p>COMD 6720 Serving Preschoolers with Vision Impairments in Center Based Settings 1-3 To provide students with knowledge and skills in working with children with visual impairments in the preschool setting. (F,Sp,Su)</p> <p>COMD 6730 Children with Multiple Disabilities and Hearing Loss 3 (dual listing 5730) 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)</p> <p>COMD 6740 Teaching Reading to Deaf and Hard of Hearing Children 3 (dual listing 5740) 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)</p> <p>COMD 6750 Teaching the English Language to Individuals who are Deaf and Hard of Hearing 3 (dual listing 4750) 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)</p> <p>COMD 6760 Early Intervention for Children who are Deaf and Hard of Hearing 3 (dual listing 4760) 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)</p> <p>COMD 6770 Audiology and Teachers of Children who are Deaf and Hard of Hearing 3 (dual listing 4770) 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)</p> <p>COMD 6780 Socio-Cultural Aspects of Deafness 3 (dual listing 4780) Leads students to understand how society, political institutions, and education have impacted the Deaf culture. (F)</p>	<p>COMD 6790 Psychological Principles and Individuals who are Deaf and Hard of Hearing 3 (dual listing 4790) 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)</p> <p>COMD 6800 Student Teaching—Day-School Program 6-12® Full-time student teaching in a day-school program for the deaf. (F)</p> <p>COMD 6810 Disorders of Phonation 3 Advanced consideration of issues and methods in the diagnosis and treatment of voice problems associated with the larynx and the respiratory tract. (Sp)</p> <p>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)</p> <p>COMD 6830 Student Teaching—Residential 6-12 Full-time student teaching at a residential school for the deaf. Prerequisite: Permission of instructor. (Sp)</p> <p>COMD 6850 Seminar in Communicative Disorders and Deaf Education 1-3® Research and analysis of selected topics. (F,Sp,Su)</p> <p>COMD 6860 Interdisciplinary Training in Assistive Technology I 3 (dual listing 5860) 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>COMD 6870 Interdisciplinary Training in Assistive Technology II 3 (dual listing 5870) 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>COMD 6880 Methods and Procedures in Early Intervention 3 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>COMD 6900 Independent Study 1-9® Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p>COMD 6910 Sign Language III 4 (dual listing 4910) 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>COMD 6920 Sign Language IV 4 (dual listing 4920) 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>COMD 6950 Practicum in Early Childhood—Deaf 3-9® Supervised student practicum in a preschool, infant, home-based program for children who are deaf or hard of hearing. (F,Sp)</p> <p>COMD 6960 Master's Project 1-4® 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>
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Course Descriptions

COMD 6970	Thesis	1-7[®]	COMD 7470	Educational Audiological Management	3
Prerequisite: Permission of instructor. (F,Sp,Su)			Plans for assessing children who are deaf and hard of hearing in schools. Management plans for audiological services, as well as appropriate intervention strategies for children. Students develop plans and present methods for bringing change to schools. Prerequisite: COMD 6370. (F)		
COMD 6990	Continuing Graduate Advisement	1-9[®]	COMD 7490	Medical Aspects of Audiology	3
(F,Sp,Su)			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)		
COMD 7200	Introduction to Clinical Practice	2[®]	COMD 7510	Supervision in Communicative Disorders	2
Supervised diagnostic practicum for first-year students in the Audiology Program. Prerequisite: Admission to the Audiology Program. (F,Sp,Su)			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 7300	Intermediate Clinical Practicum	2[®]	COMD 7530	Balance Evaluation and Management	3
Supervised diagnostic practicum for second-year students in the Audiology Program. Prerequisite: Admission to the Audiology Program. (F,Sp,Su)			Explores techniques and technology for vestibular and balance assessment, including electronystagmography, videonystagmography, rotational testing, and posturography. Prerequisite: Admission to the Audiology Program. (Sp)		
COMD 7310	Psychoacoustics and Instrumentation	3	COMD 7800	Clinical Externship in Audiology	6[®]
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)			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 7320	Amplification I	1-4	COMD 7810	Research Seminar in Educational Audiology	1-3[®]
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)			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 7330	Supervision Internship	1-7[®]	COMD 7820	Research Seminar in Audiology	1[®]
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)			Facilitates development of student audiology projects. Further enables students to become competent clinician-researchers in the field of audiology. Prerequisite: Admission to the Audiology Program. (F)		
COMD 7340	Pediatric Audiology	3	COMD 7850	Externship Seminar	3[®]
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)			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 7380	Advanced Audiology	2	COMD 7860	Practice Management in Audiology	3
Special auditory testing for site of lesion in the conductive, sensory, neural, and central auditory systems. Emphasizes Immittance Battery and Otoacoustic Emissions Battery. Tests for assessment of functional hearing loss are also included. Sensitivity and specificity of auditory tests are treated. Test results related to auditory disease process. Prerequisite: Admission to the Audiology Program. (F)			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 7400	Advanced Clinical Practicum	2-4[®]	COMD 7870	Audiology Capstone Project	1-6[®]
Supervised clinical practicum for third-year students in the Audiology Program. Prerequisite: Admission to the Audiology Program. (F,Sp,Su)			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 7410	Noise and Hearing Conservation	3	COMD 7900	Independent Study	1-2[®]
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)			Advanced students, under direction of a faculty member, will study independently; however, departmental permission is necessary. (F,Sp,Su)		
COMD 7420	Amplification II	1-4	COMD 7910	Independent Research	1-2[®]
Applications of advanced hearing aid circuitry, especially digital and digitally programmable hearing aids. Presentation of various aspects of measuring hearing aid satisfaction. Tinnitus management and cochlear implants area also treated. Hearing aid trouble shooting, modifications, and repairs are included. Prerequisite: Admission to the Audiology Program. (F)			Advanced students, under direction of a faculty member, will do research in an area of interest to themselves. (F,Sp,Su)		
COMD 7430	Electrophysiology	3	COMD 7970	Dissertation	1-9[®]
Provides students with extensive working knowledge of early, middle, and late evoked potentials. Upon completion of this class, students should be capable of providing comprehensive services requiring evoked potentials. Prerequisite: Admission to the Audiology Program. (F)			Variable credit for dissertation project in connection with the doctoral program emphasis in educational audiology. (F,Sp,Su)		
COMD 7460	Adult Aural Rehabilitation	3	COMD 7990	Continuing Graduate Advisement	1-9[®]
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)			(F,Sp,Su)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Course Descriptions

Computer Science (CS)

See *Department of Computer Science, pages 228-237.*

- 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, and the Application of Computer Science to the Investigation of Physical Systems and Phenomena** 3
(formerly CS 1010 BPS)
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,Sp,Su)
- 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 1400 Introduction to Computer Science—CS 1** 3
(formerly CS 1700)
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)
- CS 1405 Introduction to Computer Science—CS 1 Lab** 1
(formerly CS 1710)
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
(formerly CS 1720 QI)
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)
- CS 2250 Cooperative Work Experience** 1-9®
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
(formerly CS 2200 QI)
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: 2.5 GPA; grade of C- or better in CS 1410. (F,Sp,Su)
- CS 2450 CI Software Engineering** 3
(formerly CS 2370 CI)
Science of small and large software project development, taught in team and project management format. Students complete a well-documented functional product, working in teams of four to five students. Prerequisites: 2.5 GPA; grade of C- or better in CS 2420. (F,Sp)
- CS 2550 Computer Organization** 3
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 both CS 1400 and MATH 1050 and Math ACT score of at least 23. (F,Sp)

- CS 2810 Computer Organization and Architecture** 3
(formerly CS 3550)
Architecture of a computer system, as viewed by the programmer. Topics such as memory management, RISC vs. CISC, pipelining, parallelism, interrupts, and networking discussed in detail. Includes several homework assignments, at least one of which deals with interrupts and interrupt-driven applications. Prerequisites: 2.5 GPA; grade of C- or better in CS 2550. Not available to pre-Computer Science majors. (F,Sp)
- CS 3000 Undergraduate Seminar** 1
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. Prerequisites: 2.5 GPA; grade of C- or better in CS 2420, or concurrent enrollment in CS 2420. (F,Sp)
- CS 3010 DSC/CI/ Information Acquisition, QI Analysis, and Presentation** 3
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)
- CS 3100 Operating Systems and Concurrency** 3
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: 2.5 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F,Sp)
- CS 3410 DSC/CI Algorithm Development: JAVA/Internet** 3
Introduces students to algorithm development and programming for JAVA-based applications, especially those dealing with the Internet. Examines computer-based representation, storage, retrieval, and transmission of information, along with the algorithms used to perform such operations. Prerequisites: CS 1400 and completion of University Studies Computer and Information Literacy (CIL) and Quantitative Literacy (QL) requirements. (F,Su)
- CS 3420 QI Algorithm Development: C# and .NET** 3
Introduces students to algorithm development and programming for C#-based applications, especially those dealing with the Internet. Examines computer-based representation, storage, retrieval, and transmission of information, along with the algorithms used to perform such operations. Prerequisites: CS 1400 and completion of University Studies Computer and Information Literacy (CIL) and Quantitative Literacy (QL) requirements. (Sp)
- CS 3500 DSC/QI Algorithm Development: Visual BASIC/Graphical User** 3
Introduces students to algorithm development and programming in Visual BASIC, with special emphasis on graphical user interfaces for Windows applications and environments. Prerequisites: Completion of University Studies Computer and Information Literacy (CIL) and Quantitative Literacy (QL) requirements. (Su)
- CS 3510 DSC/QI Algorithm Development: COBOL/Business** 3
Introduces students to algorithm development and programming in COBOL. Special emphasis given to applications and algorithms for use in business and information processing applications. Prerequisites: Completion of University Studies Computer and Information Literacy (CIL) and Quantitative Literacy (QL) requirements. (F)
- CS 4250 Cooperative Work Experience** 1-9®
Provides credit for students working at a participating firm under faculty supervision. Prerequisites: 2.5 GPA; permission of instructor. (F,Sp,Su)
- CS 4700 Programming Languages** 3
Theories of programming design and implementation. Introduction to variety of programming languages, showing how they represent trade-offs with respect to these theories. Prerequisites: 2.5 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F,Sp)
- CS 4720 Computer Networking I** 3
Focuses on client/server model, which is the dominant architectural model for today's computer systems. Explores the network underlying this model,

Course Descriptions

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: 2.5 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F)

CS 4730 Computer Networking II 3
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: 2.5 GPA; grade of C- or better in CS 4720. Not available to pre-Computer Science majors. (Sp)

CS 4950 Undergraduate Research 1-4®
Participation in research projects, under supervision of a computer science faculty member. Prerequisites: 2.5 GPA; grade of C- or better in CS 2420 and permission of instructor. Not available to pre-Computer Science majors. (F,Sp,Su)

CS 5000 Theory of Computability 3
Theory of computation, including presentation of computability, decidability, and complexity. Includes formal grammars, finite and pushdown automata, and turing machines. Prerequisites: 2.5 GPA; grade of C- or better in both CS 2420, MATH 3310. Not available to pre-Computer Science majors. (Sp)

CS 5050 Advanced Algorithms 3
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: 2.5 GPA; grade of C- or better in both CS 2420, MATH 3310. Not available to pre-Computer Science majors. (F,Sp)

CS 5070 Computer Science Capstone 1
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. Prerequisites: 2.5 GPA; instructor permission. Not available to pre-Computer Science majors. (F,Sp,Su)

CS 5100 Graphical User Interfaces and Windows Programming 4
Design principles of GUIs and philosophy, structure, and programming in Windows environments. Prerequisites: 2.5 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (Sp)

CS 5200 Distributed and Network Programming 4
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: 2.5 GPA; grade of C- or better in CS 3100. Not available to pre-Computer Science majors. (F)

CS 5300 Compiler Construction 4
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: 2.5 GPA; grade of C- or better in CS 2810 and 4700. Not available to pre-Computer Science majors. (F)

CS 5370 Advanced Software Engineering 3
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: 2.5 GPA; grade of C- or better in CS 2450. Not available to pre-Computer Science majors. (F)

CS 5400 Computer Graphics I 4
Introduction to concepts of graphical techniques. Digital and pictorial representation of information. Prerequisites: 2.5 GPA; grade of C- or better in all of the following: CS 2420; MATH 1220; MATH 2250 or 2270. Not available to pre-Computer Science majors. (F)

CS 5450 Multimedia Systems* 4
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: 2.5 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (Sp)

CS 5500 Parallel Algorithms 3
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: 2.5 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (Sp)

CS 5600 AI: Problem Solving and Expert Systems 3
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: 2.5 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F)

CS 5650 CVPRIP I: Computer Vision, Pattern Recognition, and Image Processing 3
Introduction to theories and techniques of machine intelligence, with emphasis on pattern recognition, computer vision, fuzzy logic, and neural networks. Prerequisites: 2.5 GPA; grade of C- or better in all of the following: CS 2420, MATH 2270, STAT 2000 or 3000. Not available to pre-Computer Science majors. (F)

CS 5660 Bioinformatics Tools and Techniques 3
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)

CS 5670 Computer Science Applications in Bioinformatics II 3
Builds on material presented in CS 5660, presenting more advanced topics in bioinformatics, such as data mining, machine learning, and evolutionary algorithms. Students *cannot* receive credit for both CS 5670 and 6670. Prerequisites: 2.5 GPA; grade of C- or better in CS 5660. Not available to pre-Computer Science majors. (Sp)

CS 5700 Object-Oriented Software Development 3
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: 2.5 GPA; grade of C- or better in CS 2450. Not available to pre-Computer Science majors. (F)

CS 5800 Introduction to Database Systems 3
Comparison of various database systems. Normal forms, protection, concurrency, security and integrity, and distributed and object-oriented systems. Prerequisites: 2.5 GPA; grade of C- or better in CS 2420. Not available to pre-Computer Science majors. (F)

CS 5850 Systems Analysis 3
Theory and practice of analysis, design, and implementation of information systems. Students will construct an information system. Prerequisites: 2.5 GPA; grade of C- or better in CS 5800. Not available to pre-Computer Science majors. (Sp)

CS 5890 Topics in Computer Science (Topic) 1-4®
Current topics in computer science as determined by advances in the field. Prerequisites: 2.5 GPA; grade of C- or better in CS 2420 and permission of instructor. Not available to pre-Computer Science majors. (F,Sp,Su)

CS 5950 Independent Study 3®
Provides for independent study of selected topics. Prerequisites: 2.5 GPA; grade of C- or better in CS 2420 and permission of instructor. Not available to pre-Computer Science majors. (F,Sp,Su)

CS 6050 Computational Geometry: Algorithms and Applications 3
Computational geometry is the study of computation involving geometric objects, such as lines, polygons, and circles. It has application in bioinformatics, graphics,

Course Descriptions

robotics, CAD/CAM, etc. This course presents the algorithms, data structures, and techniques of computational geometry. Prerequisite: Permission of instructor. (Sp)

CS 6100 MultiAgent Systems 3
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)

CS 6200 Distributed System Design* 3
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)

CS 6220 Concurrent Systems* 3
Explores concurrency in its various forms, emphasizing debugging techniques, development techniques that guarantee correctness, and performance evaluation and tuning. Prerequisite: CS 5200. (F)

CS 6250 Cooperative Work Experience, Graduate 1-9®
Provides credit for students working at a participating firm under faculty supervision. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)

CS 6300 Supercompilers for Sequential and Parallel Computers 3
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)

CS 6370 Software Engineering with a Project 3
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)

CS 6400 Computer Graphics II* 3
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)

CS 6450 Computer Security 3
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. Prerequisites: 3.0 GPA; CS 2420 and enrollment in Computer Science master's or PhD program. (Sp)

CS 6500 Advances in Parallel Systems 3
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)

CS 6550 Parallel Computing Systems 3
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)

CS 6600 AI: Advanced Intelligent Systems 3
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)

CS 6630 Fuzzy Logic and its Application 3
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)

CS 6650 Neural Networks and Evolutionary Algorithms 3
Advanced course in theories and techniques of machine intelligence, emphasizing pattern recognition, neural networks, and evolutionary algorithms. Prerequisites: 3.0 GPA; CS 2420 and advanced standing in computer science; or instructor's permission; and enrollment in Computer Science master's or PhD program. (Sp)

CS 6670 Computer Science Applications in Bioinformatics with a Project 3
Builds on material presented in CS 5660, presenting more advanced topics in bioinformatics, such as data mining, machine learning, and evolutionary algorithms. Students work in teams to develop a significant bioinformatics project. Students *cannot* receive credit for both CS 5670 and 6670. Prerequisite: CS 5660. (F)

CS 6690 AI: Advanced Topics in Artificial Intelligence (Topic) 3
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)

CS 6700 Object-Oriented Models, Methods, and Tools 3
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)

CS 6800 Theory of Relational Databases 3
Graduate-level relational database course covering constraints and normal forms, mathematical models and provable properties, minimality, graphs, and synthesis. Prerequisites: 3.0 GPA; grade of B- or better in CS 5800 and enrollment in Computer Science master's or PhD program. (Sp)

CS 6890 Topics in Computer Science (Topic) 1-4®
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)

CS 6900 Seminar 1
Series of one-hour seminars on current research topics presented by computer science faculty. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F)

CS 6950 Directed Readings in Computer Science 3®
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)

CS 6970 Thesis and Research 1-9®
Graduate research in computer science. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)

CS 6990 Continuing Graduate Advisement 1-6®
Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)

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CS 7100	Advanced MultiAgent Systems*	3
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)		
CS 7350	Patterns in Computer Software Systems	3
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)		
CS 7380	Software Testing*	3
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)		
CS 7450	Advances in Computer Security Research*	3
Covers recent research directions in computer security. Reviews current state of the field, and explores possible research directions for further work. Prerequisites: 3.0 GPA; grade of B- or better in CS 6450 and enrollment in Computer Science master's or PhD program. (F)		
CS 7500	Fault-Tolerant Systems	3
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)		
CS 7550	Interconnection Networks for Parallel Computer Systems	3
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)		
CS 7650	Advanced CVPRIP: Computer Vision, Pattern Recognition, and Image Processing	3
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)		
CS 7660	Robotics and Autonomous Systems	3
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)		
CS 7670	Data Mining and Machine Learning	3
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)		
CS 7680	Advanced Computer Vision*	3
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)		
CS 7900	Seminar	2
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. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (Sp)		

CS 7910	Special Topics in Intelligent Systems (Topic)	3[®]
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)		
CS 7920	Special Topics in Parallelism (Topic)	3[®]
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)		
CS 7930	Special Topics in Software Systems (Topic)	3[®]
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)		
CS 7940	Brain Building	3
Examines the state of the techniques associated with the building of artificial brains. Prerequisites: 3.0 GPA; instructor's permission and enrollment in Computer Science master's or PhD program. (Sp)		
CS 7950	Reading and Reports	3[®]
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)		
CS 7960	Topics in Bioinformatics (Topic)	3
Topics of current interest in bioinformatics. Prerequisite: Permission of instructor. (F,Sp,Su)		
CS 7970	Dissertation Research	1-15[®]
PhD dissertation research. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)		
CS 7990	Continuing Graduate Advisement	1-6[®]
Continuing PhD-level advisement. Prerequisites: 3.0 GPA; permission of instructor and enrollment in Computer Science master's or PhD program. (F,Sp,Su)		

[®]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.

Dance West Summer, Dance Education (DE)

See Department of Health, Physical Education and Recreation, pages 321-331.

DE 1700W	Jazz	1[®]
Provides training and experience in the styles of jazz, one of the popular forms of American dance. (Su)		
DE 1800W	Dance West Performance	1-3[®]
Students will learn dances to be performed in "The West: America's Odyssey." Prerequisite: Audition. (Su)		
DE 1840W	Beginning Classical Ballet	2[®]
A discipline in recognized classic form. Includes barre exercises, port de bras, and center practice in balance, jumping, and turns. (Su)		
DE 1870W	Beginning Classical Modern Dance	2[®]
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)		
DE 2850W	Intermediate Classical Ballet	2[®]
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)		

Course Descriptions

DE 2880W Intermediate Classical Modern Dance 2[®]
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 3800W Advanced Ballet 3[®]
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 4500W American Character Ballet 3[®]
History through movement from seventeenth century European dance through contemporary styles. (Su)

[®]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 253-259.

ECE 1000 Introduction to Electrical and Computer Engineering 2
(formerly ECE 1010)
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 2210 Electrical Engineering for Nonmajors 4
(formerly ECE 2200)
Introduction to electrical engineering, including DC circuits, electronic circuits, digital circuits, and power circuits. Not for ECE majors. Three lectures, one lab. Prerequisite: MATH 1210. Concurrent enrollment in PHYS 2220 is suggested. (F,Sp)

ECE 2270 Electrical Circuits 4
(formerly ECE 2410)
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. Corequisite or Prerequisite: MATH 2250. (F,Sp)

ECE 2700 Digital Circuits 4
(formerly ECE 2530)
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. (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. (F)

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 2270. Prerequisite or corequisite: ECE 3620. (F,Sp)

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 2250, ECE 2270, CS 1410. Corequisite or prerequisite: PHYS 2220. (F,Sp)

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. (F,Sp)

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 2270, 2700, CS 1410. (F,Sp)

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)

ECE 3820 CI Design I 2
Students work on an engineering project as part of a multidisciplinary team. Emphasizes engineering design, project management, technical writing, technical presentations, and project documentation. Prerequisite: Professional standing. (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 2270, 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 3
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 2270, MATH 2210, 2250, PHYS 2220. (F,Sp)

ECE 4250 Internship/Co-op 3[®]
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. 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. Prerequisite: ECE 3720. (F)

ECE 4840 CI Design II 3
Individual or team engineering project, including design, development, and testing. Interdisciplinary projects strongly encouraged. Design reviews and written progress reports required. Prerequisite: ECE 3820. (F,Sp,Su)

ECE 4850 CI Design III 2
Individual or team engineering project, including design, development, and testing. Interdisciplinary projects strongly encouraged. Written and oral reports required, describing technical details of design project. Prerequisite or corequisite: ECE 4840. (F,Sp,Su)

Course Descriptions

ECE 4930	Special Studies for Undergraduates	1-3[®]	Independent or group study of engineering problems not covered in regular course offerings. (F,Sp,Su)
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). Prerequisite: MATH 2250. (F)
ECE 5240	Space System Design	3	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)
ECE 5310	Control Systems	3	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)
ECE 5320	Mechatronics	4	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)
ECE 5340	Mobile Robots	4	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. (F)
ECE 5420	Microelectronics II	3	Design of electronic circuits for applications in instrumentation, communication, control, and power systems. Prerequisite: ECE 3410. (Sp)
ECE 5430 (dual listing 6430)	Applied CMOS Electronics	3	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)
ECE 5460 (dual listing 6460)	Digital VLSI System Design I	3	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)
ECE 5470 (dual listing 6470)	Digital VLSI System Design II	3	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)
ECE 5480	Electromagnetic Compatibility	3	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) ⁴
ECE 5530	Digital System Design	3	Presents modern top-down, bottom-up approach to design of digital systems, emphasizing programmable devices. Extensive use of CAD tools. Designing with ABEL, and introduction to designing with Verilog HDL. Laboratory work required. Prerequisite: ECE 2700. (F,Sp)
ECE 5630	Introduction to Digital Signal Processing	3	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)
ECE 5640	Real-Time Processors	4	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) ³
ECE 5660	Communication Systems I	3	Explores fundamentals of analog and digital communication systems. Focuses on modulation, demodulation, and synchronization. Prerequisites: ECE 3640 and MATH 5710; or graduate standing. (Sp)
ECE 5740	Concurrent Programming	3	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. (F)
ECE 5750	High-Performance Microprocessor Architecture	3	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)
ECE 5770	Microcomputer Interfacing	4	Design of hardware and software interfaces to microcomputers for instrumentation and control applications. Three lectures, one lab. Prerequisite: ECE 3710. (Sp)
ECE 5780	Real-Time Systems	4	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)
ECE 5800	Electromagnetics II	3	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)
ECE 5810	Microwaves I	3	Impedance matching, microwave network analysis, waveguides, nonlinear elements, analysis and design of power dividers, filters, and ferromagnetic circuits. Laboratory work required. Prerequisite: ECE 5800. (Sp)
ECE 5820	Electromagnetics Laboratory	3	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) ⁵
ECE 5850	Antennas I	3	Theory and application of electromagnetic radiation and radiating structures. Emphasis on antenna designs for modern wireless communications and radar systems. Prerequisite: ECE 3870. (F)
ECE 5870	Wireless Communication and Laboratory	3	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. Prerequisites: ECE 3870, 5660. (F) ¹
ECE 5930	Special Topics in Electrical and Computer Engineering	1-4[®]	Independent or group study of engineering problems not covered in regular course offerings. (F,Sp,Su)

Course Descriptions

<p>ECE 6010 Stochastic Processes in Electronic Systems 3 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)</p> <p>ECE 6030 Mathematical Methods for Signals and Systems 3 Signal representation using vector spaces. Linear algebraic techniques for signal modeling and estimation. Optimal detection and estimation algorithms, with applications. Prerequisite: Graduate status. (F)</p> <p>ECE 6100 Electromagnetics Seminar 1® Weekly seminar or colloquium for advanced electromagnetics students. Taught on demand. (Sp)</p> <p>ECE 6240 Space Environment and Engineering 3 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. Prerequisite: MATH 2250. Corequisite: ECE 5230. Also taught as PHYS 6240. (F)</p> <p>ECE 6250 Graduate Internship/Co-op 1-3 Planned work experience in industry. Detailed program; must have prior approval. Written report required. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p>ECE 6320 Linear Multivariable Control 3 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)</p> <p>ECE 6340 Spacecraft Attitude Control 3 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)</p> <p>ECE 6350 Robotics 3 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)</p> <p>ECE 6430 Applied CMOS Electronics (dual listing 5430) 3 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 5420 and 5530. (Sp)</p> <p>ECE 6460 Digital VLSI System Design I (dual listing 5460) 3 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)</p> <p>ECE 6470 Digital VLSI System Design II (dual listing 5470) 3 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)</p> <p>ECE 6490 Radar I 3 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. (Sp)</p>	<p>ECE 6560 Spacecraft Navigation 3 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)</p> <p>ECE 6600 Computer Networking I 3 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)</p> <p>ECE 6620 Introduction to Digital Image Processing 3 Digital processing theory and techniques for two-dimensional signals. Topics include two-dimensional transforms, image perception, sampling, modeling, enhancement, and data compression. Prerequisites: ECE 5630 and 6010. (Sp)⁴</p> <p>ECE 6650 Optics I (dual listing 4650) 3 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)</p> <p>ECE 6670 Communication Systems II 3 Communication over bandlimited channels, equalization, multiple antenna systems, space-time codes, spread spectrum, CDMA, OFDM. Prerequisites: ECE 5660, 6010, 6030. (F)</p> <p>ECE 6680 Optics II (dual listing 4680) 3 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)</p> <p>ECE 6750 Concurrent Systems Engineering I* 3 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. (Sp)</p> <p>ECE 6760 Fault-tolerant Systems 3 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. (F)²</p> <p>ECE 6780 Device Drivers 3 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. (Sp)</p> <p>ECE 6800 Electrical Engineering Colloquium 0.5® Weekly seminars or colloquia. Students are normally required to enroll for two semesters. (F,Sp)</p> <p>ECE 6830 Microwaves II 3 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)²</p> <p>ECE 6930 Special Topics in Electrical Engineering 1-6® 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)</p> <p>ECE 6950 Design Project 3® (F,Sp,Su)</p>
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Course Descriptions

ECE 6970 (F,Sp,Su)	Thesis Research, MS	1-6[®]
ECE 6990 Prerequisite: Permission of Electrical and Computer Engineering Department. (F,Sp,Su)	Continuing Graduate Advisement	1-6[®]
ECE 7030	Detection and Estimation Theory	3
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. (Sp) ⁴		
ECE 7210	Spacecraft Instrumentation	3
Theory, engineering, and data reduction techniques of spacecraft instrumentation for space science and spacecraft systems. Prerequisite: ECE 6240. Also taught as PHYS 7210. (Sp) ⁴		
ECE 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 MAE 7330. (Sp)		
ECE 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 MAE 7350. (Sp) ⁴		
ECE 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 QFT, H-infinity, and interval polynomial approaches. Prerequisite: ECE/MAE 6320 or instructor approval. Also taught as MAE 7360. (F) ⁶		
ECE 7390	Topics in Controls	3
Topics selected from advanced control theory. Taught on demand.		
ECE 7610	Computer Networking II	4
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)		
ECE 7620	Advanced Digital Image Processing	3
Advanced digital processing theory and techniques. Topics include image restoration, image reconstruction from projections (computed tomography), and data compression. Prerequisite: ECE 6620. (F) ⁵		
ECE 7630	Advanced Digital Signal Processing	3
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) ²		
ECE 7640	Topics in Signal Processing	3
Topics in advanced signal or image processing. Taught on demand.		
ECE 7670	Coding Theory and Practice in Communication	3
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. (Sp) ³		
ECE 7690	Topics in Communication Theory	3
Topics selected from advanced communication theory. Taught on demand.		
ECE 7710	Concurrent Systems Engineering II	3
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) ¹		

ECE 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 MAE 7750. (Sp) ³		
ECE 7760	Advanced Topics in Distributed Systems	3
Advanced topics in parallel and distributed computing, emphasizing small-scale real-time and embedded systems. Prerequisite: ECE 6750. Taught on demand.		
ECE 7770	Advanced Topics in Real-Time Systems	3
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.		
ECE 7850	Antennas II	3
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) ³		
ECE 7860	Computational Electromagnetics	3
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) ⁴		
ECE 7890	Topics in Electromagnetics	3
Topics selected from advanced electromagnetics, microwave, and radar fields. Taught on demand.		
ECE 7930	Special Topics in Electrical Engineering	1-6[®]
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)		
ECE 7970 (F,Sp,Su)	Dissertation Research	1-12[®]
ECE 7990 Prerequisite: Permission of Electrical and Computer Engineering Department. (F,Sp,Su)	Continuing Graduate Advisement	1-9[®]

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

¹Taught during even-numbered years, beginning with Fall 2006.

²Taught during odd-numbered years, beginning with Fall 2007.

³Taught during odd-numbered years, beginning with Spring 2007.

⁴Taught during even-numbered years, beginning with Spring 2008.

⁵Taught during even-numbered years, beginning with Fall 2006.

⁶Taught during odd-numbered years, beginning with Spring 2007.

Economics (ECON)

See *Department of Economics, pages 240-250.*

ECON 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)		
ECON 1550 BSS	Introduction to Environmental and Natural Resource Economics*	3
Introduction to the concepts of economics in the context of environmental and natural resource management. (F)		
ECON 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		

Course Descriptions

of competitive markets in motivating socially efficient consumer, business, and public sector choices. Prerequisite: ECON 1500. (F,Sp)

ECON 3030 DSS Introduction to Agribusiness Marketing 3
Principles and practices used by agribusiness firms to market products. Topics covered include the use of futures markets, international trade, marketing orders, and commodity marketing problems. Prerequisite: ECON 1500. (F)

ECON 3050 DSS Introduction to Agribusiness Management 3
Application of principles and practices used by managers of agribusiness firms. Prerequisites: ECON 1500, ACCT 2010. (Sp)

ECON 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. (F)

ECON 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: ECON 2010. (F,Sp,Su)

ECON 3900 Independent Reading and Research 1-3[®]
(F,Sp,Su)

ECON 4010 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 ECON 4010 and 5010. Prerequisites: ECON 1550 or 2010; MATH 1100; STAT 2300. (F,Sp)

ECON 4020 Macroeconomics for Managers 3[®]
Macroeconomic analysis applied to forecasting and understanding fluctuations in the levels of income, employment, and production. Designed for undergraduate business and accounting majors. Credit will not be given for both ECON 4020 and 5000. Prerequisite: ECON 1500. (F,Sp)

ECON 4030 CI Agribusiness Finance 3
Financial considerations in organizing and operating farms, ranches, and agribusiness firms. Prerequisites: ECON 2010, or ECON 3030 and 3050; ACCT 2010. (F)

ECON 4310 QI Mathematical Methods for Economics 3
(dual listing 5310)
Review of single-variable calculus (differentiation and integration); multivariate calculus (including the chain rule and implicit differentiation); optimization (unconstrained and constrained); linear algebra and applications (including linear programming). Economic applications. Prerequisites: ECON 2010; MATH 1100 or its equivalent. (F)

ECON 4950H 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)

ECON 4990 Senior Seminar 1-3[®]
Introduces students to current research and special topics in economics. (F,Sp)

ECON 5000 Macroeconomics 3
Analysis of underlying causes of unemployment, economic instability, inflation, and economic growth. Credit will not be given for both ECON 4020 and 5000. Prerequisites: ECON 1500, MATH 1100, and STAT 2300. (F)

ECON 5010 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 ECON 4010 and 5010. Prerequisites: ECON 2010, MATH 1100, and STAT 2300. (Sp)

ECON 5020 CI Economics and Public Policy 3
A study of selected federal policies and their impacts on product and factor markets, with major focus on an economic analysis of public policy actions. Prerequisites: ECON 4020 or 5000, ECON 4010 or 5010. (Sp)

ECON 5030 Agricultural Marketing and Price Analysis 3
Agribusiness market strategies and price analysis. Designed for upper-division students. Prerequisite: ECON 4010 or 5010. (F)

ECON 5050 Farm and Ranch Planning and Analysis 3
Economic principles and tools in operation of farm and ranch enterprises. Designed for upper-division students. Prerequisites: ECON 4010 or 5010; and ECON 4030. (Sp)

ECON 5100 History of Economic Thought 3
Origin and development of economic theories of leading thinkers in western civilization. Prerequisite: ECON 2010. (Sp)

ECON 5110 DSS Economic History of the United States 3
Development of agriculture, industry, transportation, and finance from colonial times. Prerequisite: ECON 2010. (F)

ECON 5120 Economics of Russia and Eastern Europe, 9th Century to 21st Century 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: ECON 2010. Also taught as POLS 5120. (F)

ECON 5150 DSS Comparative Economic Systems 3
History, economic theories, and comparative policies of communist, socialist, and capitalistic economies. Problems facing transition economies. Prerequisite: ECON 2010. (Sp)

ECON 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: ECON 4020 or 5000, ECON 4010 or 5010. (F)

ECON 5310 QI Mathematical Methods for Economics 3
(dual listing 4310)
Review of single-variable calculus (differentiation and integration); multivariate calculus (including the chain rule and implicit differentiation); optimization (unconstrained and constrained); linear algebra and applications (including linear programming). Economic applications. Prerequisites: ECON 2010; MATH 1100 or its equivalent. (F)

ECON 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. (Sp)

ECON 5350 CI Agribusiness, Cooperatives, and Management 3
Applications of economic and management principles to farm marketing and supply firms. Includes independent work on a set of case studies designed to enhance understanding of current issues in agribusiness and provide practice in solving everyday management problems. Prerequisites: ECON 3050, ECON 4010 or 5010, ECON 4020 or 5000. (Sp)

ECON 5400 International and Development Economics 3
Intermediate-level issues in international trade, international finance, and economic development. Topics include competitive and noncompetitive trade models, trade policy, balance of payments accounting, exchange rates, international lending and investment, economic growth, and poverty alleviation. Prerequisites: ECON 4020 or 5000; ECON 4010 or 5010. (F)

ECON 5500 Public Finance 3
Government fiscal institutions-expenditure programs, budget procedures, tax systems, debt issues, levels of government, and the issues surrounding their operations. Prerequisites: ECON 4020 or 5000, ECON 4010 or 5010. (F)

ECON 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: ECON 1550 or 2010. (Sp)

Course Descriptions

<p>ECON 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: ECON 4020 or 5000, ECON 4010 or 5010. (Sp)</p> <p>ECON 5660 Training and Organizational Development 2 Theoretical basis for training and development in organizations. Practical experience in the design and development of training and other educational programs in an organizational setting. Prerequisite: ECON 2010. (Sp)</p> <p>ECON 5680 Labor Economics 3 Labor force development and behavior, occupational choice and mobility, human capital formation, labor market information and institutions, and manpower policies. Prerequisite: ECON 2010. (Sp)</p> <p>ECON 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. Prerequisites: ECON 4020 or 5000, ECON 4010 or 5010. (F)</p> <p>ECON 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)</p> <p>ECON 6000 Macroeconomic Theory I (dual listing 7230) 3 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. (F)</p> <p>ECON 6030 Agricultural Marketing 3 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: ECON 6330. (F)</p> <p>ECON 6040 Agricultural Production/Policy 3 Includes analysis of marketing margins and a section on food demand and nutrition. Also explores food safety issues. Prerequisite: ECON 6030. (F)</p> <p>ECON 6050 Fundamentals of Economics 3 Introduction of economic principles for students entering a master's degree in the College of Business. Prerequisite: Acceptance into a College of Business master's degree program. (Su)</p> <p>ECON 6060 Research Methods (dual listing 7060) 2 Provides introduction to application of scientific methods in economics, with an emphasis on proposal writing. (Sp)</p> <p>ECON 6100 Microeconomic Theory I 3 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>ECON 6250 Graduate Internship 1-3® Prerequisites: ECON 6000, 6100, 6330. (F,Sp,Su)</p> <p>ECON 6300 Quantitative Analysis for Business and Policy Decisions 3 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>ECON 6330 Applied Econometrics 3 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. (F)</p> <p>ECON 6500 Introduction to Natural Resource Economics 3 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: ECON 4010 or 5010 or 5560. (Sp)</p> <p>ECON 6510 Introduction to Environmental Economics 3 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: ECON 4010 or 5010 or 5560 or 6500. (F)</p> <p>ECON 6520 Practicum in Environmental and Natural Resource Economics 3 Introduction to the application of regional economic models, cost-benefit analysis, and the valuation of amenity and other nonpecuniary resource services for Regulatory Impact Reviews, Environmental Impact Statements, etc. Prerequisite: ECON 5560 or 6500 or 6510. (F)</p> <p>ECON 6700 Regional and Community Economic Development 3 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: ECON 6100. (Sp)</p> <p>ECON 6710 Community Planning and Impact Analysis 3 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 models, IMPLAN models, and computable CGE modeling approaches as they are used in a planning environment. Prerequisite: ECON 6700. (F)</p> <p>ECON 6900 Readings and Conference 1-3® 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: ECON 5000 and 5010. (F,Sp,Su)</p> <p>ECON 6910 Independent Research 1-3® 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: ECON 5000 and 5010. (F,Sp,Su)</p> <p>ECON 6970 Thesis Research 1-9® Master's level research. (F,Sp,Su)</p> <p>ECON 6990 Continuing Graduate Advisement 1-9® Master's level advisement. (F,Sp,Su)</p> <p>ECON 7060 Research Methods (dual listing 6060) 2 Provides introduction to application of scientific methods in economics, with an emphasis on proposal writing. (Sp)</p> <p>ECON 7130 Microeconomic Theory I 3 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>
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Course Descriptions

ECON 7140 Microeconomic Theory II 3
 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: ECON 7130, 7360. (Sp)

ECON 7150 Microeconomic Theory III 3
 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: ECON 7140. (F)

ECON 7230 Macroeconomic Theory I 3
(dual listing 6000)
 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. (F)

ECON 7240 Macroeconomic Theory II 3
 Extends the foundations of ECON 7230 with a more in-depth look at the theory and computational aspects of various models of economic growth and business cycles. Prerequisites: ECON 7230, 7360. (Sp)

ECON 7250 Macroeconomic Theory III 3
 Focuses on emerging topics in macroeconomics, relying heavily on skills acquired in ECON 7230 and 7240. Topics to be covered include, but are not limited to, endogenous growth, real and monetary business cycle, capital theory, fiscal and monetary policy, and economic transition. Prerequisite: ECON 7240. (F)

ECON 7310 Econometrics I 3
 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: ECON 7360. (Sp)

ECON 7320 Econometrics II 3
 Extension of ECON 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: ECON 7310. (F)

ECON 7330 Econometrics III 3
 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 filter including the state space representation of a dynamic system, cointegration, and error-correction models. Prerequisite: ECON 7320. (Sp)

ECON 7350 Mathematical Economics I 3
 Includes linear equations, matrix algebra, multivariate calculus, static optimization, comparative static analysis, constrained optimization, and Kuhn-Tucker conditions. (F)

ECON 7360 Mathematical Economics II 3
 Extends the presentation of ECON 7350 by covering applications of constrained optimization, the envelope theorem and applications, differential equations, dynamic economics, and optimal control. Prerequisite: ECON 7350. (F)

ECON 7400 International Trade Theory and Policy I 3
 Focuses on recent developments in the theory of trade and trade policy, including: (1) the incorporation of imperfect competition into the theory of international trade, (2) international factor movements, (3) the empirical investigation of trade flows, and (4) strategic trade policies. Prerequisites: ECON 7140, 7240. (Sp)

ECON 7410 International Trade Theory and Policy II 3
 Focuses on the international monetary system and currency markets, with an emphasis on balance of payment adjustment and exchange rate determination. Different exchange rate regimes are introduced, and issues regarding exchange rate overshooting and currency substitution are addressed. Topics covered also include the international banking system, international investment decisions on funding and capital structure, foreign exchange risk hedging and management, and foreign exchange instruments and techniques. Prerequisites: ECON 7130, 7230, 7360. (F)

ECON 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: ECON 7140, 7240. (F)

ECON 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: ECON 7500. (Sp)

ECON 7800 Development Economics 3
 Focuses on a broad introduction to formalized economic models associated with developing regions/countries and theories of growth. Examines the interconnection between development and economic inequality, poverty and undernutrition, population growth, rural-urban migration, and agricultural development theories. Prerequisites: ECON 7140, 7240. (Sp)

ECON 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. (F,Sp)

ECON 7970 Dissertation Research 1-9[®]
 PhD dissertation research. (F,Sp,Su)

ECON 7990 Continuing Graduate Advisement 1-9[®]
 PhD-level advisement. (F,Sp,Su)

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©] This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*Taught 2006-2007.

Education and Human Services (EDUC)

See *College of Education and Human Services*, pages 116-117.

EDUC 5000H Senior Honors Seminar 2
 For students in the 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)

EDUC 5560 Special Topics 0.5-4[®]
 (F,Sp,Su)

EDUC 6010 Introduction to Program Evaluation: Evaluation Models and Practical Guidelines 3
 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.

EDUC 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)

Course Descriptions

<p>EDUC 6240 Introduction to Student Development Theory 3</p> <p>Helps students gain an overall understanding of student development theories and how these theories should influence and inform practice. Students will be able to identify theories and suggest ways to apply them to enhance students' development. Course requirement for the Master of Social Sciences degree program in Human Resource Management.</p>	<p>Diversity topics also include religion, socioeconomic class, ability differences, gender, and sexual orientation. (Sp,Su)</p>
<p>EDUC 6250 History and Development of Higher Education and Student Services 3</p> <p>Introduces students to the history and development of higher education and the student personnel field by acquainting them with the history of the profession, some of the profession's theoretical and organizational foundations, and basic issues faced by student services professionals. Course requirement for the Master of Social Sciences degree program in Human Resource Management.</p>	<p>EDUC 6740 School Law* 3</p> <p>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)</p>
<p>EDUC 6260 Law and Higher Education: A Guide for Student Services Personnel Administrators 3</p> <p>Helps students to become familiar with and gain a working knowledge of education law in postsecondary education, court litigation, scope of authority, liability risks, students' rights and responsibilities, discipline codes, risk management, federal laws affecting university programs, etc. Course requirement for the Master of Social Sciences degree program in Human Resource Management.</p>	<p>EDUC 6770 Qualitative Methods I 3</p> <p>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. (F,Sp)</p>
<p>EDUC 6270 Organizational Administration/Strategies in Student Services 3</p> <p>Explores university governance models, resource acquisition and allocation, financial management, and administrative leadership. Critically examines history, current issues, and present trends in the field of student services organizational administration. Course requirement for the Master of Social Sciences degree program in Human Resource Management.</p>	<p>EDUC 6780 Qualitative Methods II (dual listing 7780) 3</p> <p>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 7780 conduct a qualitative research project. Prerequisite: EDUC 6770. (Sp)</p>
<p>EDUC 6410 Educational Foundations 2</p> <p>Examines current educational issues and trends within contexts of history, philosophy, and cultural foundations. (F,Su)</p>	<p>EDUC 6930 Supervision and Administrative Internship—Elementary 3</p> <p>Jointly (with EDUC 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. Prerequisite: EDUC 6080. (F,Sp,Su)</p>
<p>EDUC 6500 Public School Finance* 3</p> <p>Background and understanding of public school finance. Principles and practices utilized in collecting, distributing, and managing district and school revenues, with emphasis on Utah. Collective bargaining practices and capital facilities development also emphasized. (F,Su)</p>	<p>EDUC 6940 Supervision and Administrative Internship—Secondary 3</p> <p>Jointly (with EDUC 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. Prerequisite: EDUC 6080. (F,Sp,Su)</p>
<p>EDUC 6550 Research for Classroom Teachers 3</p> <p>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)</p>	<p>EDUC 6950 Leadership Portfolio Development 1</p> <p>Creation of leadership portfolio as culminating activity for completion of Administrative/Supervisory Endorsement. Portfolio includes leadership vision, educational philosophy, and professional resume. (F,Sp,Su)</p>
<p>EDUC 6560 Special Topics 0.5-4® (F,Sp,Su)</p>	<p>EDUC 7050 Theories of Instructional Supervision* 3</p> <p>Principles and theoretical base of supervision as they relate to improving instructional practices. Emphasizes research findings and recommended practices. (F,Su)</p>
<p>EDUC 6570 Introduction to Educational and Psychological Research 3</p> <p>Provides introduction to research methods, including identification of research problem, review and evaluation of research literature, and design and implementation of research project. Prerequisite: PSY 2800. Also taught as PSY 6570. (F,Sp,Su)</p>	<p>EDUC 7080 Theories of Organizational Leadership in Education 3</p> <p>Introduces prospective school administrator to theories of organizational behavior and practices of managing and leading people within the context of the school organization. (F,Sp,Su)</p>
<p>EDUC 6600 Research Design and Analysis I 3</p> <p>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)</p>	<p>EDUC 7100 Practices of Instructional Supervision* 2</p> <p>Application of instructional supervisory theories and practices of supervisory behaviors as they relate to improvement of instruction. Prerequisite: EDUC 7050. (Sp)</p>
<p>EDUC 6700 Single-Subject Research Methods and Designs 3 (dual listing 7700)</p> <p>Examines single-subject research methodology for applied research in schools, including measurement, design, and analysis issues. Also taught as SPED 6700/7700. (F)</p>	<p>EDUC 7150 Curriculum Theory* 3</p> <p>Examines the role interpretist/phenomenological, political, cultural, and theoretical perspectives play in the development of school curriculum. Prerequisite: ELED/SCED 6150. (Su)</p>
<p>EDUC 6710 Diversity in Education 3</p> <p>Provides educators with background and techniques for more effectively addressing the needs of students in culturally and linguistically diverse society.</p>	<p>EDUC 7300 Historical, Social, and Cultural Foundations of Education 3</p> <p>Examines relationship of modern school in terms of historical, cultural, and social foundations of education. Prerequisites: EDUC 6410, ELED 6020/7020, or permission of instructor. (F)</p>
	<p>EDUC 7310 Teaching-Learning Foundations in Education 3</p> <p>Seminar in which learning theories and teaching models/skills are demonstrated, critically examined, and integrated. Prerequisite: Graduate course in educational psychology or equivalent. (Sp)</p>

Course Descriptions

EDUC 7320 Instructional Leadership* 3
Emphasizes application of theory, research, and effective practice to instructional and curricular improvement. Examines educational change.

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)

EDUC 7670 Literature Reviews in Education and Psychology 2
Advanced concepts in designing, writing, and critiquing literature reviews. Prerequisites: EDUC/PSY 6600 and 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 7780 conduct a qualitative research project. Prerequisite: EDUC 6770. (Sp)

EDUC 7970 Dissertation Research 1-18®
Dissertation research for students in the Research and Evaluation specialization. (F,Sp,Su)

®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 it will be taught, contact the College of Education and Human Services.

Elementary Education (ELED)

See Department of Elementary Education, pages 260-272.

ELED 1010 Orientation to Elementary Education (formerly ELED 1000) 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)

ELED 3000 CI Foundation Studies and Practicum in Teaching and Classroom Management Level II 4-6®
Introduction to historical, philosophical, and social factors shaping contemporary educational practice in kindergarten, elementary, and middle school. Through these factors, students investigate various aspects of teaching and classroom management. Extensive practicum included. (F,Sp)

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)

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. (F,Sp)

ELED 3100 Teaching Reading I 3®
Focuses on variety of approaches to reading instruction and issues in reading curriculum development. Includes reading theories, stages of reading growth, and assessment practices. Prerequisite: Admission to teacher education. (F,Sp,Su)

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)

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)

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. (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 evaluation in the areas of listening, speaking, writing, and reading. Prerequisite: Admission to teacher education. (F,Sp,Su)

ELED 4040 CI Teaching Reading II and Practicum Level III 3
Examines developmental, content, and recreational components of classroom reading programs, including teacher read-aloud, SSR, decoding, shared reading, uses of children's literature, content area reading, assessment, adaptive strategies, and parent involvement. Prerequisite: Admission to teacher education, ELED 3100. (F,Sp,Su)

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)

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)

ELED 4250 Advanced Cooperative Work Experience 1-8®
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. (F,Sp,Su)

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)

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)

ELED 4600 Philosophy and Organization of the Middle Level School (dual listing 6600) 3
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. Taught fall of odd-numbered years. Also taught as SCED 4600/6600. (F)

Course Descriptions

ELED 4610 (dual listing 6610)	Curriculum, Methods, and Assessment for the Middle Grades	3
Integrates current approaches to curriculum design with instructional models and assessment of learning appropriate for grades 5-9. Taught spring of even-numbered years. Also taught as SCED 4610/6610. (Sp)		
ELED 4620 (dual listing 6620)	Service Learning Applications for the Middle Grades	3
Examines literature related to service learning for the middle grades and application of service learning in curriculum. Also taught as SCED 4620/6620. (Su)		
ELED 4630 (dual listing 6630)	Methods for Teaching Middle-Level Mathematics**	3
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.		
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, gender, and sexual orientation. Prerequisite: Admission into a teacher education program. Also taught as SCED 4710. (F,Sp,Su)		
ELED 4730 (dual listing 6730)	Educational Linguistics	3
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. Prerequisite: Admission into a teacher education program. Also taught as SCED 4730/6730. (F,Su)		
ELED 4740 (dual listing 6740)	Second Language Acquisition in the Classroom	3
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. Prerequisite: Admission into a teacher education program. Also taught as SCED 4740/6740. (Sp,Su)		
ELED 4760 (dual listing 6760)	ESOL Instructional Strategies	3
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. Also taught as SCED 4760/6760. (F,Sp)		
ELED 4770 (dual listing 6770)	ESOL Instructional Strategies in the Content Areas	3
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. Also taught as SCED 4770/6770. (F,Sp)		
ELED 4780 (dual listing 6780)	Assessment for Language Learners	3
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. Also taught as SCED 4780/6780. (F,Sp)		
ELED 4900	Senior Project	1-5[®]
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[®]
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 5000 (dual listing 6000)	Practicum in Improvement of Instruction	1-6[®]
Open topics course focusing upon effective teaching methods, teaching performance, curriculum decision-making, and characteristics of learners. Also taught as SCED 5000/6000. (F,Sp,Su)		
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. (F,Sp)		
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. (F,Sp)		
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. (F,Sp)		
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. (F,Sp)		
ELED 5250	Student Teaching—Seminar	3
Designed to provide student teachers/interns with teaching skills and strategies that will assist them in the classroom. Accompanies one of ELED 5050, 5100, 5150, or 5200. Course content is implemented into the student teaching experience. (F,Sp)		
ELED 5300	Associate Teaching—Level V	3-6
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. (F,Sp)		
ELED 5900	Independent Study	0.5-2[®]
(F,Sp,Su)		
ELED 6000 (dual listing 5000)	Practicum in Improvement of Instruction	1-6[®]
Open topics course focusing upon effective teaching methods, teaching performance, curriculum decision-making, and characteristics of learners. Also taught as SCED 6000/5000. (F,Sp,Su)		
ELED 6020 (dual listing 7020)	Foundations and Change in Early Childhood Education	3
Survey course designed to acquaint professionals with historical and philosophical foundations of early childhood education, leading to examination of contemporary trends and issues. (Sp)		
ELED 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. Also taught as SCED 6040. (F,Su)		
ELED 6100	Motivation and Management in Inclusive Settings	3
Leads in-service teachers to develop classroom management strategies for gaining and maintaining students' cooperation. Also taught as SCED 6100. (Sp,Su)		
ELED 6150	Foundations of Curriculum	3
Examination of theories, principles, and foundations of curriculum, emphasizing program planning and current curriculum trends. Also taught as SCED 6150. (F,Su)		

Course Descriptions

<p>ELED 6190 Theories of Teaching and Learning 3 Demonstration, analysis, and evaluation of various models of teaching, emphasizing research-based principles of learning. Also taught as SCED 6190. (Sp,Su)</p> <p>ELED 6200 Curriculum and Issues in Early Childhood Education 2 Examination of current issues and research topics in early childhood education important to the improvement of K-3 programs. (F)</p> <p>ELED 6220 Workshop in Early Childhood Education 1-6 Exploration of current topics important in teaching young children. (Su)</p> <p>ELED 6230 Literacy Learning in Early Childhood 3 Investigation of early literacy development and effective classroom practices in kindergarten and the primary grades. Relevant research is examined. (F,Su)</p> <p>ELED 6240 Workshop in Science Education 1-6® Exploration of current topics in science education. (Su)</p> <p>ELED 6250 Graduate Cooperative Work Experience 1-10® Cooperative education work experience at a professional level. Prior approval required. (F,Sp,Su)</p> <p>ELED 6260 Supervised Practicum in Early Childhood Education 2 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.</p> <p>ELED 6300 Workshop in Mathematics Education 1-6® 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>ELED 6310 Content Area Reading and Writing 3 Practical approaches for teaching reading/writing and learning skills to elementary, middle, and high school students in all content areas. Also taught as SCED 6310. (Su)</p> <p>ELED 6320 Literacy and Cognition 3 (dual listing 7320) 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. Also taught as SCED 6320/7320. (Sp)</p> <p>ELED 6330 Utah Writing Project 1-6 Workshop, seminar, and institute experiences in the Utah Writing Project, focusing on writing process, principles, and research-based strategies for improving writing instruction in grades K-12. Also taught as SCED 6330. (Su)</p> <p>ELED 6340 Issues and Trends in Literacy 2® Exploration of current issues and instructional trends in the teaching of reading and writing. Emphasis on reading widely and critically in the professional literature. Prerequisites: ELED 3100, 4040; or teaching experience in elementary or middle school. Also taught as SCED 6340. (F,Su)</p> <p>ELED 6350 Reading Assessment and Intervention 3 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. Also taught as SCED 6350. (Sp)</p> <p>ELED 6360 Research in Reading 3 Covers classical, historical, and contemporary research studies in reading, with an emphasis upon understanding and translating findings into classroom practices. Prerequisites: ELED 3100, 4040; or teaching experience in elementary or middle school. Also taught as SCED 6360. (Su)</p>	<p>ELED 6370 Supervised Internship in Reading and Writing 1-3 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. Also taught as SCED 6370.</p> <p>ELED 6380 Improvement of Language Arts Instruction 3 Exploration of current topics and instructional practices in elementary language arts. Taught spring during one year, and then taught summer during the next year. (Sp,Su)</p> <p>ELED 6390 Teaching with Tradebooks in the Elementary and Middle Level Classroom 3 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. Prerequisites: ELED/SCED 6310 or 6360. Also taught as SCED 6390. (Su)</p> <p>ELED 6400 Multiple Talent Approach to Teaching 2 Explores one model for embedding the teaching of creative and critical thinking in regular curricula. Includes practical application requirements. Also taught as SCED 6400. (Su)</p> <p>ELED 6420 Education of Gifted and Talented Learners 2 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 ELED/SCED 6430. Also taught as SCED 6420. (F)</p> <p>ELED 6430 Practicum: Individual Case Study 1 Practicum experience in association with ELED/SCED 6420. Requires intensive supervised study of gifts and talents of individual child of student's choice. Must be taken concurrently with ELED/SCED 6420. Also taught as SCED 6430. (F)</p> <p>ELED 6440 Creativity in Education 2 Exploration of theories, research, and strategies concerning creativity, and their application to personal creativity and to improvement of classroom practice. Also taught as SCED 6440. (Su)</p> <p>ELED 6460 Identification and Evaluation in Gifted Education 2 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 ELED/SCED 6470. Also taught as SCED 6460. (Sp)</p> <p>ELED 6470 Practicum: Team Consultation 1 Practicum experience in association with ELED/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. Must be taken concurrently with ELED/SCED 6460. Also taught as SCED 6470. (Sp)</p> <p>ELED 6480 Methods and Materials in Gifted Education 2 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 ELED/SCED 6490. Also taught as SCED 6480. (F)</p> <p>ELED 6490 Practicum: Classroom Applications 1 Practicum experience in association with ELED/SCED 6480. Requires application of at least three curriculum, cognitive, or affective models in the student's current teaching assignment. Must be taken concurrently with ELED/SCED 6480. Also taught as SCED 6490. (F)</p> <p>ELED 6500 Interdisciplinary Workshop 1-2® (F,Sp,Su)</p> <p>ELED 6550 Practicum in the Evaluation of Instruction 1-4® 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>
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ELED 6560	Practicum in Improvement of Instruction	1-4®
Field-based program focusing upon characteristics of effective teaching methodologies, teaching performance, curriculum decision making, value guidelines, and the characteristics of the learner. (F,Sp,Su)		
ELED 6570	Advanced Comprehension	3
Designed to enhance teachers' understanding of research and practice related to teaching vocabulary and reading comprehension and fostering motivation for reading. Prerequisite: ELED/SCED 6310 or 6360. Also taught as SCED 6570. (Alt years)		
ELED 6580	Character and Values Education	2
Overview of research, theory, and practical approaches to values education, emphasizing processes of moral development and socialization. Also taught as SCED 6580. (Su)		
ELED 6590	Supervising School Reading Program	2
Examines strategies for improving school reading programs. Emphasizes simulations, guided practice, and small group discussions. Prerequisites: ELED/SCED 6350 and 6360. Also taught as SCED 6590. (Sp)		
ELED 6600 (dual listing 4600)	Philosophy and Organization of the Middle Level School	3
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. Taught fall of odd-numbered years. Also taught as SCED 6600/4600. (F)		
ELED 6610 (dual listing 4610)	Curriculum, Methods, and Assessment for the Middle Grades	3
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: ELED/SCED 6600. Taught spring of even-numbered years. Also taught as SCED 6610/4610. (Sp)		
ELED 6620 (dual listing 4620)	Service Learning Applications for the Middle Grades	3
Examines literature related to service learning for the middle grades and application of service learning in curriculum. Also taught as SCED 6620/4620. (Su)		
ELED 6630 (dual listing 4630)	Methods for Teaching Middle-Level Mathematics**	3
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.		
ELED 6700	Improvement of Science Instruction	3
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)		
ELED 6720	Practicum in Science Instruction	1
Optional practicum to be taken semester following enrollment in ELED 6700. (Sp)		
ELED 6730 (dual listing 4730)	Educational Linguistics	3
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. Prerequisite: Admission into a teacher education program. Also taught as SCED 6730/4730. (F,Su)		
ELED 6740 (dual listing 4740)	Second Language Acquisition in the Classroom	3
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. Prerequisite: Admission into a teacher education program. Also taught as SCED 6740/4740. (Sp,Su)

ELED 6750	Improvement of Mathematics Instruction	2
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)		
ELED 6760 (dual listing 4760)	ESOL Instructional Strategies	3
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. Also taught as SCED 6760/4760. (F,Sp)		
ELED 6770 (dual listing 4770)	ESOL Instructional Strategies in the Content Areas	3
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. Also taught as SCED 6770/4770. (F,Sp)		
ELED 6780 (dual listing 4780)	Assessment for Language Learners	3
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. Also taught as SCED 6780/4780. (F,Sp)		
ELED 6800	Improvement of Social Studies Instruction	3
Emphasizes study of newer concepts in curriculum and methods of instruction for elementary social studies programs. Designed for experienced teachers. Prerequisite: ELED 4050 or teaching experience in elementary or middle school.		
ELED 6840	Workshop: Intermountain Conference on Education of the Gifted and Talented	1-2®
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. Also taught as SCED 6840. (Su)		
ELED 6900	Independent Study	0.5-3®
(F,Sp,Su)		
ELED 6910	Independent Research	0.5-3®
(F,Sp,Su)		
ELED 6940	Supervision and Administration Internship	3
Provides experience in supervision and administration in school systems. (F,Sp,Su)		
ELED 6960	Master's Creative Project	3®
Provides students with opportunity to design and carry out a creative project closely related to area of teaching specialty. Requires written report. (F,Sp,Su)		
ELED 6970	Thesis	1-9®
Master's level research and thesis writing with guidance and criticism. (F,Sp,Su)		
ELED 6990	Continuing Graduate Advisement	1-9®
(F,Sp,Su)		
ELED 7020 (dual listing 6020)	Foundations and Change in Early Childhood Education	3
Survey course designed to acquaint professionals with historical and philosophical foundations of early childhood education, leading to examination of contemporary trends and issues. (Sp)		
ELED 7050	Internship in Program Evaluation	1-4®
Experience in practical aspects of program evaluation through planned, supervised evaluation project participation approved by student's supervisory committee. (F,Sp,Su)		

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ELED 7060	Internship in Research	1-4[®]
Experience in conducting research through planned, supervised research project participation approved by student's supervisory committee. (F,Sp,Su)		
ELED 7120	Student Teaching Supervision	1-3[®]
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)		
ELED 7320	Literacy and Cognition	3
(dual listing 6320) 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. Also taught as SCED 7320/6320. (Sp)		
ELED 7330	Supervision Internship	2-9[®]
Provides extensive supervisory experience for doctoral students. Internship is for period of time to be specified by department and cooperating agency. (F,Sp,Su)		
ELED 7350	Internship in Curriculum Development	1-4[®]
Internship with recognized leaders in the development, implementation, and evaluation of curricular programs and activities at early childhood, elementary, and/or middle education levels. (F,Sp,Su)		
ELED 7500	Interdisciplinary Workshop	1-2[®]
(F,Sp,Su)		
ELED 7550	Evaluation of Supervisory Performance	1-4[®]
Program for graduate students to become acquainted with and demonstrate competency in supervision. (F,Sp,Su)		
ELED 7810	Research Seminar	1-3[®]
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)		
ELED 7900	Independent Study	0.5-3[®]
(F,Sp,Su)		
ELED 7910	Independent Research	0.5-3[®]
(F,Sp,Su)		
ELED 7970	Dissertation	1-9[®]
Individual work on research problems in PhD or EdD program. Emphasizes writing and editorial techniques. (F,Sp,Su)		
ELED 7990	Continuing Graduate Advisement	1-9[®]
(F,Sp,Su)		

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©] This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*Taught 2006-2007.

**Taught 2007-2008.

English (ENGL)

See Department of English, page 278-292.

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. (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)		
ENGL 1020	Individualized Writing Instruction	1-3[®]
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)		
ENGL 1120	Elements of Grammar	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)		
ENGL 1600	American Cultures in Film	3
Introduction to major ethnic groups in America and their treatment in recent feature films. Also taught as HIST 1600. (F)		
ENGL 2010 CL2	Intermediate Writing: Research Writing in a Persuasive Mode	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, and one of: ENGL 1010 or AP score of 3 or ACT score of 29. (F,Sp,Su)		
ENGL 2140	British Literary History: Anglo-Saxon to 18th Century	3[®]
Survey of British literature from the Anglo-Saxon period through the 18th century. (F,Sp)		
ENGL 2150	British Literary History: Romanticism to Present	3
Survey of British literature from Romanticism to the present. (F,Sp)		
ENGL 2160	American Literary History: Colonialism to 1865	3
Survey of American literature from the colonial period to 1865. (F,Sp)		
ENGL 2170	American Literary History: 1865 to Present	3
Survey of American literary history from 1865 to the present. (F,Sp)		
ENGL 2200 BHU	Understanding Literature (formerly ENGL 1030 BHU)	3
Introduction to fiction, drama, and poetry of different periods and cultures. (F,Sp)		
ENGL 2210 BHU	Introduction to Folklore (formerly ENGL 1710 BHU)	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 ANTH 2210 and HIST 2210. (F,Sp)		
ENGL 2300 BHU	Introduction to Shakespeare (formerly ENGL 2030 BHU)	3
Introduction to comedies, histories, tragedies, and nondramatic poetry for nonmajors. (F)		
ENGL 2600	Literary Analysis (formerly ENGL 2100)	3
Writing-intensive course in literary analysis and research. Introduces English majors to techniques and problems of critical interpretation. (F,Sp)		
ENGL 2630 BHU	American Culture and the Environment	3
Introduces a broad selection of American literary, artistic, and cultural works that investigate the relationship between human culture and the environment, relying upon contemporary eco-critical theory and exploring roots in Western and world civilizations. (F,Sp)		
ENGL 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 ANTH 2720 and HIST 2720. (F,Sp)		
ENGL 3020 DHA	Perspectives in Linguistics*	3
In-depth study of linguistics for nonmajors. Topics vary according to faculty expertise. (Sp)		

Course Descriptions

<p>ENGL 3030 DHA Perspectives in Literature 3 In-depth study of literature for nonmajors. Topics vary according to faculty expertise. (F,Sp,Su)</p> <p>ENGL 3040 DHA Perspectives in Writing and Rhetoric** 3 In-depth study of rhetoric and writing for nonmajors. Topics vary according to faculty expertise. (F,Sp)</p> <p>ENGL 3050 DHA Masterpieces of World Literature 3 In-depth study of masterpieces of world literature from the earliest times to the present. For nonmajors. (F,Sp)</p> <p>ENGL 3060 DHA British and Commonwealth Cultures 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>ENGL 3070 DHA Perspectives in Folklore** 3® In-depth study of folklore for nonmajors. Topics vary according to faculty expertise. Also taught as HIST 3070. (F,Su)</p> <p>ENGL 3080 CI Introduction to Technical Communication 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: ENGL 2010. (F,Sp)</p> <p>ENGL 3300 Period Studies in American Literature 3® 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>ENGL 3310 Period Studies in British Literature 3® 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)</p> <p>ENGL 3320 Period Studies in World Literature 3® 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)</p> <p>ENGL 3330 Literary Theory 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. (F,Sp)</p> <p>ENGL 3400 CI Professional Writing 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. Enrollment limited to English majors <i>only</i>. (F,Sp)</p> <p>ENGL 3410 Professional Writing Technology 3 Examines technologies of professional writing. Students examine digital environments (computers, LANs, WANs, and the Internet), as well as the software studied while progressing through the Professional and Technical Writing emphasis curriculum. Enrollment limited to English majors <i>only</i>. (F,Sp)</p> <p>ENGL 3420 Fiction Writing 3 Covers basic elements of writing fiction: form, structure, plot, theme, characterization, dialogue, point of view, and imagery. (F)</p> <p>ENGL 3430 Poetry Writing 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)</p> <p>ENGL 3440 Creative Nonfiction Writing 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>ENGL 3450 Reading Theory for Writers 3 Provides thorough understanding of reading from the perspective of writers. Students learn how readers process written texts, how reading assists writing, how readability is measured, and how online texts affect reading. (F,Sp)</p>	<p>ENGL 3460 Modern Rhetorical Theory 3 Teaches students to analyze rhetoric (the art of using language to influence other people) as it operates in a variety of texts. Students learn to define and understand rhetorical situations and to evaluate rhetorical strategies chosen by other writers. (F,Sp)</p> <p>ENGL 3510 Young Adult Literature 3 Study of a variety of genres written specifically for adolescent audience. Intended for those interested in teaching secondary school English. (F,Sp)</p> <p>ENGL 3520 Multicultural American Literature 3 Introduction to study of diverse literatures of the United States, including Native American, Asian American, Hispanic/Latino, and African American. (F,Sp)</p> <p>ENGL 3530 Children's Literature* 3® 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)</p> <p>ENGL 3620 Native American Studies* 3 Multidisciplinary introduction to study of Native Americans, emphasizing folklore, history, anthropology, literature, traditions, and contemporary issues such as the environment. (F,Sp)</p> <p>ENGL 3700 CI Regional Folklore* 3 Study of folklore and folklife as they relate to regional cultures. Also taught as HIST 3700. (F,Sp)</p> <p>ENGL 3710 CI Folklore Colloquium 3® Issues, problems, and methodologies in folklore study. Focus and instructor variable. Also taught as HIST 3710. (Sp)</p> <p>ENGL 4200 Linguistic Structures 3 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)</p> <p>ENGL 4210 History of the English Language 3 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)</p> <p>ENGL 4220 Ethnic Literacy 3 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>ENGL 4230 Language and Society** 3 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>ENGL 4250 Playwriting 3 Study of dramatic theory and sample plays, combined with practice in writing short plays. Students must write a minimum of three plays. Prerequisite: THEA 1210. Also taught as THEA 4250. (F)</p> <p>ENGL 4300 Shakespeare 3® Selected works of William Shakespeare, with attention to biographical and cultural contexts. (F,Sp)</p> <p>ENGL 4310 American Writers** 3® 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>ENGL 4320 British Writers* 3® 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>ENGL 4330 World Writers* 3® 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>
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Course Descriptions

<p>ENGL 4340 Studies in Prose Fiction** 3® Analysis of the genre of prose fiction, emphasizing nature and evolution of specific forms. (Sp)</p> <p>ENGL 4350 Studies in Poetry* 3® Analysis of the genre of poetry, emphasizing nature and evolution of specific forms. (F)</p> <p>ENGL 4360 Studies in Drama/Film* 3® Analysis of dramatic and cinematic genres, emphasizing nature and evolution of specific forms. (Sp)</p> <p>ENGL 4370 Studies in Nonfiction Prose** 3® Analysis of the genre of nonfiction prose, emphasizing nature and evolution of specific forms. (F)</p> <p>ENGL 4400 CI Professional Editing 3 Editing of technical and scientific documents, working with deadlines, different levels of editing, editing marks, working with groups of editors and clients, and total document design, including graphics. Prerequisites: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better. (F)</p> <p>ENGL 4410 Document Design and Graphics 3 Explores elements of page layout, graphic design, type fonts, and design of documents to suit client's needs. Prerequisites: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better. (F,Sp)</p> <p>ENGL 4420 Advanced Fiction Writing 3® Offers advanced study in art and skill of writing publishable fiction. Relies on workshop method. Prerequisite: ENGL 3420 or equivalent. (Sp)</p> <p>ENGL 4430 Advanced Poetry Writing 3® Provides course for undergraduate students desiring to write publishable poetry. Relies on workshop method. Prerequisite: ENGL 3430 or equivalent. (Sp)</p> <p>ENGL 4440 Advanced Nonfiction Writing 3® Offers advanced study in the art and skill of writing publishable literary or creative nonfiction. (Sp)</p> <p>ENGL 4500 CI Teaching Writing 3 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>ENGL 4510 CI Teaching Literature 3 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>ENGL 4610 Western American Literature** 3 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>ENGL 4620 CI Advanced Seminar in American Studies 3 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>ENGL 4630 American Nature Writers* 3 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> <p>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)</p>	<p>ENGL 4700 Folk Material Culture** 3 Study of folk objects and their connections with culture and history. Also taught as HIST 4700. (Sp)</p> <p>ENGL 4750 Advanced Folklore Workshop: Fife Conference 3® 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)</p> <p>ENGL 4900 Internship/Cooperative Work Experience 1-15® Offers credit for professional experience obtained outside the classroom, prior to graduation. Requires statement of professional goals and summary report following the experience. Prerequisite: Departmental approval. (F,Sp,Su)</p> <p>ENGL 4910 Tutoring Practicum 1® Inservice training class for first-semester Writing Center staff members. Repeatable for up to 2 credits. (F,Sp)</p> <p>ENGL 5210 Topics in Linguistics* 3® 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)</p> <p>ENGL 5300 CI Literature and Gender 3® Exploration of cultural relations between literature and gender. Topics vary. (F,Sp)</p> <p>ENGL 5320 CI Literature and Cultural Difference 3® Exploration of relations between literature and cultural difference. Topics vary. (Sp)</p> <p>ENGL 5340 CI Studies in Literary and Cultural Theory 3® Applications in literary and cultural studies. Topics vary. (F)</p> <p>ENGL 5350 CI Literary Studies Capstone 3 Communicative intensive capstone course in which students synthesize and assess their knowledge of the discipline. Should be taken during the senior year. Enrollment limited to English majors <i>only</i>. (Sp)</p> <p>ENGL 5400 Specialized Documents 3® 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)</p> <p>ENGL 5410 Interactive Media 3® Students in the Professional and Technical Writing emphasis examine process of publishing online documents, studying multimedia, hypermedia, and hypertext environments. Topics vary and include building complex CD-ROM environments, help file authoring, and designing websites. Prerequisites: Admittance to program and completion of ENGL 3400 and 3410 with grades of B- or better. (F,Sp)</p> <p>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. (Sp)</p> <p>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)</p> <p>ENGL 5450 Creative Writing Capstone 3 Students synthesize and assess their knowledge of literary writing, compose a portfolio of creative work in their chosen genre, and consider and assess their experience in the creative writing process. (Sp)</p> <p>ENGL 5490 Usability Studies: Theory and Practice 3® Study of current approaches to improving user experiences with technologies and their related texts through research-based changes to product design and documentation. Prerequisite: ENGL 3450 or 3460. (F,Sp)</p>
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<p>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. (Sp)</p> <p>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)</p> <p>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)</p> <p>ENGL 5900 Senior Honors Seminar 1-3® Capstone course for students enrolled in English Honors Program. Prerequisite: Enrollment in English Honors Program. (F,Sp,Su)</p> <p>ENGL 5910 CI Senior Honors Thesis 1-6® Students work in conjunction with English faculty member to write a thesis. Prerequisite: Enrollment in English Honors Program. (F,Sp,Su)</p> <p>ENGL 5920 Directed Study 1-3® 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)</p> <p>ENGL 6320 Literary Theory 3® Introduces students to advanced literary theories and provides training in sophisticated critical methods. (F,Sp)</p> <p>ENGL 6330 Topics in Literary Studies 3® Allows in-depth study of specific literary topics and theoretical questions. (F,Sp)</p> <p>ENGL 6340 British Literature and Culture 3® Explores British literature and provides training in literary and cultural criticism. Promotes research and writing skills. (F,Sp)</p> <p>ENGL 6350 American Literature and Culture 3® Explores American literature and provides training in literary and cultural criticism. Promotes research and writing skills. (F,Sp)</p> <p>ENGL 6360 World Literature and Culture 3® Explores world literature and provides training in literary and cultural criticism. Promotes research and writing skills. (F,Sp)</p> <p>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)</p> <p>ENGL 6410 Theory and Research in (dual listing 7410) Professional Communication 3 Introduction to contemporary theories of written discourse. Emphasizes the implications of these theories for research in professional communication. (F,Sp)</p> <p>ENGL 6420 Usability Studies and Human Factors (dual listing 7420) in Professional Communication 3® 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>ENGL 6430 Publications Management 3 (dual listing 7430) Covers processes for developing and producing publications, including information development cycles, supervision, and budgets. (F,Sp)</p> <p>ENGL 6440 Studies in Culture and (dual listing 7440) Professional Communication 3® Covers topics in rhetorical, critical, and cultural theory, emphasizing their application to contemporary practices in professional communication. (F,Sp)</p>	<p>ENGL 6450 Reading Theory and Document Design 3 (dual listing 7450) 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>ENGL 6460 Studies in Digital Media 3® (dual listing 7460) 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)</p> <p>ENGL 6470 Studies in Specialized Documents 3® (dual listing 7470) 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>ENGL 6480 Studies in Technology and Writing 3® (dual listing 7480) 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>ENGL 6490 Portfolio 3 Design and preparation of a portfolio containing at least five documents, each accompanied by a justification and discussion.</p> <p>ENGL 6600 American Studies Theory and Method 3 Provides students with theory and method of graduate-level research in American Studies. Also taught as HIST 6600. (F)</p> <p>ENGL 6610 Seminar on the American West 3-4® 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>ENGL 6620 Seminar in Native American Studies 3-4® 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>ENGL 6630 Studies in Film and Popular Culture 3® 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>ENGL 6700 Folklore Theory and Method 3 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>ENGL 6710 Regional Folklore 3 Study of folklore and folklife as a regionalizing process. Regions examined through their folk culture range. Also taught as HIST 6710. (Sp)</p> <p>ENGL 6720 Folklore Fieldwork 3 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>ENGL 6730 Public Folklore 3 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>ENGL 6740 Folk Narrative 3 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>
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<p>ENGL 6750 Advanced Folklore Workshop (the Fife Conference) 3 Intensive workshop focusing on a topic in folklore. Brings in nationally known experts as lecturers and discussants. Students attend all sessions, then write a critical paper during the summer semester. Also taught as HIST 6750. (Su)</p> <p>ENGL 6760 Cultural and Historical Museums 3 Examines outdoor cultural and historical museums, examining their function in modern multi-cultural societies. Also taught as HIST 6760. (Sp)</p> <p>ENGL 6770 Seminar in Folklore and Folklife 3® Conducts close, professional-level study of major areas of folklore and folklife research. Also taught as HIST 6770. (F)</p> <p>ENGL 6800 Theory and Practice of Online Education in Writing 3® Examination of principles and their implementation in online writing instruction. Emphasis placed on writing instruction within English departments. (Sp)</p> <p>ENGL 6810 Introduction to Composition Studies 3 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>ENGL 6820 Practicum in Teaching English 3 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>ENGL 6830 Rhetorical Theory 3 (dual listing 7830) 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)</p> <p>ENGL 6850 Advanced Studies in the Teaching of English 3® Provides a critical approach to English pedagogy. Prepares students to teach English classes such as literature, composition, and creative writing. (F,Sp)</p> <p>ENGL 6860 Teaching Technical Writing 3 (dual listing 7860) 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>ENGL 6880 Topics in Creative Writing 3® Course changes topics as follows: poetry, fiction, and nonfiction. In each topic, students learn to write at an advanced level and learn to evaluate creative writing using workshop and peer group methods. Prerequisite: Permission of instructor. Enrollment limited to graduate students <i>only</i>.</p> <p>ENGL 6890 Studies in Writing and Rhetoric 3® (dual listing 7890) Allows in-depth study of specific rhetorical topics and theoretical questions. (F,Sp)</p> <p>ENGL 6900 Graduate Internship 1-15® 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>ENGL 6920 Directed Study 1-6® (F,Sp,Su)</p> <p>ENGL 6970 Thesis 1-6® (F,Sp,Su)</p> <p>ENGL 6990 Continuing Graduate Registration 1-6® (F,Sp,Su)</p>	<p>ENGL 7000 Advanced Research Methods in Professional Communication 3 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>ENGL 7400 Advanced Editing 3 (dual listing 6400) 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)</p> <p>ENGL 7410 Theory and Research in Professional Communication 3 (dual listing 6410) Introduction to contemporary theories of written discourse. Emphasizes the implications of these theories for research in professional communication. (F,Sp)</p> <p>ENGL 7420 Usability Studies and Human Factors in Professional Communication 3® (dual listing 6420) 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>ENGL 7430 Publications Management 3 (dual listing 6430) Covers processes for developing and producing publications, including information development cycles, supervision, and budgets. (F,Sp)</p> <p>ENGL 7440 Studies in Culture and Professional Communication 3® (dual listing 6440) Covers topics in rhetorical, critical, and cultural theory, emphasizing their application to contemporary practices in professional communication. (F,Sp)</p> <p>ENGL 7450 Reading Theory and Document Design 3 (dual listing 6450) 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>ENGL 7460 Studies in Digital Media 3® (dual listing 6460) 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)</p> <p>ENGL 7470 Studies in Specialized Documents 3® (dual listing 6470) 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>ENGL 7480 Studies in Technology and Writing 3® (dual listing 6480) 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>ENGL 7800 Theory and Practice of Online Education in Writing 3® (dual listing 6800) Examination of principles and their implementation in online writing instruction. Emphasis placed on writing instruction within English departments. (Sp)</p> <p>ENGL 7860 Teaching Technical Writing 3 (dual listing 6860) 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>
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ENGL 7890 (dual listing 6890)	Studies in Writing and Rhetoric	3[®]
Allows in-depth study of specific rhetorical topics and theoretical questions. (F,Sp)		
ENGL 7900	Research Internship	6
Application of workplace field research and methods in an actual workplace setting. Prerequisite: ENGL 7000. (F)		
ENGL 7970	Dissertation Research	1-12[®]
(F,Sp,Su)		
ENGL 7990	Continuing Graduate Advisement	1-9[®]
(F,Sp,Su)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©]This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*Taught 2006-2007.

**Taught 2007-2008.

Engineering (ENGR)

See *College of Engineering*, pages 118-122.

ENGR 1000 (formerly ENGR 1010)	Introduction to Engineering Design	2
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)		
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 (formerly ENGR 2000)	Engineering Mechanics Statics	2
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)		
ENGR 2030 (formerly ENGR 2020)	Engineering Mechanics Dynamics	3
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)		
ENGR 2140 (formerly ENGR 2040)	Strength of Materials	2
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)		
ENGR 2200	Engineering Numerical Methods I	3
Introduction to use of digital computers and elementary numerical analysis, with emphasis on practical applications and software development. Prerequisite: MATH 1220. Prerequisite or corequisite: MATH 2250. (F)		
ENGR 2450 (formerly ENGR 2210)	Engineering Numerical Methods II	2
Numerical solution techniques for solving ordinary and partial differential equations, emphasizing practical applications and software development. Prerequisite: ENGR 2200. (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 2210 or CS 1410. (F)		

Environment and Society (ENVS)

See *Department of Environment and Society*, pages 293-302.

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[®]
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)		
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)		
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)		
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)		
ENVS 4110 (dual listing 6110)	Fisheries and Wildlife Policy and Administration*	3
Examination of policy issues and administrative approaches in fish and wildlife management, with particular emphasis on nonbiological issues facing wildlife managers and administrators. (F)		

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<p>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)</p> <p>ENVS 4250 Advanced Internship/Co-op 1-9® Directed and evaluated cooperative education or work experience for undergraduates in public and private organizations. Prerequisite: Permission of department. (F,Sp,Su)</p> <p>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)</p> <p>ENVS 4440 Stegner Center Annual Symposium 1® (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>ENVS 4500 CI Wildland Recreation Behavior 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>ENVS 4600 Natural Resource Interpretation 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>ENVS 4920 Special Projects in Recreation Management 1-3® 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>ENVS 4950 Special Topics 1-3® Individual study and research upon selected environmental and societal problems. Prerequisite: Permission of department. (F,Sp,Su)</p> <p>ENVS 4960 Directed Readings 1-3® Individual reading research on selected environmental and societal readings. Prerequisite: Permission of department. (F,Sp,Su)</p> <p>ENVS 4970 Undergraduate Research 1-3® Individual or team research. Prerequisite: Permission of department. (F,Sp,Su)</p> <p>ENVS 4980 Undergraduate Seminar 1 Intended to bring upperclassmen up-to-date on environmental and societal topics. (Sp)</p> <p>ENVS 4990 Environmental and Natural Resource Professionalism Seminar 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>ENVS 5000 Collaborative Problem-Solving for Environment and Natural Resources 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>ENVS 5110 Environmental Education 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>ENVS 5300 Natural Resources Law and Policy* 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>ENVS 5320 Water Law and Policy in the United States 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>ENVS 5550 Sustainable Development* 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>ENVS 5570 Sustainable Living 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)</p> <p>ENVS 5640 Conflict Management in Natural Resources 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>ENVS 5800 Field Studies in Collaborative Natural Resource Stewardship 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>ENVS 5810 Internship in Collaborative Natural Resource Stewardship 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>ENVS 6000 Theoretical Foundations in Human Dimensions of Ecosystem Science and Management 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>ENVS 6110 Fisheries and Wildlife Policy and Administration* 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>ENVS 6130 Policy Aspects of Wildland Recreation 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>ENVS 6200 Bioregional Analysis and Planning 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>
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Course Descriptions

<p>ENVS 6210 Bioregional Management and Policy 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> <p>ENVS 6240 Graduate Internship/Co-op 1-9[®] Graduate-level educational experience in internship/cooperative education position approved by department. (F,Sp,Su)</p> <p>ENVS 6300 Social and Environmental (dual listing 7300) Psychology of Natural Resources** 3 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>ENVS 6400 Ecological Aspects of Wildland Recreation* 3 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>ENVS 6440 Stegner Center Annual Symposium 1[®] (dual listing 4440) 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>ENVS 6500 Behavioral Aspects of Wildland Recreation 3 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>ENVS 6530 Natural Resources Administration** 2 Organizational structures and processes common in natural resources administration on federal and state levels, and how they impact career development and land management. (Sp)</p> <p>ENVS 6550 Sustainable Development* 3 (dual listing 5550) 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>ENVS 6600 Advanced Natural Resource Interpretation 3 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>ENVS 6640 Conflict Management in (dual listing 5640) Natural Resources 3 Introduction to conflict management techniques for those involved in natural resource management. Also taught as SOC 6640/5640. (Sp)</p> <p>ENVS 6700 Research Approaches in Human Dimensions (dual listing 7700) of Ecosystem Science and Management 3 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>ENVS 6800 Environment and Society (dual listing 7800) Departmental Seminar 1[®] (F,Sp)</p>	<p>ENVS 6810 Research Techniques in Human Dimensions (dual listing 7810) of Ecosystem Science and Management* 3 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). (Sp)</p> <p>ENVS 6840 Graduate Introductory Seminar for (dual listing 7840) Environment and Society 1 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. (F)</p> <p>ENVS 6870 Ecology Seminar 1[®] 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. Students should register for fall semester, but attend through spring semester. Also taught as AWER 6870, BIOL 6870, and FRWS 6870. (F)</p> <p>ENVS 6900 Graduate Special Topics 1-6[®] Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)</p> <p>ENVS 6910 Directed Study 1-6[®] (F,Sp,Su)</p> <p>ENVS 6960 Graduate General Ecology 5 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 AWER 6960, BIOL 6960, and FRWS 6960. (F)</p> <p>ENVS 6970 Thesis Research 1-12[®] (F,Sp,Su)</p> <p>ENVS 6990 Continuing Graduate Advisement 1-9[®] (F,Sp,Su)</p> <p>ENVS 7000 Theoretical Foundations in (dual listing 6000) Human Dimensions of Ecosystem Science and Management 3 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>ENVS 7300 Social and Environmental (dual listing 6300) Psychology of Natural Resources** 3 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>ENVS 7700 Research Approaches in Human Dimensions (dual listing 6700) of Ecosystem Science and Management 3 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>ENVS 7800 Environment and Society (dual listing 6800) Departmental Seminar 1[®] (F,Sp)</p> <p>ENVS 7810 Research Techniques in Human Dimensions (dual listing 6810) of Ecosystem Science and Management** 3 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>
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Course Descriptions

ENVS 7840 (dual listing 6840)	Graduate Introductory Seminar for Environment and Society	1
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. (F)		
ENVS 7900	Graduate Special Topics	1-6[®]
Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)		
ENVS 7910	Directed Study	1-6[®]
Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)		
ENVS 7970 (F,Sp,Su)	Dissertation Research	1-12[®]
ENVS 7990 (F,Sp,Su)	Continuing Graduate Advisement	1-9[®]

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

*Taught 2006-2007.

**Taught 2007-2008

Engineering and Technology Education (ETE)

See Department of Engineering and Technology Education, pages 273-277.

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)		
ETE 1640	Introduction to Welding	3
Theory of Oxy-Acetylene Welding, Shielded-Metal Arc Welding, and Gas Metal Arc Welding. (F)		

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 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 students with ability to accurately produce computer-aided drafting software. Since there are no drafting prerequisites for this course, drafting fundamentals are also introduced. (F,Sp,Su)		
ETE 2300	QI Electronic Fundamentals	4
Study and application of DC and AC concepts, semiconductors, digital electronics, and microcomputers. Prerequisite: MATH 1050. (F,Su)		
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)		
ETE 3030	Computer-Integrated Manufacturing Systems	3
Introduction to principles, operations, and applications of computer-controlled manufacturing systems, including: CNC, CAD/CAM, robotics, programmable logic controllers, bar code readers, etc. Prerequisite: ETE 1030. (Sp)		
ETE 3040	Engineering Systems	3
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)		
ETE 3050	Computer Systems and Networking	3
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)		

Course Descriptions

<p>ETE 3070 K-8 Engineering and Technology Education 3 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>ETE 3200 Methods of Teaching Engineering and Technology Education I 3 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>ETE 3220 Architecture and Construction Systems 3 Basics of architectural computer-aided drafting. Includes introduction to principles of construction. Explores residential and commercial systems, emphasizing construction codes. Prerequisites: ETE 1200, MATH 1010. (F)</p> <p>ETE 3230 Machine and Production Drafting 3 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>ETE 3240 Technical Illustration 3 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>ETE 3270 Advanced Computer-Aided Drafting 3 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>ETE 3300 Clinical Experience I 1 Field-based experiences in secondary schools. Students complete 30 hours of tutoring students and assist teachers with managerial, clerical, and other professional tasks. Prerequisites: ETE 1000; ETE 3200 (must be taken concurrently). (F)</p> <p>ETE 3380 Microprocessor and Computer Interfacing 3 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>ETE 3390 Microcontrollers 3 Study of microcontrollers and applications. Includes programming and building circuits. Prerequisite: ETE 3380. (F)</p> <p>ETE 3400 Communication Circuits 3 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>ETE 3440 DSC Science, Technology, and Modern Society 3 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>ETE 3510 Introduction to Networking 3 Study of hardware and software required to build, install, maintain, and support a local area network. Emphasizes laboratory applications. Prerequisite: BIS 5400 (may be taken concurrently). (F)</p> <p>ETE 3710 Electronics/Computer Design I 1 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>ETE 3740 Facility and Equipment Maintenance 3 Systems approach to facility, equipment, and tool maintenance, including principles of woodworking, machine construction, adjustment, and sharpening.</p> <p>ETE 3900 Principles and Objectives of Career and Technical Education 3 Comprehensive study of philosophy and purposes of career and technical education programs and their place in the total program of modern education.</p> <p>ETE 3930 Evaluation of Career and Technical Education 2 Factors for evaluation of attitudes, skills, work habits, technical information, and instrument construction.</p> <p>ETE 4300 Clinical Experience II 1 Field-based experience, in which students complete 30 hours of teaching-related experiences in the classroom. Prerequisites: ETE 3200, 3300; ETE 4400 (must be taken concurrently). (Sp)</p> <p>ETE 4310 Corrosion and Corrosion Control 2 (dual listing 6310) 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>ETE 4400 Methods of Teaching Engineering and Technology Education II 3 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>ETE 4440 Technology and Society 3 (dual listing 6440) 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>ETE 4700 Student Teaching in Postsecondary Schools 4 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>ETE 4710 CI Electronics/Computer Design II 3 Execution and completion of a team or individual project. Requires design reviews and written reports. Prerequisite: ETE 3710. (Sp)</p> <p>ETE 4930 Independent Study 1-4[®] Upon application, students may propose and complete work above and beyond regular coursework to support or supplement their major. (F,Sp,Su)</p> <p>ETE 4940 Related Industrial Experience 1-12[®] 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>ETE 5040 Manufacturing Enterprise 3 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>ETE 5220 CI Program and Course Development 3 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> <p>ETE 5230 Technical Training Innovative Program 1-4[®] Prepares prospective and incumbent teachers to implement and conduct contemporary programs. Includes skill development and the philosophy needed for curriculum innovation.</p>
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Course Descriptions

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. 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. Prerequisite: ETE 5500 (must be taken concurrently). (F)
ETE 5800	Seminar—Technology Education	1-3[®]	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[®]	Special workshops for education or industry. May be repeated providing content varies.
ETE 5910	Special Problems in Engineering and Technology Education	1-4[®]	
ETE 5920	Related Technical Training	1-12[®]	
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 (dual listing 4310)	Corrosion and Corrosion Control	2	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 (dual listing 4440)	Technology and Society	3	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[®]	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	(F,Sp,Su)
ETE 6990	Continuing Graduate Advisement	1-3[®]	(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	1-6
Identification of research problems, consideration of research strategies and methods, application of research and statistical concepts in departmental focus, and interaction with faculty. (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[®]
(F,Sp,Su)		
ETE 7990	Continuing Graduate Advisement	1-3[®]

*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.

Family, Consumer, and Human Development (FCHD)

See Department of Family, Consumer, and Human Development, pages 303-314.

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 <i>only</i> . (F,Sp,Su)		
FCHD 1500 BSS	Human Development Across the Lifespan	3[®]
Overview of human development across the lifespan, from conception to death. (F,Sp) ¹		
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) ¹		
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)		
FCHD 2500	Child Development Associate Workshop	3[®]
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. (F,Sp,Su)		
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. (F,Sp,Su)		

FCHD 2600	Seminar in Early Childhood Education (formerly FCHD 2250)	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)		
FCHD 2610	Child Guidance	3[®]
Review of parenting styles and child guidance philosophies with emphasis on principles and techniques. (F,Sp,Su) ¹		
FCHD 2630	Practicum in Early Childhood Education (formerly FCHD 2250)	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)		
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) ¹		
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,Su)		
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 <i>only</i> . Prerequisite: STAT 1040. (F,Sp)		
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, ENGL 2010. Enrollment limited to FCHD majors <i>only</i> (F,Sp)		
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)		
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)		
FCHD 3340	Housing: Societal and Environmental Issues	3
Studies housing in the contemporary U.S., including affordability, access, expectations, aesthetic considerations, and effects of public and private policies on housing choices. (F)		
FCHD 3350 DSS/QI	Family Finance	3
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. Prerequisite: Choose one of MATH 1030, 1050, or STAT 1040. Note: Effective Fall Semester 2007, this course will have <i>no prerequisites</i> and will <i>no longer</i> fulfill the Quantitative Intensive (QI) University Studies requirement. (F,Sp,Su) ¹		
FCHD 3450	Consumer Credit Problems	3
Consumer credit problems, debt reduction strategies, credit collection policies and practices, bankruptcy, and government assistance programs. Prerequisite: FCHD 3350. (F)		
FCHD 3510	Infancy and Early Childhood	3
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) ¹		

Course Descriptions

<p>FCHD 3520 Children in the Middle Years 3 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)</p> <p>FCHD 3530 Adolescence 3 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)</p> <p>FCHD 3540 Adult Development and Aging 3 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)</p> <p>FCHD 3550 Infant Lab 1 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)</p> <p>FCHD 3560 Middle Childhood Lab 1 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)</p> <p>FCHD 4220 Family Crises and Interventions 3 Normative and nonnormative stressors provoking individual and family crises. Principles and techniques for family interventions. Prerequisites: Junior standing, FCHD 2400. (F,Su)</p> <p>FCHD 4230 Families and Social Policy 3 Local, state, and federal policies with implications for individuals and families across the lifespan. Prerequisites: Junior standing and FCHD 2400. (F,Sp)</p> <p>FCHD 4240 Social and Family Gerontology 3 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)</p> <p>FCHD 4330 Family Finance Career Seminar 1 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>FCHD 4350 Advanced Family Finance 3 Managing personal and family financial resources to achieve goals relating to investments, retirement, and estate planning. Prerequisite: FCHD 3350. (Sp)</p> <p>FCHD 4460 Financial Counseling 3 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>FCHD 4550 Preschool Methods and Curriculum 3 Use of materials, equipment, and activities in planning and implementing curricula for preschool children. Prerequisites: Junior standing and FCHD 1500. (F,Sp)</p> <p>FCHD 4800 Senior Honors Thesis/Project 3 Thesis/project in area of student's choice, selected and prepared in consultation with an advisor drawn from the FCHD faculty. Includes oral presentation and discussion of senior thesis/project. Prerequisite: Senior standing. (F,Sp,Su)</p> <p>FCHD 4900 CI Pre-Practicum Skills 3 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 ENGL 2010. (F,Sp)</p> <p>FCHD 4940 Gerontology Integration 1 Integration of gerontology coursework and practicum. Written paper requires approval by FCHD Gerontology Coordinator. (F,Sp,Su)</p>	<p>FCHD 4950 Practicum: Consumer Science 1-12[®] 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>FCHD 4960 Practice Teaching in Child Development Laboratories 3 or 6 Intensive teaching practicum in the Child Development Lab program. Students must sign up at least three full semesters in advance in FL 214. Prerequisites: Junior standing, FCHD 4550, and departmental permission. (F,Sp,Su)</p> <p>FCHD 4970 Gerontology Practicum 1-3[®] 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>FCHD 4980 Practicum 1-12[®] 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)</p> <p>FCHD 4990 Readings and Conference 1-6[®] Directed independent study of topics preselected by faculty and student. Instructor permission required before registration. (F,Sp,Su)</p> <p>FCHD 5340 Housing Finance and Regulations 3 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 Family, Consumer, and Human Development majors and Family and Consumer Sciences majors. (Sp)</p> <p>FCHD 5540 Family Life Education Methods 3 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 Family, Consumer, and Human Development majors <i>only</i>. (F,Sp)</p> <p>FCHD 5550 Interdisciplinary Workshop 1-3[®] (F,Sp,Su)</p> <p>FCHD 5950 Financial Counseling Practicum 3[®] 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>FCHD 6010 Survey of Family Relations Research 3 Overview and critique of substantive areas of research in marriage and the family. Prerequisite: FCHD 2400 or equivalent. (F)</p> <p>FCHD 6020 Survey of Human Development Research 3 Examines contemporary research and developmental issues. Highlights social development from social-historical and social change framework. Prerequisite: FCHD 1500 or equivalent. (Sp)</p> <p>FCHD 6030 Research Methods 3 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>
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Course Descriptions

FCHD 6040	Survey of Consumer Science Research	3	FCHD 6400	Topical Seminar in Consumer Science	3[®]
Examination of contemporary research in consumer science. (Sp)			(dual listing 7400) Selected issues in consumer science. Usually offered once per year. Semester taught will vary.		
FCHD 6050	Consumer Science Theories	3	FCHD 6500	Topical Seminar in Human Development	3[®]
Critical review and assessment of theories in consumer science. (F)			Selected issues in human development. Usually offered once per year. Semester taught will vary.		
FCHD 6060	Human Development Theories	3	FCHD 6900	Topical Seminar in Family and Human Development	3[®]
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)			Selected issues in family and human development. Usually offered once per year. Semester taught will vary.		
FCHD 6070	Family Theories	3	FCHD 6960	Readings and Conference	1-6[®]
Critical review and assessment of theories in family research, along with construction and application of family theory. Prerequisite: FCHD 2400 or equivalent. (F)			Directed independent study of topics preselected by faculty and student. Prerequisite: Instructor's permission. (F,Sp,Su)		
FCHD 6080	Professional Development	3	FCHD 6970	Thesis Research	1-6[®]
(dual listing 7080) 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.). (F)			Research for master's thesis, arranged with advisor. Prerequisite: Advisor's permission. (F,Sp,Su)		
FCHD 6200	Topical Seminar in Family Relations	3[®]	FCHD 6980	Graduate Practicum	1-9[®]
Selected issues in family relations. Usually offered once per year. Semester taught will vary.			Application of family and human development skills and knowledge in a supervised setting, as arranged by advisor. Prerequisite: Advisor's permission. (F,Sp,Su)		
FCHD 6310	Survey of Marriage and Family Therapy	3	FCHD 6990	Continuing Graduate Advisement	1-9[®]
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)			Continuing registration to complete thesis requirements. Prerequisite: Six credits of FCHD 6970. (F,Sp,Su)		
FCHD 6320	Foundations of Marriage and Family Therapy	3	FCHD 7050	Advanced Research and Theory in Consumer Science	3
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)			Critical review of research and theories in consumer science. Prerequisite: FCHD 6050. (Sp)		
FCHD 6330	Marriage and Family Therapy Practice I: Traditional Approaches	3	FCHD 7060	Advanced Research and Theory in Human Development*	3
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)			Critical review of research and theories in human development. Prerequisite: FCHD 6060 or equivalent. (F)		
FCHD 6340	Marriage and Family Therapy Practice II: Contemporary Approaches	3	FCHD 7070	Advanced Research and Theory in Family Relations**	3
Contemporary approaches to marriage and family therapy. Focuses on couple and family interaction issues, including conflict, parenting, and other common family problems. (Sp)			Critical review of research and theories in marriage and family relationships. Prerequisite: FCHD 6070 or equivalent. (Sp)		
FCHD 6350	Clinical Practice in Marriage and Family Therapy	3[®]	FCHD 7080	Professional Development	3
Selected clinical issues in marriage and family therapy. (Sp)			(dual listing 6080) 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.). (F)		
FCHD 6360	Ethical and Professional Development in Marriage and Family Therapy	3	FCHD 7200	Topical Seminar in Family Relations	3[®]
Ethical, legal, and professional issues in marriage and family therapy. (F)			Selected issues for advanced professionals in family relations. Usually offered once per year. Semester taught will vary.		
FCHD 6370	Assessment in Marriage and Family Therapy	3	FCHD 7400	Topical Seminar in Consumer Science	3
Development, application, and interpretation of major individual and family assessment techniques used in marriage and family therapy practice and research. (Sp)			(dual listing 6400) Selected issues for advanced professionals in consumer science. Usually offered once per year. Semester taught will vary.		
FCHD 6380	Topical Seminar in Marriage and Family Therapy	1-3[®]	FCHD 7500	Topical Seminar in Human Development	3[®]
Selected issues in marriage and family therapy. (F,Sp,Su)			Selected issues for advanced professionals in human development. Usually offered once per year. Semester taught will vary.		
FCHD 6390	Practicum in Marriage and Family Therapy	1-6[®]	FCHD 7900	Topical Seminar in Family and Human Development	3[®]
Supervised clinical experience in marriage and family therapy. Prerequisites: Admission to Marriage and Family Therapy specialization and instructor's permission. (F,Sp,Su)			Selected issues for advanced professionals in family and human development. Usually offered once per year. Semester taught will vary.		
			FCHD 7960	Readings and Conference	1-6[®]
			Directed independent study of topics preselected by faculty and student. Prerequisite: Instructor's permission. (F,Sp,Su)		

Course Descriptions

FCHD 7970 Dissertation Research 1-9[®]
 Research for dissertation, as arranged with advisor. Prerequisite: Advisor's permission. (F,Sp,Su)

FCHD 7980 Advanced Graduate Practicum 1-9[®]
 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[®]
 Continuing registration to complete dissertation requirements. Prerequisite: Twenty credits of FCHD 7970. (F,Sp,Su)

*Taught 2006-2007.

**Taught 2007-2008.

¹This course is also available online. For more information, contact department or see current semester *Schedule of Classes*.

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©] This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Family and Consumer Sciences Education (FCSE)

See *Department of Agricultural Systems Technology and Education*, pages 138-145.

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. (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. (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 Textile Science 4
 Study of fibers, yarns, fabric constructions, and finishes as related to appreciation, selection, use, and care of current textiles. Evaluation of physical, economic, and aesthetic properties of textile products to determine suitability for desired end use. (Sp)

FCSE 3040 Advanced Clothing Production Principles 3
 Develops skills in 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. (F)

FCSE 3080 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. (F,Su)

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. 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 4250 Internship in Family and Consumer Sciences Education 1-12[®]
 Midmanagement-level experience in a position approved by the department. One credit earned for each 60 hours of experience. 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. 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[®]
 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. Prerequisites: FCSE 4300, 4400. Must be taken concurrently with FCSE 5600. (Sp)

FCSE 5550 Workshop Topics in Family and Consumer Sciences Education 0.5-3[®]
 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. Prerequisites: FCSE 4300, 4400. Must be taken concurrently with FCSE 5500. (Sp)

FCSE 6210 Using and Interpreting SPSS to Analyze Social Research Data 3**
 Explores the use of SPSS for descriptive statistics, contingency tables, ANOVA models, and multiple regression. Discussion of syntax, procedure options, and interpretation of output. (Sp)

FCSE 6240 Graduate Topics in Family and Consumer Sciences Education 1-3[®]
 Surveys selected topics in family and consumer sciences education. Topics will be unique each time course is offered. (F,Sp,Su)

FCSE 6250 Graduate Internship in Family and Consumer Sciences 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)

FCSE 6280 Research Methods in Family and Consumer Sciences Education 2
 Explores techniques and tactics for designing and analyzing social science human behavior research. Emphasizes designs and instrumentation. Prospectus required. This course is currently inactive. Contact department for information about when this course may be taught.

Course Descriptions

FCSE 6290	Current Issues in Family and Consumer Sciences Education*	3
Investigation and reporting of current issues related to family and consumer sciences education research. (F)		
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 family and consumer sciences 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	Family and Consumer Sciences Education Topics**	3[®]
Explores advanced application of teaching strategies and theory, as well as the creation of innovative classroom materials. (F)		
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 Family and Consumer Sciences Education	1-4[®]
Independent study in the areas of family and consumer sciences education, including clothing and merchandising, consumer sciences, and interior design. For approval of project and allowable credits, students should check with committee. (F,Sp,Su)		
FCSE 6970	Master's Thesis Research in Family and Consumer Sciences Education	1-6[®]
Repeatable for up to 6 credits. (F,Sp,Su)		
FCSE 6990	Continuing Advanced Graduate Advisement in Family and Consumer Sciences Education	1-3[®]
(F,Sp,Su)		

*Taught 2006-2007.

**Taught 2007-2008.

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

French (FREN)

See *Department of Languages, Philosophy, and Speech Communication*, pages 364-379.

Lower Division

FREN 1010	French 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 French or equivalent. (F,Sp)		
FREN 1020	French First Year II	4
Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. Prerequisite: FREN 1010 or equivalent. (F,Sp)		

FREN 1030	Beginning French for Everyday Communication	3
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. (Su)		
FREN 1050	French First Year I Study Abroad	4
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)		
FREN 1150	French First Year II Study Abroad	4
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)		
FREN 1820	Beginning Independent Study: Experiencing Paris	2
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)		
FREN 2010	French Second Year I	4
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,Sp)		
FREN 2020	French Second Year II	4
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. (F,Sp)		
FREN 2030	Intermediate French for Everyday Communication	3
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. (Su)		
FREN 2050	French Second Year I Study Abroad	4
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)		
FREN 2150	French Second Year II Study Abroad	4
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)		
FREN 2820	Intermediate Independent Study: Experiencing Paris	2
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)		
FREN 2880	Individual Readings	3[®]
Individual study of selected readings in French. Cannot be substituted for FREN 2010 or 2020. Prerequisite: Instructor's permission. (Su)		

Upper Division

Upper-division French courses (3000-level and above) are available *only* to students who have completed FREN 2020 or who can demonstrate equivalent proficiency through testing. (**Exception:** FREN 3500, Topics in French Literature in Translation, does *not* require the 2020-level prerequisite, and *will not count* toward the Bachelor of Arts degree language requirement.)

Course Descriptions

<p>FREN 3030 Advanced French for Everyday Communication 3 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. (Su)</p> <p>FREN 3060 CI French Conversation 3 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. (F)</p> <p>FREN 3070 Advanced French Language Study Abroad I 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)</p> <p>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)</p> <p>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. (F)</p> <p>FREN 3500 DHA Topics in French Literature in Translation 3 Reading, analysis, and discussion of important French literature in English translation. Topics and texts may vary. (F,Sp,Su)</p> <p>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)</p> <p>FREN 3550 DHA French Civilization** 3 Study of historical, social, political, economic, and cultural conditions and institutions of France from early to modern times. (F)</p> <p>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. (Sp)</p> <p>FREN 3600 Textual Analysis 3[®] 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. (F)</p> <p>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)</p> <p>FREN 3880 Individual Readings 1-4[®] Individual study of selected readings in French. Instructor's permission required. (F,Sp,Su)</p> <p>FREN 3900 Topics in French and Francophone Studies** 3[®] 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. (F)</p>	<p>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. (Sp)</p> <p>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. (F)</p> <p>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. (Sp)</p> <p>FREN 4520 Information Technologies in French 3 Practices, theoretical issues, and policy concerns of information technologies resulting from microcomputers, networking, and videodisk. Use of microcomputer with French programs. Taught in French. (F)</p> <p>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. (Sp)</p> <p>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. (F)</p> <p>FREN 4880 Individual Readings 1-4[®] Readings in scientific, technical, or literary French. Prerequisite: Permission of instructor. (F,Sp)</p> <p>FREN 4900 Seminar in French and Francophone Studies** 3[®] 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. (Sp)</p> <p>FREN 4920 French 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. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p>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. (Sp)</p>
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[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

*Taught 2006-2007.

**Taught 2007-2008.

Course Descriptions

Forest, Range, and Wildlife Sciences (FRWS)

See Department of Wildland Resources, pages 541-547.

Note: Effective Spring Semester 2007, courses listed with the FRWS prefix will use the Wildland Resources (WILD) prefix.

FRWS 2000	Introduction to Forest, Range, and Wildlife Sciences	1
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)		
FRWS 2200 BLS	Ecology of Our Changing World	3[®]
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)		
FRWS 2250	Introductory Internship/Co-op	1-3[®]
Introductory-level educational experience in internship/cooperative education position approved by department. Prerequisite: Departmental signature. (F,Sp,Su)		
FRWS 2300	Mushroom Identification	1
Lecture course covering taxonomy, ecology, and importance of macro and micro fungi. Also taught as BIOL 2300. (F)		
FRWS 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 BIOL 2310. (F)		
FRWS 2500	Computer Applications in Natural Resources	3
Advanced spreadsheet, graphics, aerial photography, and Geographic Information Systems for natural resource management. (F)		
FRWS 3300	Management Aspects of Wildlife Behavior	3
Principles, concepts, and mechanisms of animal behavior, emphasizing behavioral ecology, development, and comparative aspects of special relevance to management of fish and wildlife. (Sp)		
FRWS 3600	Wildland Plant Ecology and Identification	4
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 FRWS Department majors. Department authorization required for all nonmajors. (F)		
FRWS 3610	Wildland Animal Ecology and Identification	4
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 FRWS Department majors. Department authorization required for all nonmajors. (F)		
FRWS 3700 CI	Inventory and Assessment in Natural Resource and Environmental Management	3
Lectures, laboratory exercises, and field-based projects introduce students to the concepts, strategies, and analytical methods of natural resource and environmental inventory 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)		
FRWS 3710	Monitoring and Assessment in Natural Resource and Environmental Management	3
Lectures, case studies, laboratory exercises, and field-based projects introduce students to the concepts, strategies, and analytical methods of science-based assessment of natural resources. Prerequisite: FRWS 3700 or permission of instructor. (Sp)		

FRWS 3800	Wildland Ecosystems	3
Structure, function, and dynamics of terrestrial ecosystems in response to natural and anthropogenic impacts, with emphasis on the Intermountain West and Great Plains. Prerequisites: NR/BIOL 2220; and SOIL 3000 (or concurrent enrollment). (Sp)		
FRWS 3810	Plant and Animal Populations	3
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)		
FRWS 3850	Vegetation and Habitat Management	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; FRWS 3600 (may be taken concurrently). (F)		
FRWS 3900	Managing Dynamic Ecological Systems	4
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)		
FRWS 4000	Principles of Rangeland Management	3
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)		
FRWS 4050	Urban Fish and Wildlife Management	3[®]
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)		
FRWS 4250	Advanced Internship/Co-op	1-9[®]
Advanced-level educational experience in internship/cooperative education position approved by department. Prerequisite: Departmental signature. (F,Sp,Su)		
FRWS 4500	Principles of Wildlife Management	3
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: FRWS 3610 and 3810. (Sp)		
FRWS 4520	Wildland Fire Behavior	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 not currently being offered. For information about when it may be offered, contact the department.		
FRWS 4540	Forest Harvest and Utilization	2
Elements of timber harvest systems, including policies and practices for minimizing biophysical impacts. Utilization of wood resources. (F)		
FRWS 4600	Conservation Biology*	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)		
FRWS 4700	Ecological Foundations of Restoration	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, FRWS 3850. (Sp)		

Course Descriptions

<p>FRWS 4810 Directed Reading in Wildlife Damage Management 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)</p> <p>FRWS 4880 Genetics in Conservation and Management 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 1220; BIOL 1210. (F)</p> <p>FRWS 4950 Special Topics 1-3[®] Individual study and research upon selected problems. Prerequisite: Departmental permission. (F,Sp,Su)</p> <p>FRWS 4960 Directed Readings 1-3[®] Individual reading research on forest, range, and wildlife science readings. Prerequisite: Departmental approval. (F,Sp,Su)</p> <p>FRWS 4970 Undergraduate Research 1-3[®] Individual or team research. Prerequisite: Departmental permission. (F,Sp,Su)</p> <p>FRWS 4980 Undergraduate Seminar 1[®] Intended to bring upperclassmen up-to-date on topics in forest, range, and wildlife sciences. (F,Sp)</p> <p>FRWS 5000 Predator Ecology and Management* 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>FRWS 5070 Range Wildlife Relations (dual listing 6070) 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: FRWS 3610 or permission of instructor. (F)</p> <p>FRWS 5100 Wildlife Management Laboratory 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>FRWS 5220 Community-based Conservation (dual listing 7220) Partnerships** 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>FRWS 5300 Wildlife Damage Management Principles (dual listing 7300) 3 Explains current legal, ethical, and biological principles for the control and/or management of problem vertebrate species. (Sp)</p> <p>FRWS 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 SOIL 5350/6350. (Sp)</p> <p>FRWS 5420 CI Forest and Shade Tree Pathology 3 Nature, cause, and management of forest diseases. Also taught as BIOL 5420 and PLSC 5420. (Sp)</p> <p>FRWS 5430 Advanced Forest Pathology 2 In-depth exploration of forest pathology issues, focusing on ecosystem-level processes. (Sp)</p>	<p>FRWS 5460 Avalanche and Snow Dynamics 2 Fundamentals of snow and avalanche dynamics. Avalanche safety, forecasting, hazard evaluation, and control. (Sp—first half)</p> <p>FRWS 5510 Forest Entomology 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>FRWS 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 PLSC 5650. (Sp)</p> <p>FRWS 5700 Forest Assessment and Management 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>FRWS 5710 Wildland Disturbance: Ecology and Management 3 Examines causes, effects, and management options for selected biotic and abiotic agents of disturbance in wildland ecosystems. (F)</p> <p>FRWS 5750 Applied Remote Sensing (dual listing 6750) 3 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>FRWS 5860 Poisonous Range Plants Affecting Livestock** 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>FRWS 6000 Grazing Systems** 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>FRWS 6050 Rangeland Fire Ecology and Fire Prescription Development 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>FRWS 6070 Range Wildlife Relations (dual listing 5070) 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: FRWS 3610 or permission of instructor. (F)</p> <p>FRWS 6180 Molecular Population Genetics Laboratory 5 Application of molecular techniques to population genetics, ecology, and systematics. Includes experimental and sampling design, and data analysis. Prerequisite: BIOL 5170/6170 or permission of instructor. Also taught as BIOL 6180. (F)</p> <p>FRWS 6200 Biogeochemistry of Terrestrial Ecosystems** 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 1220, SOIL 3000, CHEM 2300 or 2310, or permission of instructor. Also taught as BIOL 6200 and SOIL 6200. (F)</p>
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Course Descriptions

<p>FRWS 6240 Graduate Internship/Co-op 1-9® Graduate-level educational experience in internship/cooperative education position approved by department. (F,Sp,Su)</p> <p>FRWS 6270 Advanced Silviculture 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>FRWS 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 SOIL 6350/5350. (Sp)</p> <p>FRWS 6400 Ecology of Animal Populations* 4 Growth, fluctuation, balance, and control of animal populations. Prerequisite: NR/BIOL 2220 or equivalent. (F)</p> <p>FRWS 6420 Vegetation Sampling Design 4 Advanced intrastand vegetation sampling design and elementary (nonmultivariate) between stand comparisons, primarily for research purposes. Prerequisites: STAT 5200; FRWS 6770. (Su)</p> <p>FRWS 6500 Biometry: Design and Analysis of Ecology Research 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>FRWS 6510 Topics in Spatial Ecology** 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>FRWS 6610 Regional Terrestrial Ecosystems 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>FRWS 6710 Landscape Ecology 3 (dual listing 7710) 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>FRWS 6720 Advanced Conservation Biology* 3 (dual listing 7720) 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>FRWS 6740 Physical Processes in Remote Sensing 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>FRWS 6750 Applied Remote Sensing 3 (dual listing 5750) 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>FRWS 6770 Plant Community Ecology* 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. Prerequisites: NR/BIOL 2220 or equivalent; and ecology core courses (may be taken concurrently). (Sp)</p> <p>FRWS 6800 Forest, Range, and Wildlife 1® (dual listing 7800) Sciences Departmental Seminar Review of current research by graduate students and faculty. (F,Sp)</p> <p>FRWS 6850 Population Ecology 3 (dual listing 7850) 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>FRWS 6870 Ecology Seminar 1® 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. Students should register for fall semester, but attend through spring semester. Also taught as AWER 6870, ENVS 6870, and BIOL 6870. (F,Sp)</p> <p>FRWS 6880 Current Issues in Conservation 2 (dual listing 7880) Genetics and Management* 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>FRWS 6900 Graduate Special Topics 1-6® Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)</p> <p>FRWS 6910 Directed Study 1-6® Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)</p> <p>FRWS 6960 Graduate General Ecology 5 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 AWER 6960, BIOL 6960, and ENVS 6960. (F)</p> <p>FRWS 6970 Thesis Research 1-12® Original research for MS degree on a problem in rangeland resources. (F,Sp,Su)</p> <p>FRWS 6990 Continuing Graduate Advisement 1-9® (F,Sp,Su)</p> <p>FRWS 7000 Theory and Applications of Rangeland Ecosystem Management 3 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)</p> <p>FRWS 7030 Plant-Herbivore Interactions* 3 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>FRWS 7200 Plant Physiological Ecology** 3 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>FRWS 7220 Community-based Conservation 3 (dual listing 5220) Partnerships** 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>
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Course Descriptions

FRWS 7300 (dual listing 5300)	Wildlife Damage Management Principles	3
Explains current legal, ethical, and biological principles for the control and/or management of problem vertebrate species. (Sp)		
FRWS 7400	Plant Population Ecology*	3
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)		
FRWS 7420	Analysis of Ecological Communities**	5
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 FRWS 6500 or consent of instructor. (Sp)		
FRWS 7710 (dual listing 6710)	Landscape Ecology	3
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)		
FRWS 7720 (dual listing 6720)	Advanced Conservation Biology*	3
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)		
FRWS 7800 (dual listing 6800)	Forest, Range, and Wildlife Sciences Departmental Seminar	1[®]
Review of current research by graduate students and faculty. (F,Sp)		
FRWS 7850 (dual listing 6850)	Population Ecology	3
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.		
FRWS 7880 (dual listing 6880)	Current Issues in Conservation Genetics and Management*	2
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)		
FRWS 7900	Graduate Special Topics	1-6[®]
Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)		
FRWS 7910	Directed Study	1-6[®]
Offers credit for special assignments, reading, and seminars beyond regularly scheduled courses. (F,Sp,Su)		
FRWS 7970	Dissertation Research	1-12[®]
Original research and study for PhD degree. (F,Sp,Su)		
FRWS 7990 (F,Sp,Su)	Continuing Graduate Advisement	1-9[®]

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©]This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*Taught 2006-2007.

**Taught 2007-2008.

Geology (GEO) (formerly GEOL)

See Department of Geology, pages 315-320.

GEO 1010 BPS	Geology of National Parks: Introduction to Geology	3[®]
(formerly GEOL 1100 BPS)		
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)		
GEO 1060 BPS	Introduction to Environmental Geoscience	3
(formerly GEOL 1200 BPS)		
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)		
GEO 1110 BPS	The Dynamic Earth: Physical Geology	4
(formerly GEOL 1150 BPS)		
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)		
GEO 1120	Geology of National Parks Field Trip	1
(formerly GEOL 1110)		
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)		
GEO 2250	Introductory Internship/Co-op	1-4[®]
Introductory educational work experience. (F,Sp,Su)		
GEO 2500	Geology Field Excursions	1[®]
Geologic features and processes observed in the field. Prerequisite: GEO 1010 or 1110. (F,Sp)		
GEO 3100 DSC	Natural Disasters	3
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)		
GEO 3200 DSC	The Earth Through Time	4[®]
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)		
GEO 3300 DSC	Geology of the World's Oceans	3
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)		
GEO 3500	Mineralogy and Crystallography	4
Introduction to crystallography, crystal chemistry, and descriptive mineralogy. Three lectures and one three-hour lab per week. Prerequisites: CHEM 1210 and GEO 1110. (F)		
GEO 3520	Optical Mineralogy and Petrography	2
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)		

Course Descriptions

<p>GEO 3550 CI Sedimentation and Stratigraphy 4 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>GEO 3600 Geomorphology 4 Geomorphologic 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 AWER 3600. (F)</p> <p>GEO 3700 Structural Geology 4 Examines the mechanisms, mechanics, and geometrics of deformed rocks. Basic principles of rock deformation, stress and strain, fault and fold classifications, and the mechanisms by which rocks deform. Lab presents applications and techniques important for accurately describing and representing deformed rocks in maps and cross-sections, and how to interpret and present data on rock structures. Three lectures and one three-hour lab per week. Prerequisite: GEO 3550. (Sp)</p> <p>GEO 4250 Advanced Internship/Co-op 1-4® Advanced educational work experience. (F,Sp,Su)</p> <p>GEO 4500 Igneous and Metamorphic Petrology* 4 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>GEO 4700 CI Geologic Field Methods* 3 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>GEO 4900 Special Problems 1-4® Directed study of selected topics. Written report required. Prerequisite: Permission of instructor. (F,Sp)</p> <p>GEO 5150 Fluvial Geomorphology 3 (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. Prerequisite: GEO/AWER 3600. Also taught as AWER 5150/6150. (F)</p> <p>GEO 5170 Fluvial Geomorphology Lab 2 (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. Prerequisite: GEO/AWER 3600. Also taught as AWER 5170/6170. (F)</p> <p>GEO 5200 Geology Field Camp* 5 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>GEO 5410 Introduction to Clay Mineralogy* 2 (dual listing 6410) 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>GEO 5420 Metallic Mineral Deposits* 4 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>GEO 5430 Paleontology* 2 Survey of prominent microfossil and invertebrate taxa, 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>GEO 5440 CI Paleocology* 2 (dual listing 6440) 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>GEO 5460 Advanced Physical Sedimentology* 3 (dual listing 6460) 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>GEO 5470 Chemical Sedimentary Rocks* 2 (dual listing 6470) 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>GEO 5480 Sedimentary Basin Analysis 3 (dual listing 6480) 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>GEO 5500 Advanced Igneous Petrology* 4 (dual listing 6500) 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>GEO 5510 QI Groundwater Geology 3 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/AWER 3600 recommended. (F)</p> <p>GEO 5520 CI Techniques of Groundwater Investigations 3 (dual listing 6520) 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>GEO 5530 QI Petroleum Systems: Principles of Exploration and Development* 3 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>GEO 5540 QI Quantitative Methods in Geology* 3 (dual listing 6540) Application of various quantitative methodologies to geologic problems. Two lectures and one lab per week. (F)</p>
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Course Descriptions

<p>GEO 5550 (dual listing 6550) Geochemical Application of Electron Microprobe and X-Ray Fluorescence Analysis* 4</p> <p>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>GEO 5560 Subsurface Analyses: Principles and Techniques* 1</p> <p>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>GEO 5600 Geochemistry 3</p> <p>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>GEO 5610 (dual listing 6610) Tectonic Evolution of North America* 3</p> <p>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>GEO 5620 QI Global Geophysics* 3 (dual listing 6620)</p> <p>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 PHYX 2220.</p> <p>GEO 5630 Photogeology* 2</p> <p>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.</p> <p>GEO 5650 Senior Thesis 1-4®</p> <p>Prerequisite: Permission of instructor. (F,Sp)</p> <p>GEO 5680 (dual listing 6680) Paleoclimatology* 3</p> <p>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/AWER 3600 or permission of instructor. Also taught as AWER 5680/6680. (Sp)</p> <p>GEO 5900 Topics for Teachers 1-4®</p> <p>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.</p> <p>GEO 6050 (dual listing 7050) Graduate Seminar in Tectonics (Topic) 1-3®</p> <p>Advanced topics of current interest in tectonics and orogenesis. (F,Sp)</p> <p>GEO 6100 (dual listing 7100) Graduate Seminar in Geomorphology (Topic) 1-3®</p> <p>Advanced topics of current interest in geomorphology and landscape evolution. (F,Sp)</p> <p>GEO 6120 (dual listing 7120) Advanced Geomorphology* 3</p> <p>Process geomorphology seminar focusing on hillslope, tectonic, and climatic geomorphology research. (Sp)</p> <p>GEO 6150 (dual listing 5150) Fluvial Geomorphology 3</p> <p>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. Prerequisite: GEO/AWER 3600. Also taught as AWER 6150/5150. (F)</p>	<p>GEO 6160 Hillslope and Landscape Geomorphology* 3</p> <p>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/AWER 3600. Also taught as AWER 6160. (Sp)</p> <p>GEO 6170 (dual listing 5170) Fluvial Geomorphology Lab 2</p> <p>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. Prerequisite: GEO/AWER 3600. Also taught as AWER 6170/5170. (F)</p> <p>GEO 6200 (dual listing 7200) Graduate Seminar in Geochemistry (Topic) 1-3®</p> <p>Advanced topics of current interest in geochemistry. (F,Sp)</p> <p>GEO 6240 Structural Analysis of Deformed Geological Materials* 3</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>GEO 6250 Mechanics and Processes in Earth Sciences* 3</p> <p>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: GEO 3700, MATH 1210; or permission of instructor. (F)</p> <p>GEO 6300 (dual listing 7300) Graduate Seminar in Petrology (Topic) 1-3®</p> <p>Advanced topics of current interest in petrology of igneous, metamorphic, or sedimentary rocks. (F,Sp)</p> <p>GEO 6350 (dual listing 7350) Graduate Seminar in Paleontology and Paleocology (Topic) 1-3®</p> <p>Advanced topics in paleontology, paleocology, and the evolution of ancient life. (F,Sp)</p> <p>GEO 6400 (dual listing 7400) Graduate Seminar in Sedimentary Geology (Topic) 1-3®</p> <p>Advanced topics of current interest in sedimentary geology, depositional systems, and basin evolution. (F,Sp)</p> <p>GEO 6410 (dual listing 5410) Introduction to Clay Mineralogy* 2</p> <p>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>GEO 6440 (dual listing 5440) Paleocology* 2</p> <p>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>GEO 6460 (dual listing 5460) Advanced Physical Sedimentology* 3</p> <p>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>GEO 6470 (dual listing 5470) Chemical Sedimentary Rocks* 2</p> <p>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>
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Course Descriptions

GEO 6480 (dual listing 5480)	Sedimentary Basin Analysis	3
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)		
GEO 6500 (dual listing 5500)	Advanced Igneous Petrology*	4
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)		
GEO 6510 (dual listing 7510)	Graduate Seminar in Hydrology (Topic)	1-3®
Advanced topics of current interest in hydrology. (F,Sp)		
GEO 6520 (dual listing 5520)	Techniques of Groundwater Investigations	3
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)		
GEO 6540 (dual listing 5540)	Quantitative Methods in Geology*	3
Application of various quantitative methodologies to geologic problems. Two lectures and one lab per week.		
GEO 6550 (dual listing 5550)	Geochemical Application of Electron Microprobe and X-Ray Fluorescence Analysis*	4
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)		
GEO 6600 (dual listing 7600)	Graduate Seminar in Geophysics (Topic)	1-3®
Advanced topics of current interest in geophysics. (F,Sp)		
GEO 6610 (dual listing 5610)	Tectonic Evolution of North America*	3
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.		
GEO 6620 (dual listing 5620)	Global Geophysics*	3
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 PHYX 2220.		
GEO 6680 (dual listing 5680)	Paleoclimatology*	3
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/AWER 3600 or permission of instructor. Also taught as AWER 6680/5680. (Sp)		
GEO 6700 (dual listing 7700)	Graduate Seminar in Structural Geology (Topic)	1-3®
Advanced topics of current interest in structural geology. (F,Sp)		
GEO 6800	Seminar	1-4®
GEO 6900	Graduate Internship/Co-op Experience	1-6
Graduate educational work experience. Prerequisite: Approval of contract between student and department prior to enrollment. (F,Sp,Su)		

GEO 6970 (F,Sp,Su)	Thesis	1-9®
GEO 6990 (F,Sp,Su)	Continuing Graduate Advisement	1-3®
GEO 7050 (dual listing 6050)	Graduate Seminar in Tectonics (Topic)	1-3®
Advanced topics of current interest in tectonics and orogenesis. (F,Sp)		
GEO 7100 (dual listing 6100)	Graduate Seminar in Geomorphology (Topic)	1-3®
Advanced topics of current interest in geomorphology and landscape evolution. (F,Sp)		
GEO 7120 (dual listing 6120)	Advanced Geomorphology*	3
Process geomorphology seminar focusing on hillslope, tectonic, and climatic geomorphology research. (Sp)		
GEO 7200 (dual listing 6200)	Graduate Seminar in Geochemistry (Topic)	1-3®
Advanced topics of current interest in geochemistry. (F,Sp)		
GEO 7300 (dual listing 6300)	Graduate Seminar in Petrology (Topic)	1-3®
Advanced topics of current interest in petrology of igneous, metamorphic, or sedimentary rocks. (F,Sp)		
GEO 7350 (dual listing 6350)	Graduate Seminar in Paleontology and Paleocology (Topic)	1-3®
Advanced topics in paleontology, paleocology, and the evolution of ancient life. (F,Sp)		
GEO 7400 (dual listing 6400)	Graduate Seminar in Sedimentary Geology (Topic)	1-3®
Advanced topics of current interest in sedimentary geology, depositional systems, and basin evolution. (F,Sp)		
GEO 7510 (dual listing 6510)	Graduate Seminar in Hydrology (Topic)	1-3®
Advanced topics of current interest in hydrology. (F,Sp)		
GEO 7600 (dual listing 6600)	Graduate Seminar in Geophysics (Topic)	1-3®
Advanced topics of current interest in geophysics. (F,Sp)		
GEO 7700 (dual listing 6700)	Graduate Seminar in Structural Geology (Topic)	1-3®
Advanced topics of current interest in structural geology. (F,Sp)		
GEO 7800 (F,Sp,Su)	Graduate Seminar Series	1®
GEO 7970 (F,Sp,Su)	Dissertation Research	1-12®
GEO 7990 (F,Sp,Su)	Continuing Graduate Advisement	1-9®

*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 is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Geography (GEOG)

See *Department of Environment and Society*, pages 293-302.

GEOG 1000 BPS (formerly GEOG 1130 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)		

Course Descriptions

<p>GEOG 1005 Physical Geography Lab 1 (formerly GEOG 1140) 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)</p> <p>GEOG 1300 BSS World Regional Geography 3® (formerly GEOG 1030 BSS) Survey of world cultural regions, with an analysis of political, economic, and resource patterns in their physical setting. (F)</p> <p>GEOG 1400 BSS Human Geography 3 (formerly GEOG 2030 BSS) Spatial study within selected socio-cultural settings, including cultural landscapes, rural-urban linkages, languages, religions, politics, and economic activities. (Sp)</p> <p>GEOG 2130 Population Geography 3 Spatial analysis of demographic data emphasizing global distribution, population growth, measures of density, migration, settlement, and economic development. (Sp)</p> <p>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)</p> <p>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)</p> <p>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)</p> <p>GEOG 4200 CI Regional Geography 3® 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). (F,Sp,Su)</p> <p>GEOG 4300 Geography Education Classroom Practicum 1-3® (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)</p> <p>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)</p> <p>GEOG 4850 Cartographic Design* 3 Techniques used in design and construction of maps, charts, and map projections. (Sp)</p> <p>GEOG 5130 Geography Education Field Practicum 1-6 (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)</p>	<p>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)</p> <p>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)</p> <p>GEOG 5900 Graduate Special Topics 1-4® (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)</p> <p>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)</p> <p>GEOG 6130 Geography Education Field Practicum 1-6 (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)</p> <p>GEOG 6200 Advanced Regional Geography 3® 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)</p> <p>GEOG 6300 Geography Education Classroom Practicum 1-3® (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)</p> <p>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)</p> <p>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)</p> <p>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)</p>
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Course Descriptions

GEOG 6900 Graduate Special Topics 1-4[®]
(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 2006-2007.

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©]This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

German (GERM)

See *Department of Languages, Philosophy, and Speech Communication*, pages 364-379.

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)

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 1010 or at least one (but not more than two) years of German in high school or equivalent. (F,Sp)

GERM 1800 German I Study Abroad 1-4[®]
 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[®]
 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[®]
 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[®]

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[®]

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)

Course Descriptions

GERM 4800 German IV Study Abroad 1-4[®]
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[®]
Readings in technical, scientific, and literary German. Prerequisite: Instructor's permission. (F,Sp)

GERM 4900 Special Topics* 3[®]
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[®]
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)

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.

*Taught 2006-2007.

**Taught 2007-2008.

Greek (GRK)

See *Department of History, pages 332-337.*
Also see *Classics Minor, page 220.*

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: GRK 1010. (Sp)

GRK 3300 Intermediate Greek Prose 3
Readings in ancient Greek prose. Prerequisite: Minimum grade of C+ or higher in GRK 1020. (F)

GRK 3330 Intermediate Greek Poetry 3
Readings in Greek poetry. Prerequisite: Minimum grade of C+ or higher in GRK 1020. (Sp)

GRK 4300 Advanced Greek Readings 3[®]
Readings in Ancient Greek poetry and/or prose. Prerequisite: Minimum grades of C or higher in GRK 3300 and 3330. (F,Sp)

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 123-125.*

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. (F,Sp,Su)

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. (F,Sp,Su)

HASS 4910 Study Abroad 1-20
A semester study abroad experience through a student exchange program. 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.

Health Education Professional (HEP)

See *Department of Health, Physical Education and Recreation, pages 321-331.*

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)

HEP 2300 Cardiopulmonary Resuscitation 1¹
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)

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)

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)

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)

Course Descriptions

<p>HEP 3200 Consumer Health 3 Focuses on helping students become discriminating consumers of health information, health products, and health services. (F,Su)</p> <p>HEP 3300 Clinical Experience I 1 Clinical experience in school health education. Prerequisite: Acceptance into School Health major or minor. (F,Sp)</p> <p>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)</p> <p>HEP 3500 Elementary School Health Education 2 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)</p> <p>HEP 3600 CI Introduction to Community Health 3 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)</p> <p>HEP 3800 Grant Proposal Writing 3 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, ENGL 2010, and passing score on Computer and Information Literacy (CIL) Exam. (Sp)</p> <p>HEP 3900 Social Marketing in Health Education 3 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>HEP 4100 Foundations of Community Health 3 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>HEP 4200 QI Planning and Evaluation for Health Education 3 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>HEP 4250 Advanced Cooperative Work Experience 1-15[®] Professional-level cooperative education work experience as student advances toward completion of the program. Prerequisite: Consent of instructor. (F,Sp,Su)</p> <p>HEP 4300 Clinical Experience II 1 Clinical experience in school health education. Prerequisite: Acceptance into School Health major or minor. (F,Sp)</p> <p>HEP 4400 Creative Methods in Teaching Health Education 3 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. Prerequisite: Junior standing and acceptance into School Health Education. (F,Sp)</p> <p>HEP 4500 Sexuality Education Within the Schools 3 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>HEP 4600 Field Work in Health Education 1-9[®] 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>HEP 4700H Honors Senior Thesis 1-6 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>HEP 5000 CI Race, Culture, Class, and Gender Issues in Health 3 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>HEP 5100 CI Cultural and Complementary Medicine 3 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)¹</p> <p>HEP 5200 International Health 3 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)¹</p> <p>HEP 5500 Student Teaching Seminar 2 Weekly seminar dealing with the professional practice of school health education. Prerequisite: HEP 4400. (F,Sp)</p> <p>HEP 5630 Student Teaching 10 Practical experience teaching health in the public school system. Prerequisite: HEP 4400. (F,Sp)</p> <p>HEP 5700 Special Topics in Health 1-6[®] In-depth review and discussion of special topics in health. (Arr)¹</p> <p>HEP 5900 Independent Study 1-3[®] Prerequisite: Consent of instructor. (F,Sp,Su)</p> <p>HEP 5950 Independent Research 1-3[®] Prerequisite: Consent of instructor. (F,Sp,Su)</p> <p>HEP 6000 Evaluating Health-Promotion Programs 3 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>HEP 6100 Current Trends in Health Promotion 3 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>HEP 6250 Graduate Cooperative Work Experience 1-15 Professional level of education work experience in a cooperative education position for graduate students. Prerequisite: Consent of instructor. (F,Sp,Su)</p> <p>HEP 6300 Stress Management 3 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)¹</p> <p>HEP 6600 Field Work in Health Education 3[®] 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

HEP 6700	Special Topics in Health	1-6[®]
In-depth review and discussion of special topics in health. (Arr) ¹		
HEP 6800	Seminar in Health Behavior	3
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)		
HEP 6900	Independent Study	1-3[®]
Prerequisite: Consent of instructor. (F,Sp,Su)		
HEP 6950	Independent Research	1-3[®]
Prerequisite: Consent of instructor. (F,Sp,Su)		
HEP 6970	Thesis	1-9[®]
(F,Sp,Su)		
HEP 6990	Continuing Graduate Advisement	1-12[®]
(F,Sp,Su)		

¹This class is not taught on a regular basis. See department for further information.
[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

History (HIST)

See *Department of History*, pages 332-337.

HIST 1060 BHU	Introduction to Islamic Civilization	3
Survey of Islamic civilization from the Prophet Muhammed to the present.		
HIST 1100 BHU	Foundations of Western Civilization: Ancient and Medieval	3
(formerly HIST 1040 BHU)		
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)		
HIST 1110 BHU	Foundations of Western Civilization: Modern	3
(formerly HIST 1050 BHU)		
Survey of the institutions and developments in Western civilization from 1500 to the present. (F,Sp,Su)		
HIST 1500 BHU	Cultural and Economic Exchange in the Pre-Nineteenth Century World	3[®]
(formerly HIST 1020 BHU)		
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)		
HIST 1510 BHU	The Modern World	3[®]
(formerly HIST 1030 BHU)		
Survey of world history from the beginning of the nineteenth century to the present. (F,Sp,Su)		
HIST 1600	American Cultures in Film	3
Introduction to major ethnic groups in America and their treatment in recent feature films. Also taught as ENGL 1600. (F,Sp)		
HIST 1700 BAI	American Civilization	3[®]
Fundamentals of American civilization. Covers history, political system, and economic institutions of the United States. Fulfills American Institutions requirement.		
HIST 2010	Special Topics Seminar	3
Study of special cross-cultural topics, including Imperial Paris, British India, Slavery in America, and Ute History.		
HIST 2210 BHU	Introduction to Folklore	3
(formerly HIST 1710 BHU)		
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)

HIST 2700 BAI	United States to 1877	3
Survey of the development of American society, economy, culture, and politics to 1877. (F,Sp,Su)		
HIST 2710 BAI	United States 1877-Present	3
Survey of the development of American society, economy, culture, and politics since 1877. (F,Sp,Su)		
HIST 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 ANTH 2720. (Sp)		
HIST 3070 DHA	Perspectives in Folklore	3[®]
In-depth study of folklore for nonmajors. Topics vary according to faculty expertise. Also taught as ENGL 3070. (F,Su)		
HIST 3110 DHA/CI	Ancient Near East	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 ART 3110.		
HIST 3130 DHA/CI	Greek History	3
History of Greece from Neolithic period to modern times. Special emphasis on politics, art, literature, and civilization. Writing intensive. Prerequisite: ENGL 2010 or equivalent.		
HIST 3140	Greek Intellectual History: Tradition, Challenge, and Response	3
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.		
HIST 3150 CI	Roman History	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. (Sp)		
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 3240	Modern Europe from 1789 to the Present	3
Historical survey of Europe from the French Revolution to the present, with special emphasis on political and cultural implications of imperialism. Prerequisite: HIST 1050.		
HIST 3250 DHA/CI	Renaissance Europe 1300 to 1520	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. (F,Sp)		
HIST 3260	History of Spain and Portugal	3
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: ENGL 2010 or equivalent.		
HIST 3280	East Central Europe Since 1520	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.		

Course Descriptions

<p>HIST 3310 Balkans Since 1389 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>HIST 3320 Tsarist Russia 3 Political, economic, and cultural development of Russian people to 1917. Writing and computer intensive.</p> <p>HIST 3330 The Soviet Union and its Heirs 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>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.</p> <p>HIST 3460 Comparative Asian History 3 Surveys history of Asian continent, analyzing common patterns in the cultures of West, South, Southeast, and East Asia.</p> <p>HIST 3480 History of China 3 Development of traditional Chinese culture and effect on that culture of the growth of Western influence. Writing and computer intensive.</p> <p>HIST 3510 Africa and the World 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>HIST 3530 African Environmental History 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>HIST 3620 History of Colonial Latin America 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: ENGL 2010 or equivalent.</p> <p>HIST 3630 History of Modern Latin America 3 Introduces history and historiography of Latin America from the wars of independence to the contemporary era. Writing intensive.</p> <p>HIST 3640 History of Social Movements in Latin America 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: ENGL 2010.</p> <p>HIST 3650 Caribbean History 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: ENGL 2010.</p> <p>HIST 3660 History of Mexico 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: ENGL 2010.</p> <p>HIST 3670 Slavery in the Atlantic World 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: ENGL 2010.</p>	<p>HIST 3700 CI Regional Folklore* 3 Study of folklore and folklife as they relate to regional cultures. Also taught as ENGL 3700. (F,Sp)</p> <p>HIST 3710 CI Folklore Colloquium 3[®] Issues, problems, and methodologies in folklore study. Focus and instructor variable. Also taught as ENGL 3710. (Sp)</p> <p>HIST 3720 Colonial America 3 Advanced survey of North American Colonies, emphasizing British experience, from their founding to 1763. Addresses major issues of interpreting America's beginnings. (F)</p> <p>HIST 3730 The New American Nation 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>HIST 3740 United States in the Age of Jefferson and Jackson 3 Examines history of United States from 1800 to 1846, from election of Jefferson to outbreak of war with Mexico. Prerequisite: ENGL 2010. (F)</p> <p>HIST 3750 Civil War and Reconstruction 3[®] Analysis of most trying period in U.S. history, with special emphasis on the course and results of the war. Prerequisite: ENGL 2010. (Sp)</p> <p>HIST 3760 DHA/CI The United States, 1900-1945 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: ENGL 2010 or equivalent. (Sp)</p> <p>HIST 3770 Contemporary America, 1945-Present 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> <p>HIST 3840 Twentieth Century American West 3 Considers emerging scholarly literature about the American West in the twentieth century, with attention to economic, environmental, and demographic questions. (Sp)</p> <p>HIST 3850 DHA/CI History of Utah 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. (Sp)</p> <p>HIST 3950 DHA/CI Environmental History 3 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.</p> <p>HIST 4210 Celtic Europe 3 History of Celtic peoples in British Isles, Scandinavia, and continental Europe, from Neolithic times to the Norman Conquest in 1066. Computer intensive. (F,Sp)</p> <p>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.</p> <p>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.</p>
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Course Descriptions

<p>HIST 4290 Europe and the French Revolution, 1700-1815 3 Examines causes and consequences of the French Revolution, introducing students to major themes in its interpretation.</p> <p>HIST 4310 History of Nationalism 3 Examines development of nationalism. Addresses different theories of nationalism, and then tests these theories with various case studies. Emphasizes research and writing.</p> <p>HIST 4320 DHA History of Scientific Thought 3 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>HIST 4330 Modern Germany with Special Emphasis on the Twentieth Century 3 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 1050.</p> <p>HIST 4390 British Imperialism from 1688 to the Present 3 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 1050.</p> <p>HIST 4400 DHA History of Aeronautics 3 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>HIST 4550 DHA/CI Women and Gender in America 3 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>HIST 4600 DHA/CI The History of the American West 3 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.</p> <p>HIST 4610 Themes and Methods in Economic History 3 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>HIST 4620 CI Advanced Seminar in American Studies 3 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>HIST 4630 The History of Mexican Americans 3 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>HIST 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 ENGL 4640. (F,Sp)</p> <p>HIST 4700 Folk Material Culture** 3 Study of folk objects and their connections with culture and history. Also taught as ENGL 4700. (Sp)</p>	<p>HIST 4710 American Indian History 3 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> <p>HIST 4720 CI/DHA The Civil Rights Movement 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: ENGL 2010 (F,Sp)</p> <p>HIST 4730 CI History of Black America 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>HIST 4740 American Immigration History 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>HIST 4750 Advanced Folklore Workshop: Fife Conference 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>HIST 4780 DHA American Financial History from the Nineteenth Century to the Present 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>HIST 4790 American Religious History** 3 Varieties of American religious experience from settlement to the present.</p> <p>HIST 4800 The Supreme Court and American Constitutional History 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>HIST 4810 American Military History 3 Covers evolution of the military in American history and society from 1775 to the present.</p> <p>HIST 4820 World War II in Europe 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>HIST 4821 World War II in Asia 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>HIST 4830 DHA Structure of Engineering Revolutions 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; ENGL 2010. (Sp)</p> <p>HIST 4850 Interpreting the Past for Teachers 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>
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Course Descriptions

<p>HIST 4860 Teaching History 3 Designed to introduce history teaching majors to ethical and methodological issues arising in history classroom. (F)</p> <p>HIST 4870 Teaching World History: Themes, Approaches, and Materials 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>HIST 4880 History Workshop: Special Topics 1-3® Focuses on a theme or topic in history. (F,Sp,Su)</p> <p>HIST 4910 Special Studies in History 3® Examination of special areas and themes in history. (F,Sp,Su)</p> <p>HIST 4930 Directed Readings 1-3® Directed readings in any special historical field. For each credit granted, minimum of four books must be read. Prerequisite: Instructor's approval.</p> <p>HIST 4940 Historical Internship 1-3® Directed internship involving participation in a historical research or cultural management project. (F,Sp,Su)</p> <p>HIST 4990 CI Special Topics in History 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)</p> <p>HIST 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 ENGL 5690. (Sp)</p> <p>HIST 5700 Folk Narrative 3 Forms and functions of folk narrative genres: myth, legend, folktale, memorate, and ballad. Also taught as ENGL 5700.</p> <p>HIST 6000 Historical Methods and Research 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>HIST 6010 History and Theory 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>HIST 6020 Approaches to History 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>HIST 6030 Research Seminar 3® Research in primary sources for graduate students.</p> <p>HIST 6100 Special Topics: Ancient History 3® Intensive readings and group discussions of selected topics in ancient history.</p> <p>HIST 6130 Special Topics: Early Modern European History 3® Intensive readings and group discussions of selected topics in early modern European history.</p> <p>HIST 6160 Special Topics: Modern European History 3® Intensive readings and group discussions of selected topics in modern European history.</p>	<p>HIST 6200 Special Topics: Comparative World History 3® Intensive readings and group discussions of selected topics in comparative world history.</p> <p>HIST 6230 Special Topics: Middle Eastern History 3® Intensive readings and group discussions of selected topics in middle eastern history.</p> <p>HIST 6260 Special Topics: Asian History 3® Intensive readings and group discussions of selected topics in Asian history.</p> <p>HIST 6300 Special Topics: African History 3® Intensive readings and group discussions of selected topics in African history.</p> <p>HIST 6330 Special Topics: Latin American History 3® Intensive readings and group discussions of selected topics in Latin American history.</p> <p>HIST 6400 Special Topics: American History 3® Intensive readings and group discussions of selected topics in American history.</p> <p>HIST 6430 Special Topics: Western American History 3® Intensive readings and group discussions of selected topics in Western American history.</p> <p>HIST 6460 Seminar in Environmental History 3 Focuses on historical writings seeking to explain relationship between society and nature. Many of assigned readings are set in the non-Western world.</p> <p>HIST 6500 Archiving Internship 2-4® Directed internship at a regional archive. Internship should reflect eight to sixteen hours of work per week during the semester. (F,Sp,Su)</p> <p>HIST 6520 Editing Internship 2® 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)</p> <p>HIST 6540 Museum Internship 2-4® Directed internship at a regional museum. Internship should reflect eight to sixteen hours of work per week during the semester. (F,Sp,Su)</p> <p>HIST 6560 Professional Internship 2-4® Directed internship involving participation in a historical research project for a government agency, corporation, municipality, or some other entity. (F,Sp,Su)</p> <p>HIST 6580 Teaching Internship 2® 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)</p> <p>HIST 6600 American Studies Theory and Method 3 Provides students with theory and method of graduate-level research in American Studies. Also taught as ENGL 6600. (F)</p> <p>HIST 6610 Seminar on the American West 3-4® 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)</p> <p>HIST 6620 Seminar in Native American Studies 3-4® 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)</p> <p>HIST 6630 Studies in Film and Popular Culture 3® 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)</p>
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Course Descriptions

HIST 6700	Folklore Theory and Method	(3)
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)		
HIST 6710	Regional Folklore	3
Study of folklore and folklife as a regionalizing process. Regions examined through their folk culture range. Also taught as ENGL 6710. (Sp)		
HIST 6720	Folklore Fieldwork	3
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)		
HIST 6730	Public Folklore	3
Provides history and analysis of governmental involvement in protecting, promoting, and otherwise manipulating and utilizing cultural heritage. Also taught as ENGL 6730. (F,Sp)		
HIST 6740	Folk Narrative	3
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)		
HIST 6750	Advanced Folklore Workshop (the Fife Conference)	3
Intensive workshop focusing on a topic in folklore. Brings in nationally known experts as lecturers and discussants. Students attend all sessions, then write a critical paper during the summer semester. Also taught as ENGL 6750. (Su)		
HIST 6760	Cultural and Historical Museums	3
Examines outdoor cultural and historical museums, examining their function in modern multi-cultural societies. Also taught as ENGL 6760. (Sp)		
HIST 6770	Seminar in Folklore and Folklife	3[®]
Conducts close, professional-level study of major areas of folklore and folklife research. Also taught as ENGL 6770. (F,Sp,Su)		
HIST 6800	Paleography	3
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.		
HIST 6820	Writing Scholarly Reviews	3
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> .		
HIST 6840	Archives Management	3
Study of management of archival collections. Emphasis on processing and conservation of manuscript and photographic materials. Case studies in identification, processing, and preservation.		
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[®]
(F,Sp,Su)		

HIST 6990	Continuing Graduate Advisement	1-6[®]
(F,Sp,Su)		

*Taught 2006-2007.

**Taught 2007-2008.

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©] This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Honors (HONR)

See Honors Program, page 338.

HONR 1300H 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 1320H 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)		
HONR 1330H 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 1340H 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 1350H 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 1360H 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 2000H	Scholars Forum	1
Includes orientation to the Honors Program and to undergraduate research. Taught online. (F)		
HONR 2100H	Honors Inquiry Seminar	1
Introduces students to the nature of inquiry. Assists students in planning their undergraduate education to enable them to graduate with Honors. Prerequisite: Admission to Honors Program. (Sp)		
HONR 2200H	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 3010H 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)		

Course Descriptions

HONR 3020H 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 3030H 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 3900H	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 4000H	Reading Seminar	1[®]
Opportunity to read, discuss, and write about classic books. Open only to students enrolled in USU Honors Program. (F,Sp)		
HONR 4700H	Honors Fellows	0.5[®]
Junior or senior Honors students assist in leading Honors seminars and tutorials. (F,Sp)		
HONR 4800H	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 4900H	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 434-435.

HS 2230	Introductory Pathophysiology	3
An introduction to the nature of disease and its effect on body systems. (Su)		

Interior Design (ID)

See Interior Design Program, pages 344-346.

ID 1700	Interior Design Professional Seminar	1[®]
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)		
ID 1750	BCA Design in Everyday Living	3
Investigation of the basic elements and principles of design related to everyday living experiences and the practical application of relevant theory. (Su)		
ID 1790	BCA Interior Design Theory	3
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)		
ID 2710	Architectural Graphics I	4
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)		

ID 2720	Architectural Graphics II	4
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)		
ID 2730	Interior Space Planning and Human Dimensions	4
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)		
ID 2750	Computer Aided Drafting and Design I	3
Introduction to computer aided drafting and design for design students. Prerequisite: BIS 1400 or passing grade on Computer and Information Literacy (CIL) Exam. (F)		
ID 2760	Computer Aided Drafting and Design II	3
Advanced exploration and study of computer aided design, creative applications, and proficiencies. Prerequisite: ID 2750. (Sp)		
ID 3730	Interior Materials and Construction	3
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)		
ID 3740	DHA History of Interior Furnishings and Architecture I	3
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)		
ID 3750	DHA/CI History of Interior Furnishings and Architecture II	3
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)		
ID 3760	Commercial Design Studio	4
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)		
ID 3770	Residential Design Studio	4
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)		
ID 3780	Design Detailing	3
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)		
ID 3790	Architectural Systems	3
Study of architectural systems in contemporary buildings. Investigation of construction drawings and their interpretation. Includes related codes and professional terminology. (F)		
ID 4700	Topics in Interior Design	3[®]
Current topics associated with interior design. Prerequisites: Approval of instructor and junior class standing. (F,Sp,Su)		
ID 4710	Interior Design Advanced Internship I	1-12[®]
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)		
ID 4720	Interior Design Advanced Internship II	1-12[®]
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)		

Course Descriptions

ID 4740	CI	Business and Professional Practices in Interior Design	2
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)			
ID 4750		Senior Design Studio I	3
Interior design projects focusing on research, programming, schematics, space planning, project specifications, and presentation. Prerequisites: Senior ranking in Interior Design and ID 3780. (F)			
ID 4760		Senior Design Studio II	3
Interior design projects include finish selections, specifications, construction document development, and project presentation. Prerequisite: ID 4750. (Sp)			
ID 4770		Senior Exhibit	1
Analysis and review of student work in preparation for formal exhibition. (Sp)			
ID 4780		Interior Design Travel Course	1-3[®]
Travel experiences geared toward the examination of design in various geographical locations, both within the United States and abroad. (F,Sp,Su)			
ID 4900		Independent Study in Interior Design	1-5[®]
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)			
ID 4910		Creative Projects	1-4[®]
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)			
ID 6700		Graduate Topics in Interior Design	1-3[®]
(F,Sp,Su)			
ID 6710		Graduate Internship in Interior Design	1-3[®]
(F,Sp,Su)			
ID 6720		Research Methods in Interior Design	2
(F)			
ID 6750		Readings in Interior Design	1-3[®]
Readings about the creative process, post-occupancy evaluation, culture and environment, and design forecasting. Repeatable for up to 3 credits. (F,Sp)			
ID 6760		Computer Applications of Modeling in Interior Design	3
Application of software to produce a model of interior spaces, using contemporary modeling software. Prerequisite: ID 2760. (Sp)			
ID 6770		Facilities Planning and Management	3
Facilities management process in large-scale organizations. Formation of facilities policies, procedures, and standards. The facilities data base, space allocations, and management process. (Sp)			
ID 6780		Design Methodologies in Interior Design	3
Identifies and defines various design methodologies, with regard to design solutions for interior environments. (F)			
ID 6790		Master's Seminar in Interior Design	3[®]
(F,Sp,Su)			
ID 6970		Master's Thesis Research in Interior Design	1-6[®]
Repeatable for up to 6 credits. (F,Sp,Su)			
ID 6990		Continuing Graduate Advisement	1-3[®]
(F,Sp,Su)			

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Intensive English Language Institute (IELI)

See *Intensive English Language Institute*, page 341.

IELI 1120	Writing I	4
Develops writing skills. Focuses on description, narration, and canonical word order at sentence and paragraph levels. (F,Sp)		
IELI 1160	Reading I	4
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)		
IELI 1220	Writing from Sources	4
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)		
IELI 1230	Cross-Cultural Talk	3[®]
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)		
IELI 1240	Integrated Skills	3[®]
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)		
IELI 1260	Reading II	4
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)		
IELI 2310	Comprehending Academic Discourse	3
Introduction to listening strategies and note-taking, focusing on organization and information. Develops strategies for listening to authentic passages, such as news and documentaries. (F,Sp,Su)		
IELI 2320	Writing Authentic Texts	4
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)		
IELI 2330	Spoken Discourse and Cultural Communication	3
Emphasizes interpersonal communication and academic tasks with American undergraduate teaching fellows. Focuses on the dynamics of assuming various roles in small group discussions and presentations. (F,Sp,Su)		
IELI 2360	Reading Authentic Texts	4
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)		
IELI 2410	Comprehending Lecture Discourse	3
Develops techniques for understanding the planned and spontaneous academic discourse of university classrooms. Focuses on information processing. (F,Sp,Su)		
IELI 2420	Writing from Academic Sources	4
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)		
IELI 2440	Academic Discourse	3
Designed to assist students in developing oral competency, with emphasis on comprehensibility in individual and group academic presentations. (F,Sp,Su)		

Course Descriptions

IELI 2450 Topics for ESL 4[®]
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)

IELI 2460 Reading from Academic Sources 4
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)

IELI 2470 Cross-Cultural Perspectives of American Culture 4
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)

IELI 7920 College Teaching Seminar 1-3[®]
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. (F,Sp)

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Instructional Technology (INST)

See *Department of Instructional Technology, pages 339-340.*

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,Sp)

INST 3000 Principles and Practices of Technology for Secondary Teachers 2
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. Students completing their degrees under *previous requirements* may take INST 3000 *instead of* INST 5200. Students should consult with their advisor to determine which of these two courses they should complete.

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)

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)

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 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 first 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[®]
Cooperative process of discovery, investigation, research, or creativity between faculty and one or more students. (F,Sp,Su)

INST 5000 Foundations of Library Media Programs 3 (dual listing 6060)
Introduction to historical and philosophical foundations of library media programs for teachers, administrators, and media specialists. Examines role of library media programs in schools and their contributions to the curriculum. Taught off campus through Utah Education Network. (F)

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 5020 Collection Development 3 (dual listing 6020)
Focuses on building and maintaining collections for library media programs. Discusses policy development for selection, protecting intellectual freedom, and reviewing, evaluating, and maintaining materials in all formats. Evaluation of school library collections also investigated. Taught off campus through Utah Education Network. (Sp)

INST 5030 Information Access 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. Taught off campus through Utah Education Network. (Sp)

INST 5040 Library Media Center Administration 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 or approval of instructor. Taught off campus through Utah Education Network. (Su or Arr)

Course Descriptions

<p>INST 5050 Library Media Programs 3 (dual listing 6050) 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. Prerequisite: INST 5040/6040 or approval of instructor. Taught off campus through Utah Education Network. (Su or Arr)</p> <p>INST 5100 Management and Maintenance 1 (dual listing 6100) of Information Technologies Introductory course in basic operation of technology tools used in school setting. Includes operation of video equipment, video cameras, Internet sites, CD-ROM, satellite receiving equipment, computer scanners, computer networks, and computer presentation systems. Taught off campus through Utah Education Network. (Arr)</p> <p>INST 5190 Library Media Practicum 1-6[®] (dual listing 6190) Observation and guided field experience in a library media center under professional library media specialists and instructional technology professionals. Bridge of theory into practice for students seeking licensure. This course is required for those having limited or no school library media experience, as evaluated by their faculty advisor. Prerequisites: INST 5040/6040, 5050/6050; or approval of instructor. (F,Sp,Su)</p> <p>INST 5200 Principles and Practices of 2 Technology for Secondary Teachers 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>INST 5210 Digital Audio-Video Production* 3 Fundamental theories and practice in camera and computer-based audio and video production, including recording, editing, and digitizing audio and video segments for education and training applications. (F,Su)</p> <p>INST 5230 Instructional Graphic Production* 3 Fundamental practices of using the computer to design and produce a wide variety of instructional graphics and animations. (F,Su)</p> <p>INST 5240 Producing Distance 3 Education Resources** Focuses on production of Internet-based instructional resources for use in distance, flexible, and open learning. (Sp,Su)</p> <p>INST 5250 Computer-Based 3 Instruction Authoring** Fundamentals of programming computer-based instruction utilizing the Authorware authoring system. Prerequisite: Basic computer competencies. (Sp,Su)</p> <p>INST 5260 Learning and Applying HTML 3 Asynchronous online course, teaching web publishing using HTML (Hyper-Text Markup Language). Explores current web technologies and includes design and evaluation. (F,Sp,Su)</p> <p>INST 5270 Multimedia Special Topic Studio 1 3[®] Selected special topics related to the development of multimedia products for instruction and training. (F,Sp,Su)</p> <p>INST 5280 Multimedia Special Topic Studio 2 3[®] Selected special topics related to the development of multimedia products for instruction and training. (F,Sp,Su)</p> <p>INST 5300 Multimedia Production for 3 Instruction and Training Students use knowledge acquired in prerequisite courses to design, produce, and master a multimedia instructional product. Prerequisites: INST 5210, 5220, 5230, 5240. (Sp)</p>	<p>INST 5400 Computer Applications for 3 Instruction and Training Introduction to use of computer applications, with special emphasis on software used in instruction and training. (F,Sp,Su)</p> <p>INST 5520 Learning and Teaching at a Distance 3 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. (Sp)</p> <p>INST 5550 Practicum in Distance Learning 3 Students demonstrate effective practice by applying instructional development principles for designing, implementing, and evaluating instruction for distant learners. Prerequisite: INST 5520. (Su)</p> <p>INST 5600 Designing Instruction for 1-4[®] Students At-Risk Participants use information technologies for ongoing problem solving during and after the course. Competencies emphasized include the design, implementation, and evaluation of specific effective instructional practices appropriate for all students, and particularly for students at risk of academic failure. (F,Sp,Su)</p> <p>INST 5750 Instructional Technology Workshop 1-4[®] 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)</p> <p>INST 5900 Independent Study 1-4[®] Individually directed study and projects. Prerequisite: Departmental permission. (F,Sp,Su)</p> <p>INST 6000 Foundations of Instructional Technology 3 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 master's program. (F)</p> <p>INST 6010 Technology and its Role in the 1-3 Transformation of Education 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. Taught off-campus through EDNET. (F)</p> <p>INST 6020 Collection Development 3 (dual listing 5020) Focuses on building and maintaining collections for library media programs. Discusses policy development for selection, protecting intellectual freedom, and reviewing, evaluating, and maintaining materials in all formats. Evaluation of school library collections also investigated. Taught off campus through Utah Education Network. (Sp)</p> <p>INST 6030 Information Access 3 (dual listing 5030) 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. Taught off campus through Utah Education Network. (Sp)</p> <p>INST 6040 Library Media Center Administration 3 (dual listing 5040) 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 or approval of instructor. Taught off campus through Utah Education Network. (Su or Arr)</p> <p>INST 6050 Library Media Programs 3 (dual listing 5050) 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. Prerequisite: INST 6040/5040 or approval of instructor. Taught off campus through Utah Education Network. (Su or Arr)</p>
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Course Descriptions

INST 6060 Foundations of Library Media Programs 3
(dual listing 5000)

Introduction to historical and philosophical foundations of library media programs for teachers, administrators, and media specialists. Examines role of library media programs in schools and their contributions to the curriculum. Taught off campus through Utah Education Network. (F)

INST 6100 Management and Maintenance of Information Technologies 1
(dual listing 5100)

Introductory course in basic operation of technology tools used in school setting. Includes operation of video equipment, video cameras, Internet sites, CD-ROM, satellite receiving equipment, computer scanners, computer networks, and computer presentation systems. Taught off campus through Utah Education Network. (Arr)

INST 6110 Information Organization and Management 3
(dual listing 5010)

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 6150 Communication, Instruction, and the Learning Process 3

Examination of learning theory and communication theory, and their implications for instruction. Taught off-campus through EDNET. (Sp)

INST 6190 Library Media Practicum 1-6®
(dual listing 5190)

Observation and guided field experience in a library media center under professional library media specialists and instructional technology professionals. Bridge of theory into practice for students seeking certification. This course is required for those having limited or no school library media experience, as evaluated by their faculty advisor. Prerequisites: INST 6040/5040, 6050/5050; or approval of instructor. (F,Sp,Su)

INST 6210 Digital Video Disc Design and Production 3**

Fundamental theories and practice in the design and development of Digital Video Disc (DVD) based instructional resources. (F,Su)

INST 6240 Instructional Analysis 2

Introduces front-end analysis state of instructional design and development. Examines processes for conducting instructional needs assessment, audience analysis, learning environment analysis, and instructional task analysis. Prerequisite: Matriculation into Instructional Technology master's program. (F)

INST 6250 Instructional Design 2

Examines theory and practice of designing instruction. Emphasizes practical applications of design principles and techniques for creating instructional materials. Prerequisite: Matriculation into Instructional Technology master's program. (F)

INST 6260 Learning Theory 3

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 master's program. (F)

INST 6270 Implementation and Management of Instruction 2

Focuses on techniques and methods for putting well-designed instruction and training into use in both traditional and nontraditional settings. Prerequisite: Matriculation into Instructional Technology master's program. (Sp)

INST 6280 Instructional Evaluation 2

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 master's program. (Sp)

INST 6300 Professional Development Seminar 1

Geared toward assisting master's students in completing their degrees. Provides continuity from the first semester and encourages continued professional development in the discipline. (F,Sp,Su)

INST 6350 Instructional Design Process 3

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 through EDNET. (F)

INST 6360 Computers in Education for In-service Teachers 3

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 through EDNET. (Sp)

INST 6370 Design and Development of Computer-Based Instruction 3

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)

INST 6380 Distance Learning—K-12 3

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 through EDNET. (Sp)

INST 6390 Planning and Implementation for Technology 3

Principles and practice of implementing innovations into real-world settings and evaluating their effectiveness. Taught off-campus through EDNET. (Sp)

INST 6400 Resources for Technology 3

Acquisition and management of resources for technological innovation: proposal writing, financing of technological change, management of technology resources, and conduct of resource-related projects. Taught off-campus through EDNET. (Sp)

INST 6450 Instructional Development 2

Application of theory, principles, and practice of instructional technology to the design of instructional products. Prerequisite: Matriculation into Instructional Technology master's program. (F)

INST 6460 Distance Education 3

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. (Sp)

INST 6470 Performance Systems 3

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)

INST 6480 Instructional Simulations 3

Application of theory, principles, and practice of instructional technology in designing model-centered experiential instruction. (F)

INST 6490 Instructional Technology in Adult Education 3

Application of theory, principles, and practice of instructional technology in providing instruction to adult learners. (Sp)

INST 6500 Instructional Development Tools 3

Detailed study of processes, tools, and techniques for guiding and aiding the instructional design process. Emphasizes tools for project management, analysis, and design. (Sp)

INST 6510 Research and Evaluation in Instructional Technology 3

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. (F)

INST 6750 Instructional Technology Workshop 1-4®

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)

Course Descriptions

<p>INST 6770 Practicum in the Improvement of Instruction 1-4[®]</p> <p>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>INST 6780 Instructional Technology Programs 1-3[®]</p> <p>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>INST 6790 Instructional Technology in Education and Training 1-3[®]</p> <p>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>INST 6800 Projects in Instructional Technology 6</p> <p>Guided experience in the development of instructional products. Includes several small, complete projects including analysis, design, development, implementation, and evaluation. Integrates teamwork, project management, and public presentation skills. Prerequisite: INST 6250 and matriculation into Instructional Technology master's program. (F)</p> <p>INST 6810 Research Seminar 1[®]</p> <p>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>INST 6820 Instructional Technology Design and Development Studio 1 6[®]</p> <p>Provides students with opportunity to work in teams with clients and leaders in the field on cutting-edge design and development projects. Students should plan to spend at least 20 hours per week working on the assigned project. Prerequisite: INST 6800. (Sp)</p> <p>INST 6870 Current Issues Seminar 1-3[®]</p> <p>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>INST 6900 Independent Study 1-6[®]</p> <p>Individually directed study and projects. Prerequisite: Departmental permission. (F,Sp,Su)</p> <p>INST 6910 Independent Research 1-6[®]</p> <p>Individually directed research. Prerequisite: Departmental permission. (F,Sp,Su)</p> <p>INST 6940 Internship 1-6[®]</p> <p>An on-site experience in which the student applies knowledge and skills in a work environment. Used as culminating experience for the MS, Plan C. (F,Sp,Su)</p> <p>INST 6960 Creative Project 1-6[®]</p> <p>Individual experience in instructional product development. May be used as the culminating experience for the MEd and MS Plan C. (F,Sp,Su)</p> <p>INST 6970 Thesis 1-6[®]</p> <p>Individual work in MS thesis and Plan B report writing with guidance and criticism. (F,Sp,Su)</p> <p>INST 6990 Continuing Graduate Advisement 1-8[®]</p> <p>Allows students access to faculty and facilities to complete graduate thesis, project, and papers. (F,Sp,Su)</p> <p>INST 7000 Pro-seminar I in Instructional Technology 3</p> <p>Lectures and discussions on advanced topics in instructional technology and related disciplines. Required for Instructional Technology EdS and PhD students. (F)</p> <p>INST 7010 Pro-seminar II in Instructional Technology 3</p> <p>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>INST 7150 Advanced Seminar in Instructional Technology 3[®]</p> <p>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>INST 7200 Quantitative and Design Research in Instructional Technology* 3</p> <p>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>INST 7300 Qualitative and Interpretive Research in Instructional Technology 3</p> <p>Examines current trends, applications, methods, and research questions that are appropriate to the use of qualitative and interpretive research within the field of instructional technology. (Sp)</p> <p>INST 7450 Internship in Program Evaluation 1-4[®]</p> <p>Experience in practical aspects of program evaluation through planned, supervised evaluation project. Participation must be approved by student's supervisory committee. (F,Sp,Su)</p> <p>INST 7460 Internship in Research 1-4[®]</p> <p>Experience in conducting research through planned, supervised evaluation project. Participation must be approved by student's supervisory committee. (F,Sp,Su)</p> <p>INST 7820 Practicum in Instructional Technology 2[®]</p> <p>Preparation of project funding proposal for submission to a funding agency. Prerequisite: Permission of instructor. Enrollment limited to Instructional Technology EdS and PhD students <i>only</i>. (F,Sp,Su)</p> <p>INST 7870 Current Issues Seminar 1-3[®]</p> <p>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>INST 7900 Independent Study 1-6[®]</p> <p>Individually directed study and projects. Prerequisite: Departmental permission. (F,Sp,Su)</p> <p>INST 7910 Independent Research 1-6[®]</p> <p>Provides for individually directed research. Prerequisite: Departmental permission. (F,Sp,Su)</p> <p>INST 7920 College Teaching Seminar 1-3</p> <p>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)</p> <p>INST 7960 Practicum, Educational Specialist 1-9[®]</p> <p>Culminating project/externship in partial fulfillment of the Educational Specialist degree. (F,Sp,Su)</p> <p>INST 7970 Dissertation 1-18[®]</p> <p>Individual work on research problems in the PhD program. (F,Sp,Su)</p> <p>INST 7990 Continuing Graduate Advisement 1-9[®]</p> <p>Allows graduate students access to faculty and facilities to complete graduate dissertation. (F,Sp,Su)</p> <p><small>*Taught 2006-2007. **Taught 2007-2008. [®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.</small></p>
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Course Descriptions

Italian (ITAL)

See *Department of Languages, Philosophy, and Speech Communication*, pages 364-379.

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)		
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)		
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)		
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)		

Interdisciplinary Studies (ITDS)

See *Interdisciplinary Studies Major*, pages 342-343.

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 <i>either</i> a research paper <i>or</i> 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)		

Japanese (JAPN)

See *Department of Languages, Philosophy, and Speech Communication*, pages 364-379.

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)		
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®
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)		

® 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 350-355.

JCOM 1130	Beginning Newswriting for the Mass Media	3
(formerly JCOM 1110)		
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: ENGL 1010 or equivalent, English Proficiency Test. (F,Sp,Su)		
JCOM 1500 BSS	Introduction to Mass Communication	3
(formerly JCOM 1000 BSS)		
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
(formerly JCOM 2000 BSS)		
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: ENGL 1010. (F,Sp)		

Course Descriptions

<p>JCOM 2160 CI Introduction to Online Journalism 2 (formerly JCOM 2110 CI) Use of interactive computer networks, databases, and other electronic resources for news reporting and writing. Practice in research and information evaluation for news stories and features in news and public relations contexts. Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010. (F,Sp)</p>	<p>groups, case analysis, and strategic assessments. Prerequisite: Minimum grade of C in JCOM 2310 or permission of instructor. (F,Sp)</p>
<p>JCOM 2170 CI Reporting Public Affairs 3 (formerly JCOM 2120 CI) 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)</p>	<p>JCOM 3400 DSS Gender and Communication 3 Processes through which various forms of communication create gender roles and ideals for women and men, resulting in different gender-based communication patterns. Social implications and emphasis on gender in media professions. This course is not currently being offered. For information about when it may be offered, contact the department.</p>
<p>JCOM 2180 Beginning Photojournalism 3 (formerly JCOM 2150) Theory and practice of photojournalism. Roles and functions of photographic images in the news media, both print and electronic. Practice in use of cameras and in darkroom techniques. Students furnish cameras and some materials. (F,Sp)</p>	<p>JCOM 3410 DSS Film as Cultural Communication 3 Analysis of the economic, ideological, political, and cultural constraints influencing film content. (F,Sp)</p>
<p>JCOM 2220 Introduction to Video Media 3 (formerly JCOM 2200) 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)</p>	<p>JCOM 4000 Senior Seminar in Mass Communication 1 Capstone seminar required of all majors. Includes small discussion groups to pull together and synthesize experiences of students in all emphases. Examination of fundamental mass communication issues. Preparation for mass media careers. Prerequisite: Senior standing. (F,Sp)</p>
<p>JCOM 2230 Writing for Electronic Media 3 (formerly JCOM 2210) Theory and practice of reporting public affairs for broadcast and electronic media. Emphasizes news gathering, understanding local political structures, news and feature writing, commercial and continuity writing, interviewing, media law, ethics, and cultural sensitivity. Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010. (F)</p>	<p>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)</p>
<p>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)</p>	<p>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.</p>
<p>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)</p>	<p>JCOM 4030 DSS Mass Media Law 3 (dual listing 6430) 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>JCOM 3010 Communication Research Methods 3 Analysis of communication theories and their application in research settings. Basics of communication research methods and analysis of research results in mass media and public relations contexts. This course is not currently being offered. For information about when it may be offered, contact the department.</p>	<p>JCOM 4100 Hard News Café 3 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. Will be first taught during Spring Semester 2006. (F,Sp,Su)®</p>
<p>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)</p>	<p>JCOM 4110 CI Computer-Assisted Reporting 3 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>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)</p>	<p>JCOM 4120 CI Sports Writing 3 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. (F,Sp)</p>
<p>JCOM 3140 DSS Opinion Writing 3 Study and practice of persuasive editorial and opinion writing for the mass media. (F,Sp)</p>	<p>JCOM 4150 Advanced Digital Photojournalism 3 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>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</p>	<p>JCOM 4210 CI Newscast I 4 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>JCOM 4220 CI Newscast II 4 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>JCOM 4230 Corporate Video 3 Project-based lab work in studio video productions for real-world clients. Use of video field equipment and production facilities. Completion of video packages.</p>

Course Descriptions

Prerequisites: Minimum grades of C+ in JCOM 1130, 1500, and 2010; or permission of instructor. (F,Sp)

JCOM 4500 Projects in Communication 1-5®
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)

JCOM 4510 Communication Internship 1-3®
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)

JCOM 4520H Senior Thesis 1-3
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 4800H. (F,Sp)

JCOM 4530 Special Topics in Communication 3®
Advanced study in specialized communication topic areas. A maximum of 5 credits may be applied toward the major. (F,Sp,Su)

JCOM 5010 Mass Media Historiography 3
(dual listing 6010)
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)

JCOM 5020 Mass Communication Theory 3
(dual listing 6020)
Advanced study of major mass communication theories and issues, and their evidence in case studies. Application of theory to significant societal problems. (F)

JCOM 5030 International Communications Problems 3
(dual listing 6030)
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)

JCOM 5110 CI Literary Journalism 3
(dual listing 6110)
In-depth analysis and practice of literary and stylistic elements of long-form journalistic and other nonfiction writers. (F)

JCOM 5210 Website Design and Production 3
(dual listing 6210)
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)

JCOM 5220 Advanced Video Production 3
(dual listing 6220)
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)

JCOM 5230 Advanced Video Documentary Production 3®
(dual listing 6230)
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)

JCOM 5300 CI Case Studies in Public Relations 3
(dual listing 6300)
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)

JCOM 5310 Mass Media Management 3
(dual listing 6310)
Examines theories, methods, and practice of management of mass media businesses, including personnel, marketing, and market positioning. Prerequisite: Permission of instructor. (F,Sp)

JCOM 5320 Public Relations Agency 3®
(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)

JCOM 5400 Mass Media Criticism 3
(dual listing 6400)
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 5400; permission of instructor required for enrollment in JCOM 6400. (Sp)

JCOM 5410 Gender and the Mass Media 3
(dual listing 6410)
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. Senior standing required for enrollment in JCOM 5410; permission of instructor required for enrollment in JCOM 6410. (F,Sp)

JCOM 5420 The Mass Media and Politics 3
(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. (F)

JCOM 6000 Introduction to Graduate Study in Mass Communication 3
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)

JCOM 6010 Mass Media Historiography 3
(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.

JCOM 6020 Mass Communication Theory 3
(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)

JCOM 6030 International Communications Problems 3
(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)

JCOM 6040 Seminar in Mass Media Research Methods 3®
Introduction to the major theoretical perspectives and methodologies in mass communication research. Repeatable for credit with departmental permission. (Sp)

JCOM 6050 Seminar in Mass Media Issues and Problems 3®
Variable topic seminar concerning research of issues and problems in mass media principles and practice. Repeatable for credit with departmental permission. (F,Sp)

JCOM 6110 Literary Journalism 3
(dual listing 5110)
In-depth analysis and practice of literary and stylistic elements of long-form journalistic and other nonfiction writers. (F)

Course Descriptions

JCOM 6210 (dual listing 5210)	Website Design and Production	3
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)		
JCOM 6220 (dual listing 5220)	Advanced Video Production	3
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)		
JCOM 6230 (dual listing 5230)	Advanced Video Documentary Production	3[®]
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)		
JCOM 6300 CI (dual listing 5300)	Case Studies in Public Relations	3
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)		
JCOM 6310 (dual listing 5310)	Mass Media Management	3
Examines theories, methods, and practice of management of mass media businesses, including personnel, marketing, and market positioning. Prerequisite: Permission of instructor. (F,Sp)		
JCOM 6320 (dual listing 5320)	Public Relations Agency	3[®]
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)		
JCOM 6400 (dual listing 5400)	Mass Media Criticism	3
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 5400. (Sp)		
JCOM 6410 (dual listing 5410)	Gender and the Mass Media	3
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. Permission of instructor required for enrollment in JCOM 6410; senior standing required for enrollment in JCOM 5410. (F,Sp)		
JCOM 6420 (dual listing 5420)	The Mass Media and Politics	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. (F)		
JCOM 6430 (dual listing 4030)	Mass Media Law	3
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)		
JCOM 6440 (dual listing 4010)	Mass Communication Ethics	3
Study of ethical systems and philosophies and their applications to the practice of mass communication. (Sp)		

JCOM 6500	Special Projects in Mass Communication Research and Practice	1-3[®]
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)		
JCOM 6510	Directed Readings in Mass Communication	1-12[®]
Directed readings, tutorial or experiential learning/project in mass communication. Prerequisite: Instructor and department head approval. (F,Sp,Su)		
JCOM 6600	Internship	1-6
Supervised training in selected communication work places. Prerequisite: Permission of graduate supervisory committee. (F,Sp,Su)		
JCOM 6970	Thesis Research	1-3[®]
Prerequisite: Departmental permission. Repeatable for credit with departmental permission. (F,Sp,Su)		
JCOM 6990	Continuing Graduate Advisement	1-3[®]
Prerequisite: Departmental permission. Repeatable for credit with departmental permission. (F,Sp,Su)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Korean (KOR)

See *Department of Languages, Philosophy, and Speech Communication*, pages 364-379.

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)		
KOR 4920	Korean 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. Prerequisite: Permission of instructor. (F,Sp,Su)		

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Course Descriptions

Landscape Architecture and Environmental Planning (LAEP)

See *Department of Landscape Architecture and Environmental Planning*, pages 356-363.

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)

LAEP 1200 Basic Graphics in Landscape Architecture 4
Graphic techniques for landscape architectural drawings, including plans, elevations, isometrics, perspective, rendering, and model construction. Various media explored for preparing drawings and sketches for presentation. Two three-hour studios per week. (F)

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[®]
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)

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 and Design 5
Site survey, analysis, and design synthesis. Focuses on human behavior and natural resources as design considerations for future land use planning. Student teams survey and analyze sites' landscape and cultural resources for future land use planning. (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 6370. (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 large-scale residential projects, planned unit developments, and community facilities. 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)

LAEP 3500 Planting Design 2-4
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. Prerequisite: PLSC 2620. (F)

LAEP 3610 Landscape Construction II 4
Introduction to construction materials, wood construction, and free-standing and retaining walls. Introduction to layout and dimensioning, basic theory and technical aspects of roadway alignment, and theory and design of sprinkler irrigation. Two three-hour studios per week. Prerequisites: LAEP 2600, MATH 1050. (Sp)

LAEP 3700 City and Regional Planning 3
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)

LAEP 4100 Urban Theory, Systems, and Design 5
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)

LAEP 4110 Construction Document Preparation 4
Design project through detail design development and completion of the working drawings and specifications. Two three-hour studios per week. Prerequisites: LAEP 3120 and 3610. (F)

LAEP 4120 Emerging Areas in Landscape Architecture I 2
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)

LAEP 4130 Emerging Areas in Landscape Architecture II 2
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)

LAEP 4250 Internship and Cooperative Education 1-5[®]
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)

LAEP 4350 Travel Course 1-3[®]
(dual listing 6550)
Major field trip to examine a variety of projects in planning and design. (F,Sp,Su)

LAEP 4810 Tutorial 1[®]
Directed readings and discussions of landscape issues. Prerequisite: Instructor's permission. (F,Sp,Su)

LAEP 4900 Special Problems 1-5[®]
Selected problems to meet individual needs for students' completion of professional education. Hours arranged. Prerequisite: Instructor's permission. (F,Sp,Su)

LAEP 4920 CI Professional Practice 2
Readings and reports on current topics and trends in professional practice. Also covers contracts, specifications, professional ethics, and general office management. (Sp)

Course Descriptions

<p>LAEP 4950 Seminar 1 Directed readings and reports on current and emerging areas of the profession. One recitation hour per week. (F,Sp,Su)</p> <p>LAEP 5400 Low Water Landscaping 3 (dual listing 6400) 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>LAEP 6100 Regional Landscape Analysis and Planning 5 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>LAEP 6110 Landscape Planning for Wildlife 3 Application of principles of landscape ecology 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>LAEP 6120 Regional Landscape Policy and Implementation 2 Case studies and/or implementation strategies for planning alternatives developed in LAEP 6100. Prerequisites: LAEP 6740, 6750. (Sp)</p> <p>LAEP 6160 Professional Practice 2 Assigned readings and reports on current topics and trends in the practice of landscape architecture and environmental planning. (Sp)</p> <p>LAEP 6250 Internship and Cooperative Education Program 1-5* Course credit given for professional experience outside the classroom prior to graduation. Statement of professional goals and summary report following the experience are required. Prerequisite: LAEP 6100. (F,Sp,Su)</p> <p>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)</p> <p>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)</p> <p>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)</p> <p>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. (Sp)</p> <p>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)</p> <p>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)</p>	<p>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)</p> <p>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)</p> <p>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)</p> <p>LAEP 6860 Faculty/Interdisciplinary Seminar 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)</p> <p>LAEP 6890 Seminar on Research Methods and Thesis Proposals 2 Explores various research methods from both case studies and faculty presentations. Also includes preparation of thesis proposals and abstracts, and discussion of graduate degree completion requirements. Prerequisite: Graduate standing. (Sp)</p> <p>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)</p> <p>LAEP 6910 Reading Seminar I 1 Selected readings directed by department faculty. Prerequisite: Graduate standing. (F)</p> <p>LAEP 6930 Reading Seminar II 1 Selected readings directed by department faculty. Prerequisite: Graduate standing. (Sp)</p> <p>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)</p> <p>LAEP 6970 Thesis Research 1-6* Prerequisite: Graduate standing. (F,Sp,Su)</p> <p>LAEP 6990 Continuing Graduate Advisement 1-3* Prerequisite: Graduate standing. (F,Sp,Su)</p> <p>*Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation. *This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.</p>
<h2>Language (LANG)</h2> <p>See Department of Languages, Philosophy, and Speech Communication, pages 364-379.</p> <p>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. (F,Sp)</p>	

Course Descriptions

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. (F,Sp,Su)

LANG 4200H 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. (Sp)

LANG 4210H 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. (F,Sp)

® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Liberal Arts (LAS)

See *Liberal Arts Major*, pages 381-382.

LAS 4900 Independent Study/Workshop 1-3®
Independent, interdisciplinary study resulting in an original work. After obtaining permission from a Liberal Arts advisor to take this course under the supervision of a particular instructor, the student must also obtain the instructor's permission. (F,Sp,Su)

Latin (LATN)

See *Department of History*, pages 332-337.
Also see *Classics Minor*, page 220.

LATN 1010 Beginning Latin I 5
Basics of Latin grammar and vocabulary. Beginning readings. (F)

LATN 1020 Beginning Latin II 5
Intermediate concepts of grammar and vocabulary. Intermediate readings. Prerequisite: Grade of B or better in LATN 1010. (Sp)

LATN 3100 Intermediate Latin Prose 3
Readings in Latin prose. Prerequisite: Minimum grade of C or higher in LATN 1020.

LATN 3130 Intermediate Latin Poetry 3
Readings in Latin poetry. Prerequisite: Minimum grade of C or higher in LATN 1020.

LATN 4100 Advanced Latin Readings 3®
Readings in Latin poetry and/or prose. Prerequisite: Minimum grade of C or higher in LATN 3100 and 3130. (F,Sp)

LATN 4930 Directed Readings in Latin Poetry and Prose Authors 1-3
Directed readings in advanced Latin poetry and prose authors. Prerequisite: Successful completion of at least three semesters of Latin. (F,Sp,Su)

® 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 380.

LATS 2200 Introduction to Latin America 3
Interdisciplinary course examining Latin American geography, culture, history, literature, music, society, politics, and economics. (F)

Linguistics (LING)

See *Department of Languages, Philosophy, and Speech Communication*, pages 364-379.

LING 2250 Cooperative Education 1-3®
Course credit for professional experience outside the classroom. Statement of professional goals and a summary report following the experience are required. (F,Sp,Su)

LING 3300 Clinical Experience I 1
First clinical practicum in middle and secondary schools. Arranged by special methods instructor. Required at Level I. Corequisite: LING 4400 or 6400. Prerequisites set by Secondary Education Department. (F,Sp)

LING 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 ANTH 4100. (F,Sp)

LING 4250 Cooperative Education 1-3®
Course credit for professional experience outside the classroom. Statement of professional goals and a summary report following the experience are required. (F,Sp,Su)

LING 4300 Clinical Experience II 1
Second clinical practicum in middle and secondary schools. Arranged by special methods instructor. Required at Level II. Corequisite: LING 4400 or 6400. Prerequisites set by Secondary Education Department. (F,Sp)

LING 4400 Teaching Modern Languages 3
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,Sp)

LING 4520 Technology for Language Teaching** 3
(dual listing 6520)
Web- and disk-based technology for developing electronic course modules for the language learning classroom. (Su)

LING 4900 Analysis of Cross-Cultural Difference 3
Develops awareness of what culture is and how it shapes perceptions and attitudes. Through interactive student-centered activities, students learn to analyze cultural differences. (Sp)

LING 4920 Practicum in Language Tutoring 1®
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. (F,Sp,Su)

LING 5500 Student Teaching Seminar 2
Capstone seminar focused upon student teaching issues, professional development, and principles of effective instruction, with emphasis on reflective teaching. (F,Sp)

LING 5630 Student Teaching in Secondary Schools 10
Thirteen-week culminating practicum experience in which students assume full-time teaching responsibilities under direction of cooperating teachers in their major and minor fields. Prerequisites set by Secondary Education Department. (F,Sp)

LING 6010 Research in Second Language Learning 3
Readings in current SLL literature evaluated in terms of their implications for classroom practice. (F)

LING 6300 Clinical Experience I 1
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. (F,Sp)

Course Descriptions

LING 6310	Clinical Experience II	1
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. (F,Sp)		
LING 6400	Second Language Teaching: Theory and Practice	3
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)		
LING 6410	Teaching Modern Languages	3
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. (F,Sp)		
LING 6510	Linguistic Analysis	3
Comparative study of linguistic patterns across languages. Linguistic structures and language typology for teachers of modern languages. (Sp)		
LING 6520 (dual listing 4520)	Technology for Language Teaching**	3
Web- and disk-based technology for developing electronic course modules for the language learning classroom. (Su)		
LING 6800	Topics in Second Language Acquisition	3®
Advanced seminar in the acquisition and teaching of languages. (Sp)		
LING 6900	Culture Teaching and Learning: Theory and Practice	3
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)		
LING 6910	Exploring the Portfolio	1
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,Su)		
LING 6920	Developing the Portfolio	1
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)		
LING 6930	Finishing the Portfolio	1
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)		
LING 6940	Independent Study	1-3®
Individually directed readings and conference. Departmental permission required before registration. Prerequisite: Approval of instructor. (F,Sp,Su)		
LING 6990	Continuing Graduate Advisement	1-9®
Allows students access to faculty and facilities to complete graduate thesis, project, and papers. (F,Sp,Su)		

**Taught 2007-2008.

Mechanical and Aerospace Engineering (MAE)

See Department of Mechanical and Aerospace Engineering, pages 400-406.

MAE 1200	Engineering Graphics	2
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. (F,Sp)		
MAE 2160 (formerly MAE 2060)	Material Science	3
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)		
MAE 2200	Engineering Numerical Methods I	2
Introduction to computational methods, emphasizing software development using FORTRAN 95. Prerequisite: MATH 1220. (F)		
MAE 2250	Cooperative Practice	3
Planned work experience in industry. Detailed program must have prior approval. Written report required. (F,Sp,Su)		
MAE 2300 (formerly MAE 2400)	Thermodynamics I	3
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)		
MAE 2450 (formerly MAE 2210)	Engineering Numerical Methods II	3
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)		
MAE 2650 (formerly MAE 2600)	Manufacturing Processes	3
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)		
MAE 3040	Mechanics of Solids	3
Stress, strain, and deflection due to flexure and shear. Combined stresses, instability, nonsymmetric bending, torsion, and energy methods. Prerequisite: ENGR 2140. (F)		
MAE 3320	Advanced Dynamics	3
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)		
MAE 3340	Instrumentation and Measurements	3
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, ECE 2210, MAE 3400, 3420. (Sp)		
MAE 3400	Thermodynamics II	3
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)		

Course Descriptions

<p>MAE 3420 Fluid Mechanics 3 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 2020, MAE 2200, 2300 (MAE 2200 may be taken concurrently). (F)</p> <p>MAE 3440 QI Heat and Mass Transfer 3 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)</p> <p>MAE 3800 Design I 2 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)</p> <p>MAE 4300 Machine Design 3 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)</p> <p>MAE 4400 CI Fluids/Thermal Laboratory 2 Laboratory experiences in observation and measurement of fundamental fluid and thermal phenomena. Prerequisites: MAE 3340, 3440. (F)</p> <p>MAE 4800 CI Design II 3 Senior design project, including a technical presentation and a critical design review. Prerequisites: MAE 3440, 3800, 4300. (F,Sp)</p> <p>MAE 5020 Finite Element Methods in Solid Mechanics I 3 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>MAE 5060 Mechanics of Composite Materials I 3 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>MAE 5300 Vibrations 3 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>MAE 5310 Dynamic Systems and Controls 3 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>MAE 5410 Design and Optimization of Thermal Systems 3 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>MAE 5420 Compressible Fluid Flow 3 Application of conservation of mass, momentum, and energy to the design and analysis of compressible fluid systems. Prerequisites: MAE 3400, 3420. (Sp)</p> <p>MAE 5440 Computational Fluid Dynamics 3 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>MAE 5470 Internal Combustion Engines 3 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>MAE 5500 Aerodynamics 3 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>MAE 5510 Dynamics of Atmospheric Flight 3 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>MAE 5520 Elements of Space Flight 3 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 2270 and 2700. (F)</p> <p>MAE 5530 Space System Design 3 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>MAE 5540 Propulsion Systems 3 Fundamentals of rocket and air breathing propulsion, including space flight dynamics, nozzle theory, combustion processes, and flight performance. Rocket 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)</p> <p>MAE 5580 Aircraft Design 3 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>MAE 5600 Manufacturing Process Planning and Statistical Quality Control 3 Explores how to produce products in today's manufacturing environment. Topics include forecasting, planning, facility layout, job design, planning, scheduling, total quality management, and statistical process control as they relate to manufacturing firms. Prerequisite: MAE 2650. (F)</p> <p>MAE 5610 Hydraulics and Pneumatics 3 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. (Sp)</p> <p>MAE 5620 Manufacturing Automation 3 Principles of automation technology as applied to manufacturing systems. Topics include motion control, PLC, robotics, CNC, and system integration. Prerequisite: MAE 2650. (F)</p> <p>MAE 5630 Machining Theory and Applications 3 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. (Sp)</p> <p>MAE 5640 Design for Manufacturability 3 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>
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Course Descriptions

<p>MAE 5650 Nontraditional and Additive Manufacturing Processes 3 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>MAE 5660 Transport Phenomena in Manufacturing Processes 3 Analysis of manufacturing processes through the development of physically-based mathematical models. Heat and mass transfer principles used for a quantitative treatment of transport phenomena for process simulation and control. Prerequisites: MAE 2160, 3440. (Sp)</p> <p>MAE 5680 Manufacturing Planning and Simulation 3 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. (Sp)</p> <p>MAE 5900 Cooperative Practice 3 Planned work experience in industry. Detailed program must have prior approval. Written report required. Student must be in professional program. (F,Sp,Su)</p> <p>MAE 5930 Special Problems 1-3[®] Formulation and solution of practical or theoretical problems. Prerequisite: Permission of department head. (F,Sp,Su)</p> <p>MAE 6010 Finite Element Methods in Solid Mechanics II*** 3 Advanced theory and applications of finite element methods to both static and dynamic solid mechanics problems. Prerequisite: MAE 5020. (Sp)</p> <p>MAE 6040 Continuum Mechanics and Elasticity 3 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. Prerequisite: MAE 3040 or CEE 3010. (F)</p> <p>MAE 6050 Experimental Methods in Structural Engineering 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. Also taught as CEE 6050. (Sp)</p> <p>MAE 6070 Mechanics of Composite Materials II*** 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 CEE 6070. (F)</p> <p>MAE 6080 Boundary Element Method 3 Presents introduction to boundary element method to solve fluid and solid mechanics problems. Prerequisites: FORTRAN programming skills, MAE 3040, 5020. (Sp)</p> <p>MAE 6090 Theory of Plates and Shells 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 CEE 6090. (F)</p> <p>MAE 6130 Structural Dynamics and Seismic Design 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 CEE 6130. (Sp)</p> <p>MAE 6180 Dynamics and Vibrations*** 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 CEE 6180. (Sp)</p>	<p>MAE 6320 Linear Multivariable Control 3 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 4310 or MAE 5310. Also taught as ECE 6320. (F)</p> <p>MAE 6340 Spacecraft Attitude Control*** 3 Spacecraft attitude dynamics and controls. Spin stabilized, three axis, and dual spin modes. Attitude determination techniques. Prerequisite: ECE 4310 or MAE 5310. Also taught as ECE 6340. (Sp)</p> <p>MAE 6350 Robotics 3 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)</p> <p>MAE 6410 Fluid Dynamics 3 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)</p> <p>MAE 6420 Experimental Methods in Fluid Mechanics*** 3 Explores process and techniques involved in acquisition, analysis, and presentation of experimental data, with particular emphasis on aerodynamic applications. Topics include digital signal processing, statistics, uncertainty analysis, hot wire anemometry, and wind tunnel testing. Prerequisite: MAE 3420. (Sp)</p> <p>MAE 6430 Boundary Layer Theory and Convection Heat Transfer 3 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)</p> <p>MAE 6440 Advanced Computational Fluid Dynamics 3 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. (F)</p> <p>MAE 6450 Thermodynamics*** 3 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)</p> <p>MAE 6460 Conduction Heat Transfer*** 3 Integral, differential, and numerical methods for solving engineering problems associated with the diffusion of heat in a rigid solid. Prerequisite: MAE 3440. (Sp)</p> <p>MAE 6480 Radiation Heat Transfer*** 3 Radiation theory and applications. Includes utilization of computer software. Prerequisite: MAE 3440. (F)</p> <p>MAE 6490 Turbulence*** 3 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)</p> <p>MAE 6500 Potential Flow*** 3 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. (Sp)</p>
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Course Descriptions

<p>MAE 6510 Aircraft Dynamics and Flight Simulation** 3 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. (Sp)</p> <p>MAE 6530 Propulsion Systems 3 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 unducted fan concepts. Prerequisite: MAE 5420. (Sp)</p> <p>MAE 6540 Astrodynamics*** 3 Advanced topics in astrodynamics to include: general and special perturbations, universal variable, methods of orbit determination, Lambert's theorem, the restricted three-body problem, and space mission planning. Prerequisite: MAE 5520. (F)</p> <p>MAE 6550 Advanced Structural Analysis 3 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)</p> <p>MAE 6560 Spacecraft Navigation 3 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 ECE 6560. (Sp)</p> <p>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)</p> <p>MAE 6640 Life Cycle Engineering 3 Familiarizes students with re-engineering, cost/benefit analysis, value engineering, and life cycle design. Students will analyze costs and benefits of design decisions over the product life (needs, market, use, service, reliability, retirement, etc.) while improving the life cycle design of industrial products. Prerequisite: Graduate standing or permission of instructor. (F)</p> <p>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)</p> <p>MAE 6900 Seminar 0.5® 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)</p> <p>MAE 6930 Special Problems 1-3® Independent or group study of engineering problems not covered in regular course offerings. (F,Sp,Su)</p> <p>MAE 6950 Design Project 3 Individual projects involving the design, development, and/or testing of components, devices, or systems. Formal report required. (F,Sp,Su)</p> <p>MAE 6970 Thesis Research 1-9® (F,Sp,Su)</p> <p>MAE 6990 Continuing Graduate Advisement 1-12® (F,Sp,Su)</p>	<p>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)</p> <p>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)</p> <p>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)</p> <p>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)</p> <p>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)</p> <p>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)</p> <p>MAE 7380 Advanced Dynamics and Vibrations*** 3 Advanced techniques in dynamics and vibrations. Prerequisite: CEE/MAE 6180. (F)</p> <p>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, CEE/MAE 6570; or MAE 3420, CEE/MAE 5020. Also taught as CEE 7580. (Sp)</p> <p>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)</p> <p>MAE 7930 Special Problems 1-3® Independent or group study of engineering problems not covered in regular course offerings. (F,Sp,Su)</p> <p>MAE 7970 Dissertation Research 1-12® (F,Sp,Su)</p> <p>MAE 7990 Continuing Graduate Advisement 1-12® (F,Sp,Su)</p>
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® Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

*Taught 2006-2007.

**Taught 2007-2008.

***Taught alternate years. For further information, consult department.

Course Descriptions

Mathematics (MATH)

See *Department of Mathematics and Statistics, pages 388-399.*

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. (F,Sp,Su)		
MATH 1010	Intermediate Algebra	3[®]
Linear equations and inequalities, polynomials and exponents, rational expressions, roots and radicals, quadratic equations, lines and systems of linear equations. Prerequisite: C- or better in MATH 0900, Math ACT score of at least 18, or satisfactory score on placement exam. Required for entrance to USU. Course fee required. (F,Sp,Su)		
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, Math ACT score of at least 23, or satisfactory score on placement exam. (F,Sp)		
MATH 1050 QL	College Algebra	4[®]
Real and complex number systems, graphs, inverse functions, polynomial and rational functions, exponential and logarithmic functions, systems of equations, elementary matrix algebra, induction, binomial theorem, permutations and combinations. Graphing calculator required. Prerequisite: C- or better in MATH 1010, or Math ACT score of at least 23, or satisfactory score on placement exam. (F,Sp,Su)		
MATH 1060	Trigonometry	2[®]
Trigonometric functions, equations, identities, and applications. Graphing calculator required. Prerequisite: C- or better in MATH 1010, or Math ACT score of at least 23, or satisfactory score on placement exam. May be taken concurrently with MATH 1050. (F,Sp,Su)		
MATH 1100 QL	Calculus Techniques	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 a Math ACT score of at least 25. (F,Sp,Su)		
MATH 1210 QL	Calculus I	4
Analytic geometry, differential and integral calculus, transcendental functions, and applications. Graphing calculator required. Prerequisite: 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. (F,Sp,Su)		
MATH 1220 QL	Calculus II	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)		
MATH 2020 QI	Introduction to Logic and Geometry	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. Course fee required. (F,Sp,Su)		
MATH 2210 QI	Multivariable Calculus	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)		
MATH 2250 QI	Linear Algebra and Differential Equations	4
Linear systems, abstract vector spaces, matrices through eigenvalues and eigenvectors, solution of ode's, Laplace transforms, first order systems. Prerequisite: C- or better in MATH 1220 or AP Calculus score of 5 on BC exam. (F,Sp,Su)		
MATH 2260	Internship and Cooperative Studies	1-6[®]
Lower-division internship/cooperative work experience. (F,Sp,Su)		
MATH 2270 QI	Linear Algebra	3
Topics from linear algebra, including matrices, abstract vector spaces, linear independence, bases, eigenvalues, eigenvectors, orthogonality, least squares		

approximation, and linear transformations. Recommended for Math and Math Education majors. Prerequisite: C- or better in MATH 1220 or AP Calculus score of 5 on BC exam. (F)

MATH 2280 QI	Ordinary Differential Equations	3
First-order differential equations: solution techniques, numerical methods and applications. Higher-order scalar equations; linear systems, phase plane analysis. Additional topics selected from: series solution techniques, boundary value problems, Sturm-Liouville theory, bifurcation analysis. Prerequisites: C- or better in MATH 2210 and 2270. (Sp)		
MATH 2910	Directed Reading and Conference	1-3[®]
Prerequisite: Prior arrangement with specific instructor. (F,Sp,Su)		
MATH 3110	Modern Geometry	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)		
MATH 3300	School Laboratory for Mathematics Teachers Level I	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. (F,Sp)		
MATH 3310	Discrete Mathematics	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)		
MATH 4200 CI	Foundations of Analysis	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)		
MATH 4230 QI	Applied Mathematics in Biology***	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)		
MATH 4250	Advanced Internship/Co-op	1-6[®]
An internship/cooperative work experience which has been determined by the department to be at the 4000-level. (F,Sp,Su)		
MATH 4300	School Laboratory for Mathematics Teachers Level II	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. (F,Sp)		
MATH 4310 CI	Introduction to Algebraic Structures	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)		
MATH 4400	History of Mathematics and Number Theory	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)		
MATH 4500	Methods of Secondary School Mathematics Teaching	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)		

Course Descriptions

<p>MATH 4620 Computer Aided Math for Secondary Math Teachers 3 Problem solving using symbolic manipulation software on computers. Topics include material introduced in MATH 1210, 1220, 2210, 2250, 2270, and 2280. Includes instruction in the use of modern computerized devices in the classroom. Prerequisites: C- or better in MATH 2210, 2250; or C- or better in MATH 2210, 2270, 2280. (F)</p> <p>MATH 4700 Engineering Mathematics and Statistics 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>MATH 4910 Directed Reading and Conference 1-3® Registration requires prior arrangement with specific instructor. (F,Sp,Su)</p> <p>MATH 5110 Differential Geometry 3 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. (F)</p> <p>MATH 5210 Introduction to Analysis I 3 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>MATH 5220 Introduction to Analysis II 3 Continuation of MATH 5210. Rigorous development of multivariable advanced calculus. Prerequisite: C- or better in MATH 5210. (Sp)</p> <p>MATH 5270 Complex Variables 3 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)</p> <p>MATH 5310 Introduction to Modern Algebra*** 3 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>MATH 5340 Theory of Linear Algebra** 3 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. (Sp)</p> <p>MATH 5410 Methods of Applied Mathematics 3 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>MATH 5420 Partial Differential Equations 3 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>MATH 5460 Introduction to the Theory and Application of Nonlinear Dynamical Systems 3 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>MATH 5500 Capstone Mathematics and Statistics for Teachers 3 Builds on competencies attained in mathematics and statistics, enabling students to connect with and relate mathematics and statistics to real-world problem solving, while enhancing their capacity to explain conceptual mathematics. Prerequisites: C- or better in MATH 4200, 4310, and 4400. (F)</p>	<p>MATH 5510 Introduction to Topology 3 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. (F)</p> <p>MATH 5570 Actuarial Math I*** 3 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>MATH 5580 CI Actuarial Math II*** 3 Continuation of MATH 5570. Prerequisite: C- or better in MATH 5570. (Sp)</p> <p>MATH 5610 Computational Linear Algebra and Solution of Systems of Equations 3 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>MATH 5620 Numerical Solution of Differential Equations** 3 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>MATH 5640 Optimization*** 3 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>MATH 5710 Introduction to Probability 3 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>MATH 5720 Introduction to Mathematical Statistics 3 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>MATH 5760 Stochastic Processes* 3 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>MATH 5810 Topics in Mathematics 1-3® MATH 5820 Topics in Mathematics 1-3® Prerequisite: Permission of instructor. (F,Sp,Su) (F,Sp,Su)</p> <p>MATH 5910 Directed Reading and Conference 1-3® Prerequisite: Prior arrangement with a specific instructor. (F,Sp,Su)</p> <p>MATH 5950H Honors Senior Project 1-4 A senior project required for completion of the departmental honors program. Prerequisite: Permission of instructor. (F,Sp,Su)</p> <p>MATH 6110 Differential Geometry* 3 MATH 6120 Differential Geometry* 3 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>MATH 6210 Real Analysis* 3 MATH 6220 Real Analysis* 3 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>
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Course Descriptions

MATH 6250	Graduate Internship/Cooperative Studies*	1-6[®]
Graduate internship/cooperative work experience. (F,Sp,Su)		
MATH 6270	Complex Variables*	3
Analytic functions, singular points, conformal maps, harmonic functions, analytic continuation, Residue theory. Prerequisite: C- or better in MATH 5210 or 5270. (Sp)		
MATH 6310	Modern Algebra*	3
MATH 6320	Modern Algebra*	3
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)		
MATH 6340	Multilinear Algebra and Matrix Theory*	3
MATH 6350	Multilinear Algebra and Matrix Theory*	3
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)		
MATH 6410	Ordinary Differential Equations I*	3
Existence-uniqueness theory, linear equations and systems, nonlinear equations, and stability. Prerequisite: C- or better in MATH 5210. (F)		
MATH 6420	Partial Differential Equations I*	3
Introduction to the theory of partial differential equations, including existence and uniqueness. Prerequisite: C- or better in MATH 5220 or 6410. (Sp)		
MATH 6440	Ordinary Differential Equations II*	3
Asymptotic behavior, periodicity, boundary value problems, and perturbation methods. Prerequisite: C- or better in MATH 6410. (Sp)		
MATH 6450	Partial Differential Equations II*	3
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)		
MATH 6470	Advanced Asymptotic Methods*	3
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)		
MATH 6510	Topology*	3
MATH 6520	Topology*	3
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)		
MATH 6610	Numerical Analysis*	3
Linear and nonlinear equations, large scale problems, and eigenvalues. Prerequisites: C- or better in MATH 5210, 5610, or consent of instructor. (F)		
MATH 6620	Numerical Analysis*	3
Numerical solution of ordinary and partial differential equations. Prerequisite: C- or better in MATH 6610 or consent of instructor. (Sp)		
MATH 6640	Optimization*	3
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)		
MATH 6750	Probability Theory*	3
MATH 6760	Probability Theory*	3
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)		

MATH 6810	Topics in Mathematics (Topic)*	3[®]
MATH 6820	Topics in Mathematics (Topic)*	3[®]
Prerequisite: Consent of instructor. (F) (Sp)		
MATH 6910	Directed Reading and Conference*	1-3[®]
Prerequisite: Prior arrangement with specific instructor. (F,Sp,Su)		
MATH 6970	Thesis	1-9[®]
(F,Sp,Su)		
MATH 6990	Continuing Graduate Advisement	1-9[®]
(F,Sp,Su)		
MATH 7110	Geometry (Topic)*	3[®]
MATH 7120	Geometry (Topic)*	3[®]
(F) (Sp)		
MATH 7210	Analysis (Topic)*	3[®]
MATH 7220	Analysis (Topic)*	3[®]
(F) (Sp)		
MATH 7310	Algebra (Topic)*	3[®]
MATH 7320	Algebra (Topic)*	3[®]
(F) (Sp)		
MATH 7410	Differential Equations (Topic)*	3[®]
MATH 7420	Differential Equations (Topic)*	3[®]
(F) (Sp)		
MATH 7510	Topology (Topic)*	3[®]
MATH 7520	Topology (Topic)*	3[®]
(F) (Sp)		
MATH 7610	Numerical Analysis (Topic)*	3[®]
MATH 7620	Numerical Analysis (Topic)*	3[®]
(F) (Sp)		
MATH 7750	Probability (Topic)*	3[®]
MATH 7760	Probability (Topic)*	3[®]
(F) (Sp)		
MATH 7810	Topics in Mathematics (Topic)*	3[®]
MATH 7820	Topics in Mathematics (Topic)*	3[®]
(F) (Sp)		
MATH 7910	College Teaching Internship	3[®]
(F,Sp,Su)		
MATH 7970	Dissertation Research	1-15[®]
(F,Sp,Su)		
MATH 7990	Continuing Graduate Advisement	1-9[®]
(F,Sp,Su)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©]This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*This course will be taught as needed. For information about availability, contact the Department of Mathematics and Statistics.

**Taught 2006-2007.

***Taught 2007-2008.

Management and Human Resources (MHR)

See Department of Management and Human Resources, pages 383-387.

MHR 1160	Developing Self-Management Skills	1
A practical course designed to provide basic self-management skills contributing to personal effectiveness. For freshmen and sophomores only. (F,Sp,Su)		

Course Descriptions

<p>MHR 2050 Legal and Ethical Environment of Business 3 (formerly MHR 2990) 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 College of Business majors); and GPA of 2.5 or higher. (F,Sp,Su)</p> <p>MHR 2160 Student Applied Leadership Training 1-3® 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 and Transfer Services (SC 304). Prerequisite: Approval of course coordinator. (F,Sp,Su)</p> <p>MHR 2350 Small Business Management 3® Provides practical overview of management principles and practices as they apply to the small business enterprise. For nonbusiness majors.¹</p> <p>MHR 3110 DSS Managing Organizations and People 3® 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)</p> <p>MHR 3510 Fundamentals of Entrepreneurship 3 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)</p> <p>MHR 3520 Relationship and Organizational Competencies for Entrepreneurs 3 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. (Sp)</p> <p>MHR 3710 Developing Team and Interpersonal Skills 3 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>MHR 3720 DSS Leading Organization Change 3 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: MHR 3110; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits.¹</p> <p>MHR 3810 DSS Employment Law and Policy Development 3 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: MHR 2050; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F,Sp)¹</p> <p>MHR 3820 DSS International Management 3 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>MHR 4510 Senior Seminar in Entrepreneurship 3 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.</p>	<p>Prerequisites: MHR 3510, 3520; admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F)</p> <p>MHR 4630 Human Resource Management 3 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>MHR 4710 Senior Leadership Project 3 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.¹</p> <p>MHR 4730 Business and Society 3 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.¹</p> <p>MHR 4800 Independent Research and Readings 1-3® Provides opportunity for student to pursue special interests under tutorship of faculty. Prerequisite: Approval of faculty member and department head. (F,Sp,Su)</p> <p>MHR 4880 CI Business Strategy in an Entrepreneurial Context 3 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; MHR 3110, BA 3400, 3500, 3700; admittance to a USU major; cumulative GPA of 2.67 or higher. (F,Sp,Su)</p> <p>MHR 4890 CI Business Strategy in a Global Context 3 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; MHR 3110, BA 3400, 3500, 3700; admittance to a USU major; cumulative GPA of 2.67 or higher. (F,Sp,Su)</p> <p>MHR 4950H 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)</p> <p>MHR 5350 Contemporary Manufacturing Management 3 (dual listing 6350) Examines contemporary principles, techniques, and research findings of high-performance manufacturing. Analysis of leading models of management and continuous improvement, based upon best company practices, particularly lean, just-in-time manufacturing. Prerequisites: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. (F)</p> <p>MHR 5640 Selected Topics in Management and Human Resources 1-3® (dual listing 6640) Selected topics in management and/or human resources are pursued in depth. Topics and instructor may vary.¹</p> <p>MHR 6010 Advanced Business Law 3 Detailed investigation of business law, including law of contracts, torts, property, secured transactions, commercial paper, and business organizations. Prerequisite: MHR 2050.¹</p> <p>MHR 6050 Management Principles 1.5 Introduction of management principles for students entering a master's degree program in the College of Business. Prerequisite: Acceptance into a College of Business master's degree program. (Su)</p>
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Course Descriptions

<p>MHR 6070 Fundamentals of Business Law 1.5 Introduction of business law principles for students entering a master's degree program in the College of Business. Prerequisite: Acceptance into a College of Business master's degree program. (Su)</p> <p>MHR 6310 Career and Professional Development 1-3® 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>MHR 6330 Applied Human Resources Research 3 Provides applied research for selected human resource topics. (F)</p> <p>MHR 6350 Contemporary Manufacturing Management 3 (dual listing 5350) Examines contemporary principles, techniques, and research findings of high-performance manufacturing. Analysis of leading models of management and continuous improvement, based upon best company practices, particularly lean, just-in-time manufacturing. (F)</p> <p>MHR 6370 Project Management 3 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.¹</p> <p>MHR 6410 New Venture Creation 3 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.¹</p> <p>MHR 6430 New Venture Growth and Expansion 3 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.¹</p> <p>MHR 6470 Entrepreneurship Project 3 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.¹</p> <p>MHR 6500 Managing Individuals and Groups 3 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)</p> <p>MHR 6510 Performance Management 1-3 Introduces Human Resource Management, and then undertakes an in-depth analysis of performance management process, including job analysis, choice of raters, performance feedback, employee motivation and discipline, and training for improvement of individual performance. (F)¹</p> <p>MHR 6550 Human Resource Planning and Staffing 3 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>MHR 6620 Training and Organizational Development 3 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>MHR 6630 Compensation and Benefits 3 Strategic analysis of compensation and benefits policies and programs. Includes job evaluation systems, job pricing, wage and salary surveys, statistical methods used in compensation, group and individual pay for performance, executive compensation, and employee benefits. (Sp)</p>	<p>MHR 6640 Selected Topics in Management and Human Resources 1-3® (dual listing 5640) Selected topics in management and/or human resources are pursued in depth. Topics and instructor may vary.¹</p> <p>MHR 6650 Team and Interpersonal Effectiveness 3 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>MHR 6670 Employee Relations and the Labor Movement 3 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>MHR 6680 Human Capital Management 3 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.¹</p> <p>MHR 6690 Human Resource Strategy 3 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>MHR 6760 Employment Law 3 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> <p>MHR 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)</p> <p>MHR 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)</p> <p>MHR 6900 Independent Research and Readings 1-3® Provides opportunity for students to pursue special interests under tutorship of the faculty. Prerequisite: Approval of faculty member and department head. (F,Sp,Su)</p> <p>MHR 6960 Professional Paper 3 Preparation of paper of professional quality, designed to demonstrate ability to complete a major project and effectively present the results.</p> <p>MHR 6970 Thesis 1-4® Designed for students preparing a master's degree thesis. (F,Sp,Su)</p> <p>MHR 6990 Continuing Graduate Advisement 1-3® (F,Sp,Su)</p>
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¹This course will be taught as needed. For information about availability, check with Management and Human Resources Department.

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

©This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Course Descriptions

Military Science (MS)

See *Department of Military Science, pages 407-408.*

Basic Course

MS 1010 Introduction to Leadership 2[®]
Establishes a foundation for self and team development through participation in adventure training and team-building activities. Among the subjects presented are: land navigation, leader behavior and unit effectiveness, and effective time management. A two-hour weekly leadership lab is required, as well as one weekend field training exercise. (F,Sp,Su)

MS 1020 Leadership Skills 2[®]
Emphasizes self and team development through participation in classroom and leadership lab. Subject matter includes small unit operations, branches of the Army, troop leading procedures, communications skills, and the organization of company-sized Army units. A two-hour weekly leadership lab is required, as well as one weekend field training exercise. (F,Sp,Su)

MS 2010 Leadership Development 2[®]
Builds on previous leadership instruction, enhancing student skills in land navigation, small unit tactics, written and oral communication, event planning, group coordination and effectiveness, and first aid. During this course, students develop basic skills for leading others in a tactical environment. A two-hour weekly leadership lab is required, as well as one weekend field training exercise. (F,Sp,Su)

MS 2020 Small Unit Leadership 2[®]
Focuses on leader effectiveness. Analyzes selected historical leaders and battles, using the principles of war and other tenets. Student-led discussions highlight lessons learned relative to leadership and organizational success. Oral communication skills are central to this course. A two-hour weekly leadership lab is required, as well as one weekend field training exercise. (F,Sp,Su)

MS 2400 Physical Readiness 1[®]
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)

MS 2420 Ranger Preparation 2[®]
Participation in Army ROTC Ranger Challenge program. Advanced military training with practical application of skills taught in MS 1010 and 4020. (F,Sp)

MS 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)

MS 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)

MS 2510 ROTC Basic Camp 1-6
Five-week leadership camp conducted at Fort Knox, Kentucky. Designed to introduce students to basic military skills and leadership without incurring a military obligation. Training includes rappelling, marksmanship, small unit tactics, physical fitness, and leadership. Open only to students who have not completed MS 1010, 1020, 2010, and 2020. Graduates are qualified for Advanced Course entry into ROTC. Prerequisites: Must pass physical exam and must obtain instructor's approval. (F,Su)

Advanced Course

MS 3010 Organizational Leadership and Small Unit Tactics 3
Develops leadership skills within the framework of the U.S. Army. Focuses on theory and application of decision making, planning, organizing, management control, and communications. Also emphasizes small unit tactics and advanced land navigation skills. A two-hour weekly leadership lab is required, as well as one weekend field training exercise. (F,Sp,Su)

MS 3020 Advanced Tactics and Operations 3
Focuses on theory and application of small unit tactics, leadership, and land warfare. Subjects include preparing and issuing combat orders, organizing for combat, unit and individual movement techniques, communications, and security. A two-hour weekly leadership lab is required, as well as one weekend field training exercise. (F,Sp,Su)

MS 3110 Staff Organization and Operations 1-3[®]
Special project staff work for joint Army/Air Force campus ceremonies, leadership labs, field training exercises, and training camps. (F,Sp,Su)

MS 3210 Independent Study 1-3[®]
Students select advanced topics of interest and arrange credit under program advisor supervision in areas related to military science. (F,Sp,Su)

MS 4010 Command and Staff Functions 3
Addresses functions/roles of the commander/leader and the staff. Explores organizational planning and problem solving, written and oral communications, training management, and evaluation systems. A two-hour weekly leadership lab is required, as well as three one-hour physical fitness sessions per week and one weekend field training exercise. (F,Sp,Su)

MS 4020 Officer Perspectives 3
Conference course addressing roles and responsibilities of junior Army officers. Examines environmental stewardship, threats to U.S. security, Army modernization initiatives, the military justice system, and the law of war. A two-hour weekly leadership lab is required, as well as three one-hour physical fitness sessions per week and one weekend field training exercise. (F,Sp,Su)

MS 4110 Advanced Staff Operations 1-3[®]
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 MS 3110. Prerequisite: Instructor's permission. (F,Sp,Su)

MS 4400 Advanced Physical Readiness 1[®]
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 permission. (F,Sp)

MS 4510 ROTC Advanced Camp 1-10[®]
Five-week leadership camp conducted at Fort Lewis, Washington. Stresses small-unit leadership under varying and challenging conditions. Prerequisites: Successful completion of basic course requirements and instructor's approval. (F,Sp,Su)

MS 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: MS 3010, 3020, 4510, and instructor's approval. (F,Sp,Su)

MS 4610 DHA Military History Seminar 1-3[®]
One-week course in which students travel to, research, and report on significant Civil War sites in the Eastern United States. Available to all students. Requires purchase of airfare and some meals. (F,Sp,Su)

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Music Courses (MUSC)

See *Department of Music, pages 409-426.*

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)

Course Descriptions

<p>MUSC 1100 BCA Fundamentals of Music 3[®] (formerly MUSC 1020 BCA) 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)</p> <p>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)</p> <p>MUSC 1120 Music Theory II 3 Traditional harmony in four parts, using nonchord tones, seventh chords, and secondary dominant functions. Prerequisite: MUSC 1110. (Sp)</p> <p>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)</p> <p>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)</p> <p>MUSC 1150 Beginning Group Piano 1 (formerly MUSC 1400) Group piano instruction for nonmusic majors. (Sp)</p> <p>MUSC 1160 Intermediate Group Piano 1 (formerly MUSC 1410) Group piano instruction for nonmusic majors. (Sp)</p> <p>MUSC 1170 Keyboard Harmony I 1 (formerly MUSC 1150) Development of keyboard skills, in conjunction with MUSC 1110, for music majors and minors. (F)</p> <p>MUSC 1180 Keyboard Harmony II 1 (formerly MUSC 1160) 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>MUSC 1310 Introduction to Music Therapy 2 Introduces students to the field of music therapy through lectures, readings, and experiential work. For music therapy majors <i>only</i>. (F)</p> <p>MUSC 1320 Music Therapy Ensemble 1[®] 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>MUSC 1420 Pedagogy Practicum 3[®] 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>MUSC 1430 Piano Pedagogy I 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>MUSC 1440 Piano Pedagogy II 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>MUSC 1450 Group Organ 1[®] Acquaints students with basic techniques of organ playing. Concentrates on hymn playing, and music for preludes and postludes. (F,Sp)</p> <p>MUSC 1460 CI Organ Literature I** 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>MUSC 1470 CI Organ Literature II** 3 Examines the history of the organ, as well as composers and literature from the Middle Ages through the Baroque Period. (Sp)</p> <p>MUSC 1480 Individual Piano Instruction for Nonmusic Majors 1-2[®] 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)</p> <p>MUSC 1490 Individual Organ Instruction for Nonmusic Majors 1-2[®] 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>MUSC 1500 String Techniques I 1 Designed to give prospective music teachers a basic playing experience and theoretical understanding of the string instruments. (F,Sp)</p> <p>MUSC 1520 Individual Viola Instruction for Nonmusic Majors 1-2[®] 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>MUSC 1530 Individual Violin Instruction for Nonmusic Majors 1-2[®] 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>MUSC 1540 Individual String Bass Instruction for Nonmusic Majors 1-2[®] 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>MUSC 1550 Beginning Group Guitar 1 Fundamentals of guitar; basic chords, note reading, tablature reading, and accompaniment styles, including strumming and fingerpicking. (F,Sp)</p> <p>MUSC 1560 Intermediate Group Guitar 1 Intermediate-level strumming and fingerpicking techniques, barre chords, and solos written in standard notation and tablature will be presented. (F,Sp)</p> <p>MUSC 1580 Individual Guitar Instruction for Nonmusic Majors 1-2[®] 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>MUSC 1600 Voice Techniques 1 Acquaints the nonvocal major with the vocal instrument; its mechanism, terminology, and techniques. (F,Sp)</p> <p>MUSC 1610 Introduction to Musical Theatre 2 Survey course dealing with history, evolution, influence, practice, and production of the American Musical Theatre. (Sp)</p> <p>MUSC 1620 Introduction to Opera 2 Survey course tracing history and style of opera from Peri and Caccini's "Eurdice" of 1594 to contemporary works of John Eaton and Phillip Glass. (F)</p> <p>MUSC 1630 Individual Vocal Instruction for Nonmusic Majors 1-2[®] 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>MUSC 1700 Individual Flute Instruction for Nonmusic Majors 1-2[®] 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>
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Course Descriptions

<p>MUSC 1710 Individual Oboe Instruction for Nonmusic Majors 1-2® 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>MUSC 1720 Individual Clarinet Instruction for Nonmusic Majors 1-2® 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>MUSC 1730 Individual Bassoon Instruction for Nonmusic Majors 1-2® 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> <p>MUSC 1740 Individual Saxophone Instruction for Nonmusic Majors 1-2® 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>MUSC 1800 Percussion Techniques 1 Provides basic playing experience and theoretical understanding of percussion instruments. Designed for music majors. (F)</p> <p>MUSC 1810 Individual Trumpet Instruction for Nonmusic Majors 1-2® 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>MUSC 1820 Individual Trombone Instruction for Nonmusic Majors 1-2® 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>MUSC 1830 Individual French Horn Instruction for Nonmusic Majors 1-2® 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>MUSC 1840 Individual Tuba/Euphonium Instruction for Nonmusic Majors 1-2® 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>MUSC 1850 Individual Percussion Instruction for Nonmusic Majors 1-2® 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>MUSC 2110 Music Theory III (formerly MUSC 2130) 3 Traditional chromatic harmony in four parts, using modulation, mode mixture, and neapolitan and augmented sixth chords. Prerequisites: MUSC 1110 and 1120. (F)</p> <p>MUSC 2130 Aural Skills III (formerly MUSC 2150) 1 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>MUSC 2140 Aural Skills IV (formerly MUSC 2160) 1 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>MUSC 2170 Keyboard Harmony III 1 Development of keyboard skills, in conjunction with MUSC 2110, for music majors. Prerequisite: Completion of MUSC 1180 with a C- or better, or faculty authorization. (F)</p> <p>MUSC 2180 Computer Applications in Music 2 Presents operational knowledge of computer hardware and music software. Students use M101 work station to learn music notation, sequencing, and other select applications. Enrollment limited to Music majors <i>only</i>. (F,Sp)</p> <p>MUSC 2210 Instrumental Conducting Ensemble 1® Lab group for MUSC 4240. Music and nonmusic majors play major and secondary instruments in two concerts per semester. (F)</p> <p>MUSC 2310 Introduction to Observational and Behavioral Methods in Music Therapy 2 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>MUSC 2320 Music Therapy Methods and Materials 2 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>MUSC 2350 Conducting (formerly MUSC 3170) 2 Designed to provide students with basic conducting techniques. Prerequisites: MUSC 2110 and must be a premusic or music major. (F)</p> <p>MUSC 2410 Individual Organ Instruction (Second Instrument) for Music Majors 1® 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>MUSC 2420 Piano Literature I** 3 Acquaints pianists with the standard piano composers and keyboard literature from the 14th Century to the Classical Period. (F)</p> <p>MUSC 2430 Piano Literature II** 3 Acquaints pianists with the standard piano composers and keyboard literature from the Classical Period to the Romantic Period. (Sp)</p> <p>MUSC 2440 Piano Literature III* 3 Acquaints pianists with the standard piano composers and keyboard literature from the Romantic Period to Impressionism. (F)</p> <p>MUSC 2450 Piano Literature IV* 3 Acquaints pianists with the standard piano composers and keyboard literature from the Impressionist Period to the present day. (Sp)</p> <p>MUSC 2460 Individual Jazz Piano Instruction for Nonmusic Majors 1-2® 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>MUSC 2470 Individual Jazz Piano Instruction (Second Instrument) for Music Majors 1® 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>MUSC 2490 Individual Piano Instruction (Second Instrument) for Music Majors 1® 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>MUSC 2500 Individual String Bass Instruction (Second Instrument) for Music Majors 1® 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>
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Course Descriptions

<p>MUSC 2510 Individual Cello Instruction for Nonmusic Majors 1-2[®] 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>MUSC 2520 Individual Cello Instruction (Second Instrument) for Music Majors 1[®] 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>MUSC 2530 Individual Viola Instruction (Second Instrument) for Music Majors 1[®] 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> <p>MUSC 2540 Individual Violin Instruction (Second Instrument) for Music Majors 1[®] 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>MUSC 2550 Guitar Styles (Blues/Bluegrass)* 2 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>MUSC 2560 Guitar Styles (Jazz/Classical)* 2 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>MUSC 2570 Fingerboard Theory I 2 Basic music theory course in which students use the guitar as a tool for learning the fundamentals of music. (F)</p> <p>MUSC 2580 Fingerboard Theory II 2 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>MUSC 2590 Individual Guitar Instruction (Second Instrument) for Music Majors 1[®] 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>MUSC 2600 Women's Choir 1[®] Performance of choral works in a large choral organization open to all women without auditions. (F,Sp)</p> <p>MUSC 2610 Choral Society 1[®] Large select mixed choir performing major works for chorus and orchestra. Admission by audition only. (F,Sp)</p> <p>MUSC 2640 Individual Vocal Instruction (Second Instrument) for Music Majors 1[®] 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>MUSC 2660 Italian Diction for Singers 2 Study of singing diction in Italian using International Phonetic Alphabet in spoken, sung, and written drills. (Sp)</p> <p>MUSC 2670 German Diction for Singers 2 Study of singing diction in German using International Phonetic Alphabet in spoken, sung, and written drills. (F)</p> <p>MUSC 2680 French Diction for Singers 2 Study of singing diction in French using International Phonetic Alphabet in spoken, sung, and written drills. (Sp)</p>	<p>MUSC 2700 Woodwind Techniques I: Flute, Clarinet 1 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>MUSC 2710 Woodwind Techniques II: Saxophone, Oboe, Bassoon 1 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>MUSC 2720 Marching Band 2[®] Preparation of musical entertainment and marching drills for football games. Prerequisite: Consent of director. (F)</p> <p>MUSC 2730 Basketball Band 1[®] Preparation of "pops" type music for basketball games. Audition necessary. Prerequisite: MUSC 2720. (Sp)</p> <p>MUSC 2740 Recorder Techniques 1 Provides music majors with introduction to performance and pedagogy of the recorder, including solo repertoire and ensembles. (Sp)</p> <p>MUSC 2750 Individual Flute Instruction (Second Instrument) for Music Majors 1[®] 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>MUSC 2760 Individual Oboe Instruction (Second Instrument) for Music Majors 1[®] 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>MUSC 2770 Individual Clarinet Instruction (Second Instrument) for Music Majors 1[®] 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>MUSC 2780 Individual Bassoon Instruction (Second Instrument) for Music Majors 1[®] 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>MUSC 2790 Individual Saxophone Instruction (Second Instrument) for Music Majors 1[®] 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>MUSC 2800 Brass Techniques I: Trumpet, French Horn 1 Designed to give prospective music teachers a basic playing experience and theoretical understanding of the high brass instruments. (F)</p> <p>MUSC 2810 Brass Techniques II: Trombone, Tuba, Euphonium 1 Designed to give prospective music teachers a basic playing experience and theoretical understanding of the low brass instruments. (Sp)</p> <p>MUSC 2850 Individual Trumpet Instruction (Second Instrument) for Music Majors 1[®] 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>MUSC 2860 Individual Trombone Instruction (Second Instrument) for Music Majors 1[®] 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>
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Course Descriptions

<p>MUSC 2870 Individual French Horn Instruction (Second Instrument) for Music Majors 1® 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>MUSC 2880 Individual Tuba/Euphonium Instruction (Second Instrument) for Music Majors 1® 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> <p>MUSC 2890 Individual Percussion Instruction (Second Instrument) for Music Majors 1® 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>MUSC 3010 DHA Masterpieces of Music 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>MUSC 3020 DHA History of Jazz 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>MUSC 3100 Motivation and Classroom Management Strategies in Secondary Classroom Music 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>MUSC 3110 Music History I: Origins through Baroque 3 History and literature of early, Renaissance, and Baroque periods. Prerequisite: MUSC 2110. (Sp)</p> <p>MUSC 3120 Music History II: Classical and Romantic Periods 3 History and literature of the music of the classical and romantic periods. Prerequisite: MUSC 3110. (F)</p> <p>MUSC 3130 CI Music Theory IV 3 Study of Twentieth Century tonal, atonal, and avante garde harmonies and compositional techniques. Prerequisites: MUSC 3110 and 3120. (Sp)</p> <p>MUSC 3140 Musical Form and Analysis 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>MUSC 3160 World Music 2 Explores music traditions of non-Western cultures throughout the world. Prerequisites: MUSC 2110. (Sp)</p> <p>MUSC 3180 Scoring and Arranging 2 Theoretical and practical study of scoring for orchestral instruments in various combinations, ranging from small ensembles to full orchestra. Prerequisites: MUSC 2140 and 2180; or MUSC 3900; or permission of instructor. (F,Sp)</p> <p>MUSC 3190 Music History III: Music of the Twentieth Century 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. (Sp)</p> <p>MUSC 3220 Choral Methods and Materials 2 Investigates factors relating to administration and teaching of choral music in middle and secondary schools. (F)</p>	<p>MUSC 3230 Choral Literature 2 Survey of choral music from the Renaissance, Baroque, Classical, Romantic, and Twentieth Century suitable for middle and secondary school choirs. (Sp)</p> <p>MUSC 3240 Instrumental Methods and Materials 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>MUSC 3260 Elementary School Music 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)</p> <p>MUSC 3310 Music Therapy and the Exceptional Child 3 Effects of music on physical, social, cognitive, and communication skills of children with disabilities. (F)</p> <p>MUSC 3320 Psychology of Music I** 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>MUSC 3330 Music Therapy Practicum 1-3® 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>MUSC 3360 MIDI Studio Techniques 2 Elements of synthesizer sound production and basic studio techniques. (Sp)</p> <p>MUSC 3370 Sound Recording and Reinforcement Techniques 2® Explores techniques of studio recording, including microphones, mixing, and signal processing. (Sp)</p> <p>MUSC 3400 Individual Piano Instruction for Music Majors 1-2® 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>MUSC 3410 Ensemble and Accompanying 1-2® 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>MUSC 3420 Keyboard Skills I 3 Study of sightreading, transposing, improvising, figured bass, scales, chords, and score rendering. (F)</p> <p>MUSC 3430 Keyboard Skills II 3 Continuation of MUSC 3420, with further study of sightreading, transposing, improvising, figured bass, scales, chords, and score reading. (Sp)</p> <p>MUSC 3440 Individual Jazz Piano Instruction for Music Majors 1-2® 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>
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Course Descriptions

<p>MUSC 3460 Church Music for Organists I* 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>MUSC 3470 Church Music for Organists II* 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> <p>MUSC 3480 Individual Organ Instruction for Music Majors 1-2[®] 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)</p> <p>MUSC 3500 DHA Symphony Orchestra 1[®] Provides experience in performing standard orchestral literature. Admission by audition only. (F,Sp)</p> <p>MUSC 3510 Orchestra Literature 2 Survey of materials, methods, and literature appropriate for elementary school, junior high/middle school, or high school level orchestra programs. (Sp)</p> <p>MUSC 3520 String Pedagogy and Solo Literature** 2[®] 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)</p> <p>MUSC 3550 Individual Guitar Instruction for Music Majors 1-2[®] 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)</p> <p>MUSC 3560 Guitar History and Literature** 3 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)</p> <p>MUSC 3570 Guitar Pedagogy I** 2 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)</p> <p>MUSC 3580 Guitar Pedagogy II** 2 Instruction in teaching various guitar styles. Experience in teaching class guitar and in private instruction. Review of available methods and materials. (Sp)</p> <p>MUSC 3590 Electric Guitar Ensemble 1[®] Offers opportunity for guitarists to rehearse and perform ensemble music written for electric guitar. Ensemble includes bass and drums. (F,Sp)</p> <p>MUSC 3600 Opera Workshop 1-3[®] Techniques of musical theater, including participation as cast or crew in musical or operatic stage productions or excerpts. (F,Sp)</p> <p>MUSC 3610 Vocal Repertory I* 2 Survey of German Lieder and French Melodie, including styles, history, and performance practice. (F)</p> <p>MUSC 3620 CI Vocal Repertory II* 2 Survey of Italian, American, and British song, including styles, history, and performance practice. (Sp)</p> <p>MUSC 3630 Vocal Pedagogy I** 2 Theoretical course studying anatomy and function of the voice, methods for teaching techniques, respiration, phonation, articulation, and support and health of the voice. (F)</p>	<p>MUSC 3640 Vocal Pedagogy II** 2 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)</p> <p>MUSC 3670 Individual Vocal Instruction for Music Majors 1-2[®] 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)</p> <p>MUSC 3700 Woodwind Ensemble 1-2[®] 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)</p> <p>MUSC 3710 Individual Flute Instruction for Music Majors 1-2[®] 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)</p> <p>MUSC 3720 Individual Oboe Instruction for Music Majors 1-2[®] 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)</p> <p>MUSC 3730 Individual Clarinet Instruction for Music Majors 1-2[®] 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)</p> <p>MUSC 3740 Individual Bassoon Instruction for Music Majors 1-2[®] 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)</p> <p>MUSC 3750 Individual Saxophone Instruction for Music Majors 1-2[®] 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)</p> <p>MUSC 3760 Jazz Ensemble 1[®] Select ensemble performing big band jazz music. Admission by audition only. (F,Sp)</p> <p>MUSC 3770 Jazz Orchestra 1[®] Preparation and performance of big band jazz music. Admission by audition only. (F,Sp)</p> <p>MUSC 3780 Flute Ensemble 1[®] 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>
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Course Descriptions

<p>MUSC 3790 DHA Symphonic Band 1® Performance of significant works from symphonic band repertoire. Admission by audition or consent of instructor. (F,Sp)</p> <p>MUSC 3800 Trombone Ensemble 1® Intended for trombone majors and nonmajors interested in performing music specifically written and/or arranged for four to twelve trombones. (F,Sp)</p> <p>MUSC 3810 Individual Trumpet Instruction for Music Majors 1-2® 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>MUSC 3820 Individual Trombone Instruction for Music Majors 1-2® 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>MUSC 3830 Individual French Horn Instruction for Music Majors 1-2® 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>MUSC 3840 Individual Tuba/Euphonium Instruction for Music Majors 1-2® 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>MUSC 3850 Brass Ensemble 1® 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>MUSC 3860 Individual Percussion Instruction for Music Majors 1-2® 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>MUSC 3870 Percussion Ensemble 1® Provides opportunity for percussionists to perform select percussion literature in a chamber music setting. (F,Sp)</p> <p>MUSC 3900 Jazz Improvisation 2 Study of techniques of jazz improvisation applicable to all instruments. Prerequisites: MUSC 2110 and 2130; or permission of instructor. (F,Sp)</p> <p>MUSC 3910 Individual Composition Instruction 1-12® 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>MUSC 3920 Marching Band Techniques 2 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>MUSC 3930 Band Literature 2 Study of literature appropriate for beginning, intermediate, and advanced level band programs. Prerequisite: Instructor's permission. (F)</p> <p>MUSC 3950 Jazz Choir 1® 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>MUSC 4210 Advanced Music Form and Analysis 3 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>MUSC 4240 Advanced Conducting 2 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>MUSC 4310 Music Therapy with Adult Populations 3 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>MUSC 4320 CI Psychology of Music II 2 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>MUSC 4330 Clinical and Professional Issues in Music Therapy 2 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. Prerequisite: MUSC 4310 and 4320. (Sp)</p> <p>MUSC 4340 Internship in Music Therapy 2 Six-month resident internship in affiliated, approved clinical setting. Prerequisite: Successful completion of senior year in music therapy. (F,Sp,Su)</p> <p>MUSC 4410 Advanced Piano Pedagogy I 1-2® 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>MUSC 4420 Advanced Piano Pedagogy II 1-2® Continuation of MUSC 4410, with analysis, performance, and teaching of basic repertoire at intermediate to advanced levels. Prerequisite: MUSC 4410. (Sp)</p> <p>MUSC 4500 String Ensemble 1® Offers opportunity for capable string players to study and perform music written for variety of small ensemble combinations. (F,Sp)</p> <p>MUSC 4510 Individual Violin Instruction for Music Majors 1-2® 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> <p>MUSC 4520 Individual Viola Instruction for Music Majors 1-2® 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>
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Course Descriptions

MUSC 4530	Individual Cello Instruction for Music Majors	1-2[®]
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)		
MUSC 4540	Individual String Bass Instruction for Music Majors	1-2[®]
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)		
MUSC 4550	Acoustic Guitar Ensemble	1[®]
Offers opportunity for guitarists to rehearse and perform intermediate and advanced music written for acoustic guitar. (F,Sp)		
MUSC 4600 DHA	University Chorale	1[®]
Select mixed choir performing a wide range of choral literature. Admission by audition only. (F,Sp)		
MUSC 4610	National Standards Choir	1[®]
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.		
MUSC 4620	Choral Conducting Practicum	1[®]
Application of principles of choral music education in public school setting. (F,Sp)		
MUSC 4650 DHA	Chamber Singers	1[®]
Select small ensemble performing a wide range of choral literature. Admission by audition only. (F,Sp)		
MUSC 4700 DHA	Wind Orchestra	1[®]
Highly-selective group, performing important traditional and contemporary works from the wind band repertoire. Entrance by audition only. (F,Sp)		
MUSC 4710	Jazz Combo	1-2[®]
Study and performance of the finest literature for the small jazz ensemble. Prerequisites: Audition and permission of instructor. (F,Sp)		
MUSC 4720	Saxophone Quartet	1-2[®]
Study and performance of the finest classical, jazz, and popular music for the saxophone quartet. Prerequisites: Audition and permission of instructor. (F,Sp)		
MUSC 4730 CI	Directed Project in Instrumental Pedagogy	2[®]
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)		
MUSC 4900	Baroque Counterpoint	2
Writing and analysis of tonal counterpoint in two, three, and four parts. Prerequisites: MUSC 1110, 1120, 2110, 3140. (F)		
MUSC 4910	Music Composition	2[®]
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)		
MUSC 4920	Individual Recital	1-6[®]
Performance of pieces selected by the student and approved by the instructor, for performance in accordance with specific music area requirements. (F,Sp,Su)		
MUSC 4930	Readings and Conference	1-6[®]
Undergraduate course designed to provide special interest study. (F,Sp,Su)		

MUSC 4940H	Senior Thesis	1-6[®]
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)		
MUSC 6100	Graduate Performance Ensemble	1-2[®]
Designed to give students opportunity for a high-level music experience in choral and instrumental performance ensembles. (F,Sp)		
MUSC 6110	Advanced Conducting	2
Students master manual technique of conducting and improve score study procedures, resulting in analysis and communication of musical ideas. (F,Su)		
MUSC 6120	Advanced Rehearsal Techniques	2[®]
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)		
MUSC 6130	Seminar in Music: Philosophy, Aesthetics, and Trends	2
Study of philosophical bases for human responses to music and resulting musical behaviors. (F,Su)		
MUSC 6610	Practicum in Choral Performance	1-4[®]
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)		
MUSC 6620	Seminar in Choral Literature	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)		
MUSC 6630	Individual Instruction for Graduates	1-2[®]
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[®]
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[®]
Preparation and presentation of graduate recital, under supervision of major professor. (F,Sp,Su)		
MUSC 6970	Research and Thesis	2-6[®]
Individual work in thesis writing with guidance and criticism. (F,Sp,Su)		
[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation. [©] This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning. *Taught 2006-2007. **Taught 2007-2008.		
Navajo (NAV)		
<i>See Department of Languages, Philosophy, and Speech Communication, pages 364-379.</i>		
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)		

Course Descriptions

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 427-428.

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.

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.

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), and Records of Decisions (RODs).

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.

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.

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.

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 an effective 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.

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.

Nutrition and Food Sciences (NFS)

See Department of Nutrition and Food Sciences, pages 436-446.

NFS 1000 World of Food and Nutrition 1
Weekly seminars present and discuss current issues in food, diet, and health. Presentations about topics and research in food and nutrition, with orientation to programs in the Department of Nutrition and Food Sciences. (F)

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)

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. (F,Sp,Su)

NFS 1240 Culinary Basics 3[®]
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,Su)

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)

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)

Course Descriptions

<p>NFS 2030 Catering 3 Provides skills and knowledge needed for preparing food. Analysis of the preparation of food and beverages for banquet and catering functions. Prerequisites: NFS 1240 and 1250. Offered Fall 2006 <i>only</i>. Will not be offered at Logan campus after Fall 2006. (F)</p> <p>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 PSB 2040. (Sp)</p> <p>NFS 2050 Ala Carte 3 Provides skills and knowledge necessary to apply principles of basic food preparation and service in a restaurant setting. Prerequisites: NFS 1240, 1250, and 2030. Will not be offered after Spring 2007. (Sp)</p> <p>NFS 3000 Beginning Baking 4 Introduction to theories and techniques of baking. Focuses on yeast dough production and basic desserts. Prerequisites: NFS 1240, 2030, 2050. Will not be offered after Fall 2008. (F)</p> <p>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)</p> <p>NFS 3030 Advanced Baking 4 Focuses on pastry, advanced dessert preparation and presentation, and related topics. Prerequisite: NFS 3000. Will not be offered after Spring 2009. (Sp)</p> <p>NFS 3060 Garde-Manger 4 Emphasizes cold food preparation, presentation techniques, food displays, and meat fabrication. Prerequisite: NFS 2050. Will not be offered after Fall 2007. (F)</p> <p>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)</p> <p>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)</p> <p>NFS 3250 Occupational Experience in Nutrition and Food Sciences 1-3[®] On-the-job training. (F,Sp,Su)</p> <p>NFS 3500 Beverage Management 2 Studies in selection and service of beverages for the food service industry. Issues addressed include equipping, staffing, operating, marketing, and purchasing beverages. Addresses issues of responsible alcohol service. Will not be offered after Fall 2008. (F)</p> <p>NFS 3510 The Business of Feeding 3 Covers menu design, procurement, and starting the business. Will not be offered after Spring 2006. (Sp)</p> <p>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,Su)</p> <p>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)</p> <p>NFS 4030 Advanced Nutrition Applications 1 Applications of metabolism of protein, lipids, carbohydrates, vitamins, and minerals. Must be taken concurrently with NFS 4020. (F)</p>	<p>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 a major within the Animal, Dairy and Veterinary Sciences Department. (F)</p> <p>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)</p> <p>NFS 4060 CI Education and Counseling Methods in Dietetics II 2 Continuation of NFS 4050. Prerequisite: NFS 4050. Corequisite: NFS 4560. (Sp)</p> <p>NFS 4070 Experimental Foods 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)</p> <p>NFS 4250 Culinary Skills and Management Rotation 3-9[®] 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)</p> <p>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)</p> <p>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)</p> <p>NFS 4480 Community Nutrition 3 Introduction to public health nutrition, food programs, and national nutrition monitoring. Prerequisite: NFS 1020. (F)</p> <p>NFS 4550 Nutrition Assessment/Clinical Nutrition I 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>NFS 4560 CI Clinical Nutrition II 4 Continuation of NFS 4550. Prerequisite: NFS 4550. (Sp)</p> <p>NFS 4570 Clinical Nutrition Experience I 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>NFS 4580 Clinical Nutrition Experience II 2 Continuation of NFS 4570. Corequisite: NFS 4560. Prerequisite: NFS 4570. (Sp)</p> <p>NFS 4660 CI Medical Dietetics 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>NFS 4710 Quantity Food Preparation 2 Principles of food preparation applied to large quantity production, menu planning, food selection, storage, and equipment. Prerequisite: NFS 4070 or consent of instructor. (F)</p>
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Course Descriptions

NFS 4720	QI	Food Service Organization and Management	2	Principles of organization, management theory, financial controls, human and labor relations, employee training, layout, and sanitation. Prerequisite: NFS 4710. (Sp)
NFS 4730		Quantity Food Preparation Lab	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)
NFS 4740		Food Service Organization and Management Lab	2	Practical experience in food service management. Integration and application of NFS 4720. Prerequisite: NFS 4730. Corequisite: NFS 4720. (Sp)
NFS 4750		Management of Dietetics	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)
NFS 4780	CI	Maternal and Child Nutrition	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)
NFS 4810		History and Practices in World Cuisines	4	Preparation of foods from around the world, incorporating historical and current food trends. Prerequisites: NFS 3030 and 3060. Will be offered Spring 2007 and Spring 2009. Will not be offered after Spring 2009. (Sp)
NFS 4900		Special Problems	1-4[®]	Individual problems and research problems in Nutrition and Food Sciences. (F,Sp,Su)
NFS 4990		Nutrition and Food Sciences Seminar	1	Senior student paper and presentation on current topics in nutrition and food sciences. Prerequisite: Senior in NFS. (Sp)
NFS 5020		Meat Technology and Processing	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)
NFS 5030		Dairy Technology and Processing	4	Processing milk into fluid milk products, cheeses, ice cream, yogurt, concentrated milks, and powders. Identity standards of regulated dairy products. Physical, chemical, and biochemical changes that occur during manufacture and storage. Microbiological, chemical, and physical deterioration and control. (F)
NFS 5110	CI	Food Microbiology	4	Microorganisms in food spoilage, poisoning, preservation, and sanitation. Prerequisite: BIOL 3300. (Sp)
NFS 5120	QI	Biologic Markers of Diet and Disease Risk Lab	2	Measurement and interpretation of biologic markers of nutritional status and disease risk. Markers measured in a variety of human tissues. Prerequisites: NFS 1020, BIOL 2420, CHEM 3700, MATH 1210, and STAT 2000. (Sp)
NFS 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 PSB 5160. (F)
NFS 5200		Nutritional Epidemiology	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)
NFS 5210		Advanced Public Health Nutrition	2	(dual listing 6210) 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)
NFS 5220		Endocrine Aspects of Nutrition	2	(dual listing 6220) 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)
NFS 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 PSB 5240. (Sp)
NFS 5250		Occupational Experiences in Nutrition and Food Sciences	1-3[®]	On-the-job training. (F,Sp,Su)
NFS 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 PSB 5260. (F)
NFS 5300		Advanced Micronutrient Nutrition	3	(dual listing 6300) 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)
NFS 5370		Molecular Methods in Nutrition Science	2	(dual listing 6370) Theory of modern techniques used to study macromolecules and ions. Prerequisite: CHEM 3700. Also taught as ADVS/BIOL/PSB 5370/6370. (F)
NFS 5400		Nutrition Update: Present Knowledge**	2[®]	Enriches and updates knowledge of nutrition, as well as implications for well-being of people, through presentation of recent advances in nutrition accomplished by worldwide research efforts of scientists from academia, government, and industry. Available only through Continuing Education Independent Study Division.
NFS 5500	QI	Food Analysis	4	(dual listing 6500) Application and theory of physical, chemical, and instrumental techniques for determination of composition and quality of food. Prerequisite: NFS 5560/6560. (Sp)
NFS 5510		Food Laws and Regulations	2	(dual listing 6510) Provides background of federal/state laws and regulations and case law history affecting food production, processing, packaging, marketing, and distribution of food products. (Sp)
NFS 5560		Food Chemistry	4	(dual listing 6560) Chemical structure, properties, and reactions and interactions of the important chemical constituents of food. Prerequisites: CHEM 3700 and 3710. (F)

Course Descriptions

<p>NFS 5610 Food and Bioprocess Engineering 3 (dual listing 6610) 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>NFS 5750 Advanced Dietetics Practicum 1-6 (dual listing 6750) 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>NFS 5760 Senior Practicum in Culinary Arts/Food Service Management 2[®] Practical experience in food service settings, integrating and applying material learned in lectures and laboratories. (F,Sp)</p> <p>NFS 5920 CI Food Product Development 3 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>NFS 6020 Meat Technology and Processing 4 (dual listing 5020) 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>NFS 6030 Dairy Technology and Processing 4 (dual listing 5030) Processing milk into fluid milk products, cheeses, ice cream, yogurt, concentrated milks, and powders. Identity standards of regulated dairy products. Physical, chemical, and biochemical changes that occur during manufacture and storage. Microbiological, chemical, and physical deterioration and control. (F)</p> <p>NFS 6050 Community Public Health Internship I 3 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)</p> <p>NFS 6060 Community Public Health Internship II 3 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)</p> <p>NFS 6100 Sensory Evaluation of Foods 3 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>NFS 6110 Food Microbiology 4 (dual listing 5110) Microorganisms in food spoilage, poisoning, preservation, and sanitation. Prerequisite: BIOL 3300. (Sp)</p> <p>NFS 6120 Biologic Markers of Diet and Disease Risk Lab 2 (dual listing 5120) Measurement and interpretation of biologic markers of nutritional status and disease risk. Markers measured in a variety of human tissues. Prerequisites: NFS 1020, BIOL 2420, CHEM 3700, MATH 1210, and STAT 2000. (Sp)</p> <p>NFS 6170 Principles of Food Safety Assurance* 2 Explores prerequisite programs for HACCP, HACCP implementation, and food safety considerations in new product development. Prerequisite: BIOL 3300 or equivalent. (F)</p> <p>NFS 6200 Nutritional Epidemiology 2 (dual listing 5200) 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>NFS 6210 Advanced Public Health Nutrition 2 (dual listing 5210) 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>NFS 6220 Endocrine Aspects of Nutrition 2 (dual listing 5220) 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>NFS 6250 Clinical Nutrition Internship I 4 Supervised clinical nutrition experience including medical, geriatric, long-term care, and oncology. Prerequisite: Acceptance into USU Extension Dietetic Internship Program. (F,Sp,Su)</p> <p>NFS 6260 Clinical Nutrition Internship II 4 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)</p> <p>NFS 6300 Advanced Micronutrient Nutrition 3 (dual listing 5300) 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>NFS 6350 Food Service Systems Management Internship I 6 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)</p> <p>NFS 6360 Food Service Systems Management Internship II 6 Supervised school food service internship. Includes administration and food service staff supervision experience. Prerequisite: Acceptance into USU Extension Dietetic Internship Program. (F,Sp,Su)</p> <p>NFS 6370 Molecular Methods in Nutrition Science 2 (dual listing 5370) Theory of modern techniques used to study macromolecules and ions. Prerequisite: CHEM 3700. Also taught as ADVS/BIOL/PSB 6370/5370. (F)</p> <p>NFS 6500 Food Analysis 4 (dual listing 5500) Application and theory of physical, chemical, and instrumental techniques for determination of composition and quality of food. Prerequisite: NFS 6560/5560. (Sp)</p> <p>NFS 6510 Food Laws and Regulations 2 (dual listing 5510) 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>NFS 6560 Food Chemistry 4 (dual listing 5560) Chemical structure, properties, and reactions and interactions of the important chemical constituents of food. Prerequisites: CHEM 3700 and 3710. (F)</p> <p>NFS 6610 Food and Bioprocess Engineering 3 (dual listing 5610) Standardization and compounding of biomaterials and food products; preservation processing using heat, refrigeration, concentration, and dehydration.</p>
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Course Descriptions

Basic unit operations in the bioprocessing industry. Prerequisite: BIE 3200. Also taught as BIE 6610/5610. (F)

NFS 6620	Microbiology of Fermented Dairy Foods**	1
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)		
NFS 6640	Food Proteins**	1
Covers topics in protein structure, folding, functional properties, allergens, and purification. (F)		
NFS 6650	Meat Science*	2
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)		
NFS 6660	Cheese Science**	2
Studies application of chemistry and microbiology to the manufacture of cheese. (Su)		
NFS 6670	Food Biosecurity and Crisis Management*	1
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)		
NFS 6680	Food Enzymes**	2
Covers topics in food enzymes, including enzyme classification and nomenclature, reaction kinetics, food applications, and immobilization technology. (F)		
NFS 6690	Genetics of Lactic Acid Bacteria**	1
Describes structural and functional characteristics of four major genetic elements described in lactic acid bacteria: plasmid DNA, transposable elements, bacteriophages, and the chromosome. (Sp)		
NFS 6700	Dairy Chemistry*	1
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)		
NFS 6720	Metabolomics*	1
Metabolomics is the study of all metabolites within a biological sample. The "metabolome" results from genetics and environment, and is the best descriptor of phenotype. The promise of metabolomics is a molecular understanding of the effect of diet on health. (F)		
NFS 6730	Understanding Crystallization in Food Systems*	1
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)		
NFS 6740	Waste and Energy Management*	1
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)		
NFS 6750	Advanced Dietetics Practicum (dual listing 5750)	1-6
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)		
NFS 6760	Special Topics in Nutrition and Food Science	1-3
Selected topics in nutrition and food science, based on individual faculty interests. (F,Sp,Su)		

NFS 6780	Advanced Institutional Food Service Management	3
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)		
NFS 6800	Molecular and Cellular Nutrition**	1
Seminar course focusing on literature covering bioactive food components and nutrient action in transcriptional regulation. (F)		
NFS 6810	Nutrigenomics*	1
Examination and discussion of how our unique genetic makeup affects the way we respond to our nutritional environment and how that impacts health and risk of disease. Also includes discussion of ethical and social issues related to nutritional genomics research. (Sp)		
NFS 6820	Biomedical Aspects of Nutrition/ Human Diseases Interaction**	1
Study of the role nutrition plays in human disease development, prevention, and treatment. Highlights common and challenging nutrition issues in human diseases through understanding of human nutrition and pathophysiology of diseases. (Sp)		
NFS 6900	Special Problems	1-4[Ⓞ]
Individual problems and research problems for upper-division students in Nutrition and Food Sciences. (F,Sp,Su)		
NFS 6910	Teaching Experiences in Nutrition and Food Sciences	1-2[Ⓞ]
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[Ⓞ]
For students working on MS research. (F,Sp,Su)		
NFS 6990	Continuing Graduate Advisement	1-12[Ⓞ]
(F,Sp,Su)		
NFS 7800	Seminar	1[Ⓞ]
Reports and discussion on research and current literature. (F,Sp)		
NFS 7970	Dissertation Research	1-12[Ⓞ]
For students working on PhD research. (F,Sp,Su)		
NFS 7990	Continuing Graduate Advisement	1-12[Ⓞ]
(F,Sp,Su)		

[Ⓞ]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[Ⓞ]This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*Taught 2006-2007.

**Taught 2007-2008.

Natural Resources (NR)

See *College of Natural Resources*, pages 126-128.

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. (F,Sp)		
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)		

Course Descriptions

NR 4440	Natural Resource and Environmental Policy Seminar	1®
Year-long invited speaker seminar series on natural resource and environmental policy issues. Students register for only one semester, but attend the seminars until a required number has been met. Students also complete an assignment. Since this course is not required under current program requirements for the Natural Resource and Environmental Policy Certificate Program, it may not be offered in the foreseeable future. For further information, contact the College of Natural Resources.		
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 6440	Natural Resource and Environmental Policy Seminar	1®
Year-long invited speaker seminar series on natural resource and environmental policy issues. Students are required to attend a minimum number of the seminars. Students also complete an assignment. Since this course is not required under current program requirements for the Natural Resource and Environmental Policy Certificate Program, it may not be offered in the foreseeable future. For further information, contact the College of Natural Resources.		
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. (F,Sp)		
NR 6510	Biophysical and Human Dimensions of Ecosystems	3
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)		
NR 6520	Structure and Function of Ecological and Social Systems	3
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	3
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)		
NR 6540	Ecosystem Management Implementation	3
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	3
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)		
NR 6600	Natural Resources Integrative Experience	3
Under the direction of the student's supervisory committee, student completes an integrative capstone experience in his or her specialty. (F,Sp,Su)		

Nursing (NURS)

See Weber State University/Utah State University Nursing Program, pages 434-435.

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)		
NURS 1046	Nursing Care of Adults and Children Clinical	2
Companion course taught in concert with NURS 1045. (Sp)		
NURS 1050	Treatment Modalities	3
Basic treatments and pharmacological agents used by nurses to promote health across the lifespan. (F)		
NURS 1124	Transition into Associate Degree Nursing	2
Socialization from practical nursing to the associate degree, registered nurse level. (F)		
NURS 2050	Treatment Modalities	2
Advanced treatments and pharmacological agents used by nurses to promote health across the lifespan. (F)		
NURS 2060	Psychiatric/Mental Health Nursing	2
Students explore caring strategies for promoting mental health and preventing illness across the lifespan. (Sp)		
NURS 2061	Psychiatric/Mental Health Nursing Clinical	1
Companion course taught in concert with NURS 2060. Clinical application of psychiatric/mental health nursing taught in NURS 2060. (Sp)		
NURS 2070	Nursing Care of Adults and Children II	3
Theory with emphasis on more complex physiological and psychosocial needs of clients across the lifespan. (F)		
NURS 2071	Nursing Care of Adults and Children II Clinical	4
Companion course taught in concert with NURS 2070. Clinical application of medical-surgical concepts learned in NURS 2070. (F)		
NURS 2080	Patient Care Management	2
Theory focuses on the synthesis of nursing knowledge and skills necessary for entrance into registered nursing practice. (Sp)		
NURS 2081	Patient Care Management Clinical	3
Companion course taught in concert with NURS 2080. Clinical synthesis of nursing knowledge and skills necessary for entrance into registered nursing practice. (Sp)		
NURS 2283	Directed Readings and Projects	1-3
Prerequisite: Instructor's approval. (F,Sp)		
NURS 2289	Cooperative Education	1-3
Open to all students who meet the minimum co-op requirements of this department. Provides academic credit for on-the-job experience. (F,Sp)		

Course Descriptions

Office Systems Support (OSS)

See *Office Systems Support AAS Degree*, pages 447-448.

OSS 1110 (formerly BIS 1110)	Keyboarding	2
For students with no previous keyboarding experience. Designed so student can touch type and learn basic concepts related to word processing and document formatting.		
OSS 1400 (formerly BIS 1400)	Microcomputer Applications	3
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. (F,Sp,Su)		
OSS 1410 (formerly BIS 1410)	Special Topics	1-3[®]
Selected topics related to using computers. (F,Sp,Su)		
OSS 1420 (formerly BIS 1420)	Word Processing Applications	3
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.		
OSS 1550 (formerly BIS 1550)	CI Business Correspondence	3
Development and application of effective business writing skills, emphasizing business correspondence. Includes thorough review of grammar, spelling, and punctuation related to business correspondence.		
OSS 2300 (formerly BIS 2300)	Data Communications and Networking	3
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. (F,Sp)		
OSS 2400 (formerly BIS 2400)	Web Design Applications	3
Design, development, and evaluation of documents for electronic media utilizing the worldwide web. Prerequisite: OSS 1400 or Computer and Information Literacy (CIL) Exam. (F,Sp,Su)		
OSS 2450 (formerly BIS 2450)	Spreadsheets and Databases	3
Use of spreadsheets and databases to accomplish application development. Prerequisite: OSS 1400 or Computer and Information Literacy (CIL) Exam. (F,Sp,Su)		
OSS 2500 (formerly BIS 3450)	Visual Basic Applications	3
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. (F,Sp)		
OSS 2520 (formerly BIS 2520)	Integrating Office Technology	3
Advanced applications of office technology for production of business documents, emphasizing efficient use of word processing, graphics, and desktop publishing. Prerequisites: OSS 1420, BIS 2200.		
OSS 2600 (formerly BIS 2600)	Office Procedures	3
Finishing course which integrates office knowledge and skills. Applies administrative activities which are part of the office process. Prerequisites: OSS 2520; OSS 1550 or BIS 2200.		

OSS 2800 (formerly BIS 3550)	Principles of Selling	2
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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.

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Physical Education Activity (PE)

See *Department of Health, Physical Education and Recreation*, pages 321-331.

PE 1010 (formerly PE 1330)	Aerobics	1[®]
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Fitness program, primarily designed to improve cardiovascular fitness, muscular endurance, and flexibility. (F,Sp)

PE 1015 (formerly PE 1210)	Cycling	1[®]
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Conditioning class emphasizing training. Introduction to road safety principles, various riding techniques, and cycle maintenance. Sections of road and mountain cycling offered. Beginning and intermediate classes are offered for both road and mountain cycling. (F,Sp,Su)

PE 1016 (formerly PE 1340)	Spinning	1[®]
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Intense cardiovascular conditioning class performed on stationary bikes. (F,Sp)

PE 1046 (formerly PE 1300)	Jog/Walk	1[®]
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Provides students with opportunity to achieve and maintain personal fitness through jogging and/or walking. (F,Sp,Su)

PE 1057 (formerly PE 1360)	Yoga	1[®]
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Provides a simultaneous path to and discovery of ineffability, utilizing physical and mental techniques derived from and inspired by the Ati tradition of Tibet, as well as from other sources. (F,Sp,Su)

PE 1063 (formerly PE 1310)	Conditioning	1[®]
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Designed to improve overall flexibility, strength, and endurance capacity of the body. (F,Sp)

PE 1085 (formerly PE 1320)	Weight Training	1[®]
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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. (F,Sp,Su)

PE 1100 (formerly PE 1250)	Tennis	1[®]
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Designed for students desiring a basic understanding of tennis. Improvement of skills and strategies through active participation in drills and games. Beginning and intermediate level sections are offered. (F,Sp,Su)

PE 1103	Table Tennis	1[®]
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Designed for students desiring a basic understanding of table tennis. Improvement of skills and strategies through active participation in drills and games. (F,Sp)

PE 1105 (formerly PE 1200)	Badminton	1[®]
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Through active participation, students learn basic skills, rules, and strategies of singles and doubles badminton. (F,Sp)

PE 1110 (formerly PE 1240)	Racquetball	1[®]
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Designed to help students understand the general rules and strategies of racquetball, improve competitive skills, and play safely and effectively. Beginning and intermediate classes are offered. (F,Sp)

Course Descriptions

<p>PE 1120 Handball 1[®] (formerly PE 1290) Provides skills and knowledge in the fundamentals of handball. (F,Sp,Su)</p> <p>PE 1130 Golf 1[®] (formerly PE 1220) Designed for the beginning and novice golfer. Basics of individual grip, set-up, posture, and swing. Includes putting, chipping, weight transfer, and balance. Beginning and intermediate classes are offered. (F,Sp,Su)</p> <p>PE 1145 Bowling 1[®] (formerly PE 1270) Provides students with the knowledge, skills, and strategies for successful participation and enjoyment. (F,Sp,Su)</p> <p>PE 1150 Billiards 1[®] (formerly PE 1260) Designed to develop basic knowledge and concepts for playing a variety of games. Focuses on stroke mechanics, shot selection, and strategy. Beginning and intermediate levels are offered. (F,Sp,Su)</p> <p>PE 1155 Fencing 1[®] (formerly PE 1510) Introduction to basic techniques of fencing.</p> <p>PE 1170 Gymnastics 1[®] (formerly PE 1230) Designed to enhance current abilities and teach skills according to the individual student's abilities. Skills taught through drill work and lecture. (F,Sp,Su)</p> <p>PE 1200 Basketball 1[®] (formerly PE 1100) 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. (Sp)</p> <p>PE 1210 Volleyball 1[®] (formerly PE 1150) Designed to help students enhance their basic volleyball skills and enjoyment of the game through active participation. Beginning, intermediate, and advanced levels are offered. (F,Sp)</p> <p>PE 1225 Softball 1[®] (formerly PE 1130) Designed to help students develop and understand the skills and strategies of recreational softball through active participation. (Sp)</p> <p>PE 1230 Soccer 1[®] (formerly PE 1120) Designed to help students develop and understand the skills and strategies of soccer through active participation in drills and games. (F,Sp)</p> <p>PE 1235 Flag Football 1[®] (formerly PE 1110) Designed to help students develop and understand the skills and strategies of recreational flag football through active participation. (F)</p> <p>PE 1245 Ultimate Frisbee 1[®] (formerly PE 1140) 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. (F,Sp)</p> <p>PE 1300 Swimming 1[®] (formerly PE 1400) 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, intermediate, and lap swim sections offered. (F,Sp,Su)</p> <p>PE 1315 Water Aerobics 1[®] (formerly PE 1350) Provides students with opportunity to maintain personal fitness, with an emphasis on non-weight-bearing cardiovascular activity in water. (F,Sp)</p>	<p>PE 1400 Self-Defense 1[®] (formerly PE 1500) Covers skill development in terms of defensive capability, environment assessment, situation management, and the legal ramifications of the use of force. Available to the general University student body. Class offerings include Akido, Ta'i Chi, Karate, Aerobic Kickboxing, and Rape Aggression Defense. (F,Sp,Su)</p> <p>PE 1505 Kayaking 1[®] (formerly PE 1710) Provides basic skills and knowledge in kayaking. (F,Sp)</p> <p>PE 1510 Fly Fishing 1[®] (formerly PE 1280) 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. (F,Sp,Su)</p> <p>PE 1515 Sailing 1[®] (formerly PE 1740) Provides skills and knowledge in the fundamentals of sailing and water safety. (F,Sp,Su)</p> <p>PE 1520 Hiking 1[®] (formerly PE 1620) Provides skills and knowledge in hiking, with an emphasis on leave no trace techniques and safe operations in an outdoor environment. (F,Sp,Su)</p> <p>PE 1523 Orienteering 1[®] (formerly PE 1630) Provides skills and knowledge in the fundamentals of orienteering with an emphasis on wilderness travel techniques and safety in the outdoors. (F,Sp,Su)</p> <p>PE 1527 Rock Climbing: Basic 1[®] (formerly PE 1640) Provides skills and knowledge in basic rock climbing, teaching safe judgment and proper techniques in a climbing gym. (F,Sp,Su)</p> <p>PE 1532 Outdoor Survival 1[®] (formerly PE 1650) Provides skills and knowledge in the fundamentals of outdoor survival and developing a wilderness ethic to allow for safe participation in wilderness activities. (F,Sp,Su)</p> <p>PE 1538 Yurt Camping 1[®] (formerly PE 1830) Provides skills and knowledge for safe winter camping using a yurt for shelter. Assists in the development of high outdoor ethics. (F,Sp)</p> <p>PE 1543 Wilderness First Aid 1[®] (formerly PE 1670) Provides outdoor leaders with an introduction to wilderness first aid. Upon completion of course, students may receive a two-year wilderness first aid certification. (F,Sp,Su)</p> <p>PE 1570 National Outdoor Leadership 3-18[®] (formerly PE 1690) School Course Provides students with the opportunity to earn USU credit for attending National Outdoor Leadership (NOLS) courses. (F,Sp,Su)</p> <p>PE 1600 Winter Exploration 1[®] (formerly PE 1810) Provides skills and knowledge for safe winter camping using backpacking equipment. Assists in the development of high outdoor ethics. (F,Sp)</p> <p>PE 1605 Skiing 1[®] (formerly PE 1000) 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. (Sp)</p>
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Course Descriptions

PE 1625 (formerly PE 1020)	Cross Country Skiing	1[®]
Focuses on knowledge, techniques, equipment, and safety necessary to participate in and enjoy winter recreational activities, including cross country ski touring and snowshoeing. (Sp)		
PE 1655 (formerly PE 1820)	Snowshoeing	1[®]
Provides skills and knowledge of snowshoeing, with an emphasis on leave no trace techniques and development of safe winter activity skills. (F,Sp)		
PE 1670 (formerly PE 1840)	Ice Skating	1[®]
Teaches basic, intermediate, conditioning, and competitive skill development. Includes sections of ice hockey and curling. (F,Sp,Su)		
PE 1700 (formerly PE 1900)	Dance	1[®]
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. (F,Sp)		
PE 1910	African Dance	1[®]
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. (F,Sp,Su)		
PE 2000	Personal Instruction and Conditioning	1[®]
Designed for students and prospective members of varsity teams, as well as for the student/athlete requiring a personalized program. (F,Sp,Su)		
PE 2010	Varsity Cross Country	1[®]
Designed to meet the needs of varsity student/athletes in cross country. (F)		
PE 2020	Varsity Football	1[®]
Designed to meet the needs of varsity student/athletes in football. (F)		
PE 2030	Varsity Soccer	1[®]
Designed to meet the needs of varsity student/athletes in soccer. (F)		
PE 2040	Varsity Volleyball	1[®]
Designed to meet the needs of varsity student/athletes in volleyball. (F)		
PE 2050	Varsity Indoor Track and Field	1[®]
Designed to meet the needs of varsity student/athletes in indoor track and field. (Sp)		
PE 2060	Varsity Basketball	1[®]
Designed to meet the needs of varsity student/athletes in basketball. (Sp)		
PE 2070	Varsity Gymnastics	1[®]
Designed to meet the needs of varsity student/athletes in gymnastics. (Sp)		
PE 2080	Varsity Track and Field	1[®]
Designed to meet the needs of varsity student/athletes in track and field. (Sp)		
PE 2090	Varsity Softball	1[®]
Designed to meet the needs of varsity student/athletes in softball. (Sp)		
PE 2100	Varsity Golf	1[®]
Designed to meet the needs of varsity student/athletes in golf. (F,Sp)		
PE 2110	Varsity Tennis	1[®]
Designed to meet the needs of varsity student/athletes in tennis. (F,Sp)		
PE 2120	Varsity Weight Training	1[®]
Designed for varsity athletes. Emphasizes strength development. (F,Sp,Su)		
PE 3000	Dynamic Fitness	3[®]
Designed to develop positive health practices in the areas of physical activity, diet, rest, and relaxation of living through classroom, laboratory, and activity experiences. (F,Sp,Su)		

PE 4000	Lifeguard Training	2[®]
Designed to prepare students as pool or nonsurf open water lifeguards. Presents knowledge and skills necessary for lifeguard functions. American Red Cross certification available. (F,Sp)		
PE 4050	Water Safety Instructor	2[®]
Attention given to methods of teaching swimming and lifesaving. Presents knowledge and skills necessary for lifeguard functions. American Red Cross certification available. (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)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Physical Education Professional (PEP)

See Department of Health, Physical Education and Recreation, pages 321-331.

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)		

Course Descriptions

<p>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. (F,Sp,Su)</p> <p>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)</p> <p>PEP 3200 CI Motor Learning and Skill Analysis 3 Exploration of materials, methods, and mechanisms of learning and performing motor skills. A variety of sport skills taught in lab, using cues, demonstrations, feedback, and game-like drills. Performance of skill analysis for variety of sport skills. (F,Sp,Su)</p> <p>PEP 3250 Anatomical Kinesiology 3 Study of the anatomical bases of human movement. Laboratory provides application of principles. (Sp)</p> <p>PEP 3300 Clinical Experience I 1 Public school clinical experience in physical education. Prerequisite: Admission into Teacher Education program. (F,Sp)</p> <p>PEP 3350 Methods of Individual and Dual Sports 1 Prepares students by providing strategies and materials for implementing a quality physical education program in individual and dual sports. Discussion of lesson and unit planning, as well as student evaluation. Prerequisites: PEP 2200, 2400. (Arr)</p> <p>PEP 3400 Methods of Team Sports 1 Prepares students by providing strategies and materials for implementing quality physical education program in team sports. Discussion of lesson and unit planning, as well as student evaluation. Prerequisites: PEP 2100, 2300. (Arr)</p> <p>PEP 3500 Methods of Fitness Education 1 Emphasizes classroom components for teaching lecture/activity fitness course. Students peer teach in a lecture environment. Discussion of strategies and materials for planning and implementing a quality physical education academic fitness course. Includes lecture planning, presentation, unit preparation, and evaluation. Prerequisites: PE 3000, PEP 3350, 3400. (Arr)</p> <p>PEP 3550 Strategies and Methods of Teaching Team, Individual, and Dual Sports and Fitness 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)</p> <p>PEP 3600 Elementary Physical Education Practicum 3 Prepares teachers to teach elementary physical education as a support minor. Prerequisite: PEP 3050. (Arr)</p> <p>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)</p> <p>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)</p> <p>PEP 4100 Exercise Physiology and Principles of Conditioning 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, MATH 1050. (F,Sp)</p>	<p>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.</p> <p>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; MATH 1050 or equivalent. (F,Sp)</p> <p>PEP 4250 Advanced Cooperative Work Experience 1-10® Cooperative education work experience offers student opportunity to work in related field work of the major. Prerequisite: Instructor approval. (F,Sp,Su)</p> <p>PEP 4300 Clinical Experience II 1 Public school clinical experience in physical education. Prerequisite: Admission into Teacher Education program. (F,Sp)</p> <p>PEP 4350 Administration of Physical Education 2 Designed to help students understand objectives of physical education and sport, and incorporate them into a philosophy to assist in developing quality programs at the secondary level. Covers all aspects of physical education and sport administration including, but not limited to, budget, personnel, facilities management, programs, and activities. (F,Sp)</p> <p>PEP 4400 QI Evaluation in Physical Education 3 Focuses on the nature and use of a variety of tests in physical education. Practical application, interpretation, and use of test results are stressed. (F,Sp)</p> <p>PEP 4500 Methods of Coaching 3 Addresses issues associated with secondary coaching, including fund-raising, discipline, parents, booster clubs, equipment, team selection, etc. Students also get hands-on individual sports methods time with local teams. (F,Sp)</p> <p>PEP 4600 Methods of Coaching Football and Soccer 1 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>PEP 4700 Methods of Coaching Volleyball, Track and Field 1 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>PEP 4800 Methods of Coaching Basketball, Baseball, and Softball 1 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>PEP 4850 Methods of Teaching and Coaching Women's Gymnastics 3 Instructs students in required coaching methods for women's gymnastics from the beginning to advanced levels. Also includes section on judging. (Arr)</p> <p>PEP 4900 CI Methods of Physical Education 3 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. Prerequisites: Two courses selected from PEP 3350, 3400, and 3500. (F,Sp)</p> <p>PEP 4950H 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)</p>
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Course Descriptions

PEP 5050 (dual listing 6050)	Psychological Aspects of Sports Performance	3	PEP 6250	Graduate Cooperative Work Experience	1-10[®]
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)			Professional level of educational work experience in a cooperative education position for graduate students. (F,Sp,Su)		
PEP 5070	Sport Sociology	3	PEP 6290	Corporate Wellness Marketing	3
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)			Reviews history of corporate fitness in America, as well as common organizational and management practices. Emphasizes marketing practices promoting individual and business involvement. (Sp)		
PEP 5100	Fitness Assessment and Exercise Programs	4	PEP 6400	Exercise in Health, Fitness, and Sport	4
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)			Emphasizes physiological and health benefits of exercise. Discusses role of exercise in disease prevention, along with medications given to treat illness and disease. (F)		
PEP 5430	CI The History and Philosophy of Physical Education	3	PEP 6420	Curriculum in Physical Education	3
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)			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)		
PEP 5500	Student Teaching Seminar	2	PEP 6430	History and Philosophy of Physical Education and Sport	3
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)			History of physical education; philosophical influences which have contributed to contemporary physical education; and methods of educational instruction using the primary philosophical positions. (F)		
PEP 5560	Practicum in Improving School System Programs	1-4[®]	PEP 6450	Fitness Assessment and Exercise Testing	3
In-service seminar for experienced teachers, emphasizing improvement in instruction. (F,Sp,Su)			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)		
PEP 5630	Student Teaching in Secondary Schools	10	PEP 6500	Practicum in Corporate Wellness	1-10[®]
A 13-week culminating experience in which students assume full-time teaching responsibilities under the direction of cooperating teachers in physical education. Prerequisites: PEP 4900, completion of Level I and Level II field experiences. (F,Sp)			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)		
PEP 5700 (dual listing 6700)	Special Topics in Physical Education	1-6[®]	PEP 6540	Wellness Programming	3
In-depth review and discussion of special topics in physical education. (F,Sp,Su)			Emphasizes exercise prescription writing and exercise prescription implementation. Students test prescriptions in laboratory setting. Prerequisites: PEP 6400, 6450. (Sp)		
PEP 5900	Independent Study	1-3[®]	PEP 6690	Analysis of Teaching Physical Education	3
Provides opportunity for undergraduate or graduate students to participate in independent inquiry under guidance of a professor. (F,Sp,Su)			Designed to provide graduate students with practicum experiences in the analysis of physical education, via micro teaching and observation of physical education classes. (Arr)		
PEP 5910	Independent Research	1-3	PEP 6700 (dual listing 5700)	Special Topics in Physical Education	1-6[®]
Allows undergraduate students to pursue personal research interest by formalizing an independent project under the guidance of a professor. (F,Sp,Su)			In-depth review and discussion of special topics in physical education. (F,Sp,Su)		
PEP 6000	Administration of Athletics	3	PEP 6730	Worksite Guidance and Counseling	3
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)			Provides cardiac rehabilitation/corporate wellness graduate students with basic understanding of exercise and health psychology. (Arr)		
PEP 6010	Leadership in Health, Physical Education, and Recreation	3	PEP 6800	Biomechanics and Ergonomics of Health, Industry, and Sport	3
Group approach to improvement and innovation in leadership and supervisory skills. (Sp)			Understanding and application of biomechanical and ergonomic principles fundamental to efficient human movement in health, industry, and sport. Prerequisite: PEP 4200. (Sp)		
PEP 6050 (dual listing 5050)	Psychological Aspects of Sports Performance	3	PEP 6810	Research Methods in Health Sciences	3
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)			Explores basic to advanced concepts contained in research and statistical design, as applicable to health sciences. (F)		
PEP 6070	Sport in Society	3	PEP 6820	Wellness Certification and Technology	2
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)			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)		
			PEP 6830	Motor Learning	3
			Comprehensive review and analysis of research in the area of motor skills which bears upon the teaching of physical education activities. (Arr)		

Course Descriptions

PEP 6900	Independent Study	1-3[®]
Student conducts independent projects under direction of one or more professors. Provides student with opportunity for individualized study. (F,Sp,Su)		
PEP 6910	Independent Research	1-3
Allows graduate students to pursue personal research interests by formalizing an independent project under the guidance of a graduate professor. (F,Sp,Su)		
PEP 6960	Master's Project	3
Allows students opportunity to develop creative and applicable educational project. (F,Sp,Su)		
PEP 6970	Thesis	1-9[®]
(F,Sp,Su)		
PEP 6990	Continuing Graduate Advisement	1-9[®]
Provides graduate students with continued support and advisement. Usually taken following completion of all coursework required for the degree. (F,Sp,Su)		
PEP 7550	Practicum in the Evaluation of Instruction	1-6[®]
Field-based experience involving supervision of student teachers in Department of Health, Physical Education and Recreation. (F,Sp,Su)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Personal Financial Planning (PFP)

See *School of Accountancy*, pages 131-135.

PFP 1050	Introduction to Personal Financial Planning	1-3
Introduction to concepts of financial planning for individuals. Taught only as a special extension course as requested.		
PFP 5060	Personal Financial Planning and Advising	3
(dual listing 6060) Fundamental concepts and principles of personal financial planning for individuals. (F)		
PFP 5070	Retirement Planning	3
(dual listing 6070) Concepts and principles of retirement planning, including retirement and benefit plans, deferred compensation, and investments. (Sp)		
PFP 5080	Estate Planning	3
(dual listing 6080) Concepts and principles of estate planning for individuals, including goal identification, data gathering, forms of property ownership, documents, probate, and transfer taxes. (Sp)		
PFP 5090	Personal Financial Plans	3
(dual listing 6090) 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; BA 3460 or 4460; PFP 5060/6060, 5070/6070, 5080/6080.		
PFP 6060	Personal Financial Planning and Advising	3
(dual listing 5060) Fundamental concepts and principles of personal financial planning for individuals. (F)		
PFP 6070	Retirement Planning	3
(dual listing 5070) Concepts and principles of retirement planning, including retirement and benefit plans, deferred compensation, and investments. (Sp)		

PFP 6080	Estate Planning	3
(dual listing 5080) Concepts and principles of estate planning for individuals, including goal identification, data gathering, forms of property ownership, documents, probate, and transfer taxes. (Sp)		
PFP 6090	Personal Financial Plans	3
(dual listing 5090) 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; BA 3460 or 4460; PFP 6060/5060, 6070/5070, 6080/5080.		
PFP 6560	Business Law and Professional Responsibilities	3
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)		

Philosophy (PHIL)

See *Department of Languages, Philosophy, and Speech Communication*, pages 364-379.

PHIL 1000 BHU	Introduction to Philosophy	3
(formerly PHIL 1010 BHU) Introduction to philosophical questions regarding truth, knowledge, reality, mind, God, morality, and meaning. Examination of various philosophical responses to these questions. (F,Sp)		
PHIL 1120 BHU	Social Ethics	3
(formerly PHIL 2500 BHU) 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)		
PHIL 1200 BHU	Practical Logic*	3
Recognition of arguments and their logical structure. Study of formal and informal fallacies in reasoning. Enthymemes, analogical arguments, syllogisms, and Venn diagrams. Logical analysis of writing in the arts and sciences. (Sp)		
PHIL 2200 QI	Deductive Logic	3
Study of deductive arguments and techniques for evaluating their validity. Recognizing formal fallacies in reasoning. Symbolizing English sentences and arguments to make their meanings precise. Study of quantifiers and relations. Prerequisite: MATH 1030 or STAT 1040. (F,Sp)		
PHIL 2400 BHU	Ethics	3
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)		
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. (F)		
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. (Sp)		
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. (F)		
PHIL 3150 CI	Kant and His Successors*	3
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. (Sp)		

Course Descriptions

<p>PHIL 3160 CI Contemporary Philosophy** 3 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. (F)</p> <p>PHIL 3180 DHA/CI Contemporary European Philosophy* 3 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. (F)</p> <p>PHIL 3500 Medical Ethics 3 Key issues in medicine, including: consent, competency, confidentiality, euthanasia, abortion, and the justification of health care. (F)</p> <p>PHIL 3510 DHA Environmental Ethics 3 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. (F,Sp)</p> <p>PHIL 3520 DHA Business Ethics 3 Key issues in business, including: foreign bribery, corporate responsibility, corporate culture, ethical theories, justice, and preferential treatment. (Sp)</p> <p>PHIL 3700 Philosophy of Religion 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. (F)</p> <p>PHIL 3710 Philosophies of East Asia* 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. (F)</p> <p>PHIL 3720 Philosophical Theology After Kant* 3 Explores attempts to reconstruct the reasonable basis of religion in the two centuries after the Enlightenment. (F)</p> <p>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. (Sp)</p> <p>PHIL 3750 Religion and Science in the Modern World* 3 Study of problems addressing the relation of religion to science in the modern world (e.g., evolution, Big Bang, origin of life). (Sp)</p> <p>PHIL 3800 DHA Philosophy in Literature** 3 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. (F)</p> <p>PHIL 3810 DHA Aesthetics 3 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)</p> <p>PHIL 4300 DHA Epistemology* 3 Study of foundations of knowledge and belief systems, and related topics in epistemology, including perception, certainty, and skepticism. (F)</p> <p>PHIL 4310 DHA Philosophy of Science 3 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. (Sp)</p> <p>PHIL 4320 DHA History of Scientific Thought** 3 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. (Sp)</p>	<p>PHIL 4400 Metaphysics** 3 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)</p> <p>PHIL 4410 DHA Philosophy of Mind 3 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. (F)</p> <p>PHIL 4420 Philosophy of Language** 3 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. (Sp)</p> <p>PHIL 4500 Contemporary Ethical Theory* 3 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. (Sp)</p> <p>PHIL 4530 DSC Ethics and Biotechnology* 3 (dual listing 6530) Interdisciplinary examination of key issues such as: cloning, human genetic screening and therapy, and transgenic animals and food. (Sp)</p> <p>PHIL 4540 DHA Human Values and Information Technology* 3 (dual listing 6540) 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. (Sp)</p> <p>PHIL 4600 Philosophy of Law* 3 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. (F)</p> <p>PHIL 4610 DHA Social and Political Philosophy** 3 Explores the nature of a just society, political obligation, and justification and proper limits of political power. (Sp)</p> <p>PHIL 4900 Special Topics 3[®] Detailed consideration of a particular philosopher or philosophical problem. Instructor approval required. Course may be repeated when a different topic is discussed. (F,Sp)</p> <p>PHIL 4910 Readings and Research 1-4[®] 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)</p> <p>PHIL 4920H 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 philosophy session during Scholar's Day. (Sp)</p> <p>PHIL 4930H Senior Honors Thesis 1-4[®] 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)</p> <p>PHIL 4990 Philosophy Seminar 3[®] 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. (Sp)</p> <p>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. (Sp)</p>
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Course Descriptions

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. (F)		
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. (F)		
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. (Sp)		
PHIL 6540	Human Values and Information Technology*	3
(dual listing 4540) 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. (Sp)		
PHIL 6890	Philosophy of Science	3
(Sp)		
PHIL 6900	Independent Study	1-4®
(F,Sp,Su)		

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

*Taught 2006-2007.

**Taught 2007-2008.

Physics (PHYS) (formerly PHYX)

See Department of Physics, pages 449-458.

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.		
PHYS 1040 BPS	Introductory Astronomy	3
(formerly PHYX 1000 BPS) 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.		
PHYS 1080 BPS	Intelligent Life in the Universe	3
(formerly PHYX 1030 BPS) 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.		
PHYS 1100 BPS	Great Ideas in Physics	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.		

PHYS 1200 BPS	Introduction to Physics by Hands-on Exploration	4
Explores structure of matter, electricity and magnetism, light, and sound through hands-on, inquiry-based activities. Facility with high school algebra is expected. Required laboratory.		
PHYS 1800 BPS	Physics of Technology	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.		
PHYS 2110	The Physics of Living Systems I	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.		
PHYS 2120 BPS	The Physics of Living Systems II	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.		
PHYS 2200	Elements of Mechanics	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.		
PHYS 2210 QI	General Physics—Science and Engineering I	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.		
PHYS 2220 BPS/QI	General Physics—Science and Engineering II	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.		
PHYS 2400	Introductory Topics in Physics (Topic)	1-3®
Explores issues in contemporary physics at an introductory level. Prerequisite: Approval of instructor.		
PHYS 2500	Introduction to Computer Methods in Physics	2
Introduction to computer assistance in physics. 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.		
PHYS 2710	Introductory Modern Physics	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.		
PHYS 3010 DSC/QI	Space Exploration from Earth to the Solar System	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.		
PHYS 3020 DSC	Great Scientists	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),		

Course Descriptions

and others. Prerequisite: Fulfillment of University Studies Breadth Physical Sciences (BPS) or Breadth Life Sciences (BLS) requirement.

PHYS 3030 DSC/QI The Universe 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.

PHYS 3040 QI Space Weather—Dangers to the High-Tech World 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.

PHYS 3500 Topics in Physics (Topic) 1-3®
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.

PHYS 3550 Intermediate Classical Mechanics 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).

PHYS 3600 Intermediate Electromagnetism 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).

PHYS 3700 Thermal Physics 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.

PHYS 3710 Intermediate Modern Physics 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.

PHYS 3750 Foundations of Wave Phenomena 3
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).

PHYS 3870 CI Intermediate Laboratory I 2
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.

PHYS 3880 CI Intermediate Laboratory II 2
Continuation of PHYS 3870. Prerequisite: PHYS 3870.

PHYS 3900 Projects in Physics 1-3®
Individual study pursued under direction of staff member. Prerequisite: Approval of instructor.

PHYS 4010 DSC/QI Chaos Under Control 3
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.

PHYS 4020 DSC/QI Science, Art, and Music 3
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.

PHYS 4250 CI Cooperative Work Experience 1-6®
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.

PHYS 4550 Advanced Classical Mechanics 3
Lagrange's equations, Liouville's theorem, continua, Euler's equations, small vibrations, and special relativity. Prerequisites: PHYS 3550, 3750.

PHYS 4600 Advanced Electromagnetism 3
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.

PHYS 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 ECE 4650/6650. Prerequisite: ECE 3870.

PHYS 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 ECE 4680/6680.

PHYS 4700 Quantum Mechanics I 3
Principles of quantum mechanics, operators in Hilbert space, matrix mechanics, angular momentum, spin, perturbation theory, and applications. Prerequisites: PHYS 3550, 3600, 3750.

PHYS 4710 Quantum Mechanics II 3
Continuation of PHYS 4700. Prerequisite: PHYS 4700.

PHYS 4900 CI Research in Physics 1-3®
Research experience pursued with faculty mentor. Prior to registration, student must make arrangements with the Physics Department's undergraduate research advisor. Prerequisite: PHYS 2710.

PHYS 5340 Methods of Theoretical Physics I 3
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.

PHYS 5350 Methods of Theoretical Physics II 3
Continuation of PHYS 5340. Prerequisite: PHYS 5340.

PHYS 5500 Intermediate Topics in Physics (Topic) 1-3®
Explores issues in contemporary physics at the advanced undergraduate and beginning graduate level.

PHYS 5800 Physics Colloquium 1®
A series of invited lectures on specialized topics in physics and related subjects.

PHYS 5870 CI Advanced Laboratory 3
Experimental experience with such modern techniques as scanning tunneling microscopy, LEED, Auger spectroscopy, and Fourier transform infrared spectroscopy. Prerequisite: PHYS 2710.

PHYS 6010 Classical Mechanics I 3
Lagrange's equations, Hamilton's principle, Hamilton's equations, canonical transformations, Hamilton-Jacobi theory, central forces, noninertial reference

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frames, rigid body motion, small oscillations, relativistic mechanics, canonical perturbation theory, continuum mechanics. Prerequisite: PHYS 4550 or equivalent.

PHYS 6020 Classical Mechanics II 3
Continuation of PHYS 6010. Prerequisite: PHYS 6010.

PHYS 6110 Electrodynamics I 3
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.

PHYS 6120 Electrodynamics II 3
Continuation of PHYS 6110. Prerequisite: PHYS 6110.

PHYS 6210 Quantum Mechanics I 3
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.

PHYS 6220 Quantum Mechanics II 3
Continuation of PHYS 6210. Prerequisite: PHYS 6210.

PHYS 6240 Space Environment and Engineering 3
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. Prerequisite: MATH 2250. Corequisite: ECE 5230. Also taught as ECE 6240.

PHYS 6250 Cooperative Work Experience 1-6®
Allows students to register for credit when working in a physics-related position. Prerequisite: Permission of department head prior to enrollment.

PHYS 6310 Solar-terrestrial Physics I 3
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.

PHYS 6320 Solar-terrestrial Physics II 3
Continuation of PHYS 6310. Prerequisite: PHYS 6310.

PHYS 6330 Plasma Physics I 3
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.

PHYS 6340 Plasma Physics II 3
Continuation of PHYS 6330. Prerequisite: PHYS 6330.

PHYS 6410 Statistical Mechanics I 3
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.

PHYS 6420 Statistical Mechanics II 3
Continuation of PHYS 6410. Prerequisite: PHYS 6410.

PHYS 6530 Solid State Physics I 3
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).

PHYS 6540 Solid State Physics II 3
Continuation of PHYS 6530. Prerequisite: PHYS 6530.

PHYS 6550 Physics of Materials I 3
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.

PHYS 6560 Physics of Materials II 3
Continuation of PHYS 6550. Prerequisite: PHYS 6550.

PHYS 6650 Optics I 3
(dual listing 4650)
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.

PHYS 6680 Optics II 3
(dual listing 4680)
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.

PHYS 6910 Relativity I 3
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.

PHYS 6920 Relativity II 3
Continuation of PHYS 6910. Prerequisite: PHYS 6910.

PHYS 6930 Quantum Field Theory I 3
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.

PHYS 6940 Quantum Field Theory II 3
Continuation of PHYS 6930. Prerequisite: PHYS 6930.

PHYS 6970 Thesis Research 1-10®
Advanced research under guidance of one or more faculty members.

PHYS 6990 Continuing Graduate Advisement 1-9®

PHYS 7210 Spacecraft Instrumentation 3
Theory, engineering, and data reduction techniques of spacecraft instrumentation for space science and spacecraft systems. Prerequisite: ECE 6240. Also taught as ECE 7210.

PHYS 7500 Advanced Topics in Physics (Topic) 3®
Explores issues in contemporary physics at the advanced graduate level.

PHYS 7510 Seminar 1-3®

PHYS 7970 Dissertation Research 1-15®

PHYS 7990 Continuing Graduate Advisement 1-9®

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Plant Science (PLSC)

See *Department of Plants, Soils, and Biometeorology*, pages 459-472.

PLSC 2100 BLS Introduction to Horticulture 3
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)

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<p>PLSC 2200 Pest Management Principles and Practices 3 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)</p> <p>PLSC 2250 Occupational Experience in Agronomy and Horticulture 1-4® Provides credit for on-the-job training in jobs related to plants or soils. (F,Sp,Su)</p> <p>PLSC 2600 Annual and Perennial Plant Materials 1.5 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)</p> <p>PLSC 2610 Indoor Plants and Interiorscaping 1.5 Identification, culture, use, and maintenance of indoor foliage and flowering plants used in the interior plantscaping industry. (F)</p> <p>PLSC 2620 Woody Plant Materials: Trees and Shrubs for the Landscape 3 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)</p> <p>PLSC 2650 Identification and Selection of Plants in Production Agriculture 1 Identification of plants important in horticulture/agronomy and the morphological features making them useful for various agricultural purposes. (F)</p> <p>PLSC 2900 Special Problems in Plant Science 1-4® Student-selected practical problems in horticulture and/or agronomy. (F,Sp,Su)</p> <p>PLSC 3010 Basic Flower Arranging 2 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. (F)</p> <p>PLSC 3020 Floral Crops Judging and Contemporary Design 2 Judging of potted ornamental plants and cut flowers for quality. Contemporary floral design and floral art. Prerequisite: PLSC 3010 or professional design experience. Lab fee required. (Sp)</p> <p>PLSC 3050 Greenhouse Management and Crop Production 4 Design and management of commercial greenhouse facilities. Production requirements of primary greenhouse crops. (Sp)</p> <p>PLSC 3200 DSC Horticultural Science 3 Methods, technology, and scientific basis of landscape, fruit, and vegetable gardening in the arid west. Interaction of gardening with the urban environment. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p>PLSC 3300 Residential Landscapes 3 Functional and aesthetic relationships of plants and structures in the landscape in connection with installation considerations. Use of imaging and CAD software in initial computer design layout. Prerequisite: PLSC 2620. Recommended: PLSC 2600. (Sp)</p> <p>PLSC 3400 Landscape Management Principles and Practices 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. (F)</p> <p>PLSC 3500 The Structure and Function of Economic Crop Plants 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>PLSC 3700 Plant Propagation 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)</p> <p>PLSC 3800 Turfgrass Management 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>PLSC 4100 Landscape Water Conservation 2 Explains why water conservation is important, and how water can be conserved through precision irrigation and conversion to low-water-use landscapes. This course is not currently being offered. For information about when it may be offered, contact the department.</p> <p>PLSC 4280 Field Crops 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 odd)</p> <p>PLSC 4300 World Food Crops and Cropping Systems: The Plants That Feed Us 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. (F even)</p> <p>PLSC 4320 Forage Production and Pasture Ecology 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)</p> <p>PLSC 4400 Modern Vegetable Production 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)</p> <p>PLSC 4500 Fruit Production 4 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)</p> <p>PLSC 4600 DSC/QI Cereal Science*** 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>PLSC 4800 Professional Turfgrass Management 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>PLSC 5100 Landscape Irrigation Management 3 (dual listing 6100) 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>PLSC 5200 Crop Physiology 2 (dual listing 6200) 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>
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Course Descriptions

<p>PLSC 5210 Crop Physiology Laboratory 1 (dual listing 6210) Measurement and analysis of physiological processes that result in whole plant growth. Includes an individual lab project. Take concurrently with PLSC 5200 or 6200. (Sp)</p> <p>PLSC 5300 Principles of Cytogenetics* 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)</p> <p>PLSC 5400 Low Water Landscaping 3 (dual listing 6400) 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>PLSC 5420 CI Forest and Shade Tree Pathology 3 Nature, cause, and management of forest diseases. Also taught as BIOL 5420 and FRWS 5420. (Sp)</p> <p>PLSC 5430 Plant Nutrition*** 2 (dual listing 6430) 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 odd)</p> <p>PLSC 5440 Plant Molecular, Cellular, and (dual listing 6440) Developmental Biology I** 3 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 BIOL 5440/6440. (Sp)</p> <p>PLSC 5450 Plant Molecular, Cellular, and (dual listing 6450) Developmental Biology II* 3 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 BIOL 5450/6450. (Sp)</p> <p>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)</p> <p>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)</p> <p>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 FRWS 5650. (Sp)</p> <p>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: BIOL 3060. (Sp)</p> <p>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, and microassays bioinformatics. Prerequisite: BIOL 3060. (Sp)</p>	<p>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. Will not be taught Spring 2006. Contact department for further information. (Sp)</p> <p>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)</p> <p>PLSC 6200 Crop 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)</p> <p>PLSC 6210 Crop Physiology Laboratory 1 (dual listing 5210) Measurement and analysis of physiological processes that result in whole plant growth. Includes an individual lab project. Take concurrently with PLSC 6200 or 5200. (Sp)</p> <p>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)</p> <p>PLSC 6230 Readings in Landscape Water Conservtion 1 Background topics in water development and policy in the West. Current topics on various aspects of water conservation in urban landscapes. (Sp)</p> <p>PLSC 6240 Water Efficient Landscaping Seminar 2 Students develop skills in public speaking by presenting their summer internship experience to the Plants, Soils, and Biometeorology faculty. Students also work on a culminating academic endeavor for the program. (F)</p> <p>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)</p> <p>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 odd)</p> <p>PLSC 6440 Plant Molecular, Cellular, and (dual listing 5440) Developmental Biology I** 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 6440/5440. (Sp)</p> <p>PLSC 6450 Plant Molecular, Cellular, and (dual listing 5450) Developmental Biology II* 3 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)</p> <p>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)</p>
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Course Descriptions

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)

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)

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

*Taught 2006-2007.

**Taught 2007-2008.

***This course is taught alternating years. Check with department for information about when course will be taught.

Political Science (POLS)

See Department of Political Science, pages 473-478.

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)

POLS 2100 Introduction to International Politics 3
Analysis of the nation-state system as well as interdependence of the global community. (F,Sp)¹

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)¹

POLS 2300 Introduction to Political Theory 3
(formerly POLS 2350)
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)²

POLS 3100 Global Issues* 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)

POLS 3110 DSS Parties and Elections 3**
Political parties, campaigns, and elections. (Sp)

POLS 3120 DSS Law and Politics 3
Examines history, processes, and theories underlying American law and politics. Makes selective comparison of the American legal system with other legal systems. (F)

POLS 3130 DSS United States Legislative Politics 3
Legislative process. (Sp)

POLS 3140 DSS The Presidency* 3
Examines the origins, purposes, and scope of the executive power in the American constitutional system. (F)

POLS 3150 State and Local Government 3
Includes state and local politics, in addition to metro-urban politics. (Sp)

POLS 3160 Practicing American National Government 3
Includes survey of legislative, executive, and judicial governing. Offers academic basis for Washington, DC experience. (F,Sp,Su)

POLS 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 ECON 3170. (F)

POLS 3180 Introduction to Public Administration 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)

POLS 3190 DSS Gender, Power, and Politics* 3
Examines the question of gender inequality in politics, focusing on contemporary political issues cross-culturally and in different political systems. (F)

POLS 3210 DSS Western European Government and Politics 3**
Britain, France, Germany, Scandinavia, and the European Union. (F)

POLS 3220 DSS Russian and East European Government and Politics* 3
(F)

POLS 3230 Middle Eastern Government and Politics 3**
General overview of political cultures and political developments in the Middle East. (F)

POLS 3250 DSS Chinese Government and Politics 3
(F)

POLS 3270 DSS Latin American Government and Politics 3
Survey of most of the governments and politics of Latin America, emphasizing events, policies, and governmental actions of the past decade. (F)

POLS 3310 DSS American Political Thought 3
Survey of American political thought from colonial times to the present. (F)

POLS 3320 The Foundations of American Constitutionalism 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.

POLS 3400 DSS United States Foreign Policy 3
Formulation, execution, and impact of United States foreign policy. (F,Sp)³

POLS 3430 Political Geography 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)

POLS 3810 DSS Introduction to Public Policy 3
Examines different approaches to the study of public policy and different value dimensions in the design of policies. (F)

POLS 4000 Political Analysis 3
Political data, quantitative and analytical techniques. Prerequisite for majors: POLS 3000. (F)⁴

POLS 4120 American Constitutional Law 3
Analyzes the separation of powers, checks and balances, federalism, the Bill of Rights, and other constitutional amendments. (F)

POLS 4130 Constitutional Theory 3
Introduces students to modern constitutional theory, with particular emphasis on American constitutional theory. Prerequisite: POLS 1100. (Sp)

POLS 4140 Political Organizations 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.

Course Descriptions

POLS 4210	European Union Politics**	3	POLS 4890	Special Topics	1-5®
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)			Credit arranged. Instructor's permission required. (F,Sp)		
POLS 4220 CI	Ethnic Conflict and Cooperation	3	POLS 4910	Readings and Conference	1-5®
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) ⁴			Individually directed study in subjects of special interest to students. Credit arranged. Instructor permission required. (F,Sp,Su)		
POLS 4230	Issues in Middle East Politics**	3	POLS 4990 CI	Senior Research Seminar	3®
Contemporary Middle Eastern political movements, regional conflicts, and state-level political change. (Sp)			Introduces students to the research process by having them complete a major research project in the topic area of the particular professor. (F,Sp)		
POLS 4260	Southeast Asian Government and Politics*	3	POLS 5110	Social Policy**	3
(Sp)			Examines health, education, and welfare policies in U.S. contexts and in comparative context. (F)		
POLS 4280	Politics and War*	3	POLS 5120	Economics of Russia and Eastern Europe, 9th Century to 21st Century	3
Examines causes and implications of war. Study of wars from general to limited, including case studies such as the Vietnam War. (Sp)			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: ECON 2010. Also taught as ECON 5120. (F)		
POLS 4310 CI	History of Political Thought I	3	POLS 5130	Law and Policy	3
Issues and thinkers in ancient and medieval political thought. (Sp)			Analyzes the relationship between law and the formation and implementation of policy. (Sp)		
POLS 4320 DSS	History of Political Thought II*	3	POLS 5140	Law, Politics, and War	3
Issues and thinkers in modern and contemporary political thought. (Sp)			Examines relationship between law, policy, and war, with particular emphasis on the American experience since 1787. (F)		
POLS 4330	Political Theory and Literature	3	POLS 5180	Natural Resource Policy**	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)			Political and economic theory applied to the analysis of natural resource allocation conflicts and U.S. policies enacted to resolve such conflicts. (Sp)		
POLS 4410	Global Negotiations*	3	POLS 5200	Global Environment	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)			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.		
POLS 4450 CI	United States and Latin America	3	POLS 5210	Comparative Political Change/Development*	3
Study and analysis of foreign relations of Latin American nations among themselves and with the rest of the world. (Sp)			Emphasis on approaches and theories in the field of comparative politics, with a focus on political change/development. (F)		
POLS 4460	National Security Policy*	3	POLS 5230	Development in the Middle East*	3
How intelligence systems function, fit within the policymaking systems of free societies, and are managed and controlled. (Sp)			Study of Middle Eastern regimes, political cultures, and political developments. (Sp)		
POLS 4470	Foreign Policy in the Pacific*	3	POLS 5270	Latin American Politics and Development	3
Analysis of contemporary foreign policies of major countries surrounding the North Pacific. (Sp)			Focuses on special contemporary issues of selected Latin American nations, such as democratization, the role of the military, and elections. (Sp) ⁴		
POLS 4480	International Trade Policy**	3	POLS 5290	Development in Europe	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)			Emphasizes political and economic development in Europe. (Sp) ⁴		
POLS 4800	The Supreme Court and American Constitutional History	3	POLS 5350 DSS	Evolution, Conflict, and Cooperation*	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.			Intensively examines human cooperation as a fundamental problem of development and human conflict as the major obstacle to development. (Sp)		
POLS 4810	Politics and Public Policy	3	POLS 5440 DSS	Gender and World Politics**	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)			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)		
POLS 4820 DSS	Natural Resources and Environmental Policy: Political Economy of Environmental Quality**	3	POLS 5910	Campaign Internship	1-12®
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)			A semester campaign internship. Instructor approval required. (F,Sp,Su)		
			POLS 5920	Washington Internship	1-12®
			A semester congressional, administrative, or legal internship in Washington, D.C. Instructor approval required. (F,Sp,Su)		
			POLS 5930	State Government Internship	1-12®
			A semester legislative, lobbying, or administrative internship in the state government of Utah or those of any other state government. Instructor approval required. (F,Sp,Su)		

Course Descriptions

POLS 5940	Administrative Internship	1-12[®]
A semester administrative internship at the local or state level. Instructor approval required. (F,Sp,Su)		
POLS 6010	Research Design	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)		
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 6810	Graduate Seminar	1-4[®]
American politics; comparative politics; political theory; international politics; public law; public administration. (F,Sp,Su)		
POLS 6910	Graduate Tutorial	1-3[®]
Prerequisite: instructor's consent. (F,Sp,Su)		
POLS 6920	Internship	1-15[®]
Internship in a public administration agency. Instructor approval required. (F,Sp,Su)		
POLS 6970	Thesis Research	1-9[®]
Prerequisite: admission to candidacy. (F,Sp,Su)		
POLS 6990	Continuing Graduate Advisement	1-3[®]
(F,Sp,Su)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©]This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*Taught 2006-2007.

**Taught 2007-2008.

¹Taught Fall 2006, and Spring 2007 and 2008.

²Taught Fall 2007 and Spring 2009.

³Taught Fall 2006 and 2007, and Spring 2008 and 2010.

⁴Not taught 2007-2008 or 2008-2009.

Portuguese (PORT)

See *Department of Languages, Philosophy, and Speech Communication*, pages 364-379.

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[®]
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	Brazilian Culture and Civilization	3
Historical, social, political, economic, and cultural conditions and institutions of Brazil. (F)		
PORT 3630	Survey of Brazilian Literature	3
Selected readings and discussions of major works and authors in Brazilian literature. Prerequisites: PORT 3040 and 3570. (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 <i>only</i> in USU's overseas Portuguese program. (Su)		
PORT 4880	Individual Readings	1-4[®]
Readings in Brazilian and/or Portuguese literature. Prerequisite: Instructor's permission. (F,Sp)		
PORT 4920	Portuguese 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. Prerequisite: Permission of instructor. (F,Sp,Su)		

[®]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 321-331.

PRP 1000	Introduction to Parks and Recreation	3
Introductory course examining the conceptual foundations of play, recreation, and leisure. Examines the history and development of the profession, as well as current trends. Provides insight into the careers in the leisure service industry. (F,Sp)		
PRP 1500	Social Recreation Leadership	3
Information and practical experience in the organization and management of social recreation activities. Planning, programming, and evaluation techniques given for a variety of age groups. (Sp)		
PRP 2100	Leisure and Aging	2
Examines relevance of leisure as a means of enhancing the quality of life throughout the lifespan. Addresses the quality of life throughout the lifespan, as well as the physical, psychological, social, and developmental aspects of aging relating to leisure and recreational programming. (Sp)		
PRP 2250	Introductory Cooperative Work Experience	1-6[®]
An introductory-level educational work experience in a cooperative education or business position as approved by the department. Repeatable for up to 6 credits. (F,Sp,Su)		
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. (F)		
PRP 3000	Recreation Programming	3
Studies recreation programming, including methods, models, and classification. Also includes analysis of activities, organizational structures, and evaluation techniques. (Sp)		
PRP 3200	Recreation Event Planning and Management	3
Explores principles of special event and festival planning, emphasizing development and integration of operational strategies. Concentrates on conceptualization, analysis, economic impacts, marketing, and evaluation of small-scale to large-scale community events. Prerequisite: PRP 3000. (F,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. (F)		
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. (Sp)		
PRP 3900	Introduction of Therapeutic Recreation for Diverse Populations	3
Explores characteristics, behaviors, and programming techniques used to meet recreational needs of varied population groups and all degrees of disabilities. (F)		
PRP 4000	Therapeutic Recreation	3
Examines special population groups served by recreation, including institutional procedures, clinical application, and activity programming. Prerequisite: PRP 3900.		
PRP 4200	Advanced Therapeutic Recreation*	3
Examines current trends and issues in therapeutic recreation and how they affect the therapeutic recreation profession. Instruction in licensing requirements for eligibility for TRT and TRS licensure and certification. Prerequisite: PRP 4000.		
PRP 4250	Advanced Cooperative Work Experience	1-12[®]
Cooperative education work experience with increased levels of complexity, wherein students gain a more professional level of experience as they advance toward completion of the program. (F,Sp,Su)		
PRP 4300	Legal Aspects of Recreation and Leisure	3
Focuses on legal aspects of recreation and park programs, management, and administration. Provides basic knowledge and understanding of risk management process, legal terms, and their application. Prerequisites: PRP 1000 and 3000. (Sp)		
PRP 4400	Recreation Facility Design and Management	3
Studies recreation park facility design and management issues including: feasibility studies, master plans, features, trends and issues in equipment design, maintenance, accessibility, and safety. Prerequisite: PRP 3000. (F)		
PRP 4700	Internship Seminar	1
In preparation for PRP 4750, students identify internships and prepare written materials and objectives for internship assignment. (Sp)		
PRP 4750	Recreation Internship	6
Practical, off-campus management experience with cooperating parks and recreation agency. Prerequisites: PRP 1000, 3000, 4300, 4700; and 200 hours of documented work experience. (F,Sp,Su)		
PRP 4970H	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 5000 CI	Seminar in Recreation	3
Student analysis, papers, and presentations of current issues and problems in recreation. Includes discussions with professionals and development of resume. Prerequisites: PRP 1000, 2500, 3500, 3750, 3900, 4000, 4400. (F,Sp)		
PRP 5900	Independent Study	1-3[®]
Students work on special projects and research out of the classroom, with approval and guidance of instructor. (F,Sp,Su)		
PRP 5910	Independent Research	1-3[®]
(F,Sp,Su)		

[®]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 Biometeorology (PSB)

See Department of Plants, Soils, and Biometeorology, pages 459-472.

PSB 1050 **Plants, Soils, and Biometeorology 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)

PSB 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)

PSB 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)

PSB 4250 **Internship in Plants, Soils, and/or Biometeorology** **1-4[®]**
Professional internship in crop science, horticulture, environmental soil/water science, and/or biometeorology. (F,Sp)

PSB 4800 **Teaching Practicum for Undergraduate Students** **1-3**
Offers undergraduate students an opportunity for guided teaching and methods for student evaluation in a variety of Plants, Soils, and Biometeorology courses. Taught infrequently. Contact department for further information. (F,Sp)

PSB 4890 CI **Senior Seminar** **1[®]**
Student preparation for careers. Familiarization with placement processes. Discussion of role in society and career opportunities for graduates. Experiences in team building. Opportunities for oral presentations of solutions to current issues and scientific information. Must take during both fall and spring semesters. (F,Sp)

PSB 4900 **Special Problems** **1-4[®]**
Special topics and problems in crop science, horticulture, environmental soil/water science, and/or biometeorology. Subject, time, and credit arranged individually as needed. Department approval required. (F,Sp,Su)

PSB 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. (F)

PSB 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. (Sp)

PSB 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)

PSB 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)

PSB 5370 **Molecular Methods in Nutrition Science** **2**
(dual listing 6370)
Theory of modern techniques used to study macromolecules and ions. Prerequisite: CHEM 3700. Also taught as ADVS/BIOL/NFS 5370/6370. (F)

PSB 6370 **Molecular Methods in Nutrition Science** **2**
(dual listing 5370)
Theory of modern techniques used to study macromolecules and ions. Prerequisite: CHEM 3700. Also taught as ADVS/BIOL/NFS 6370/5370. (F)

PSB 6700 **Integrative Topics in Plants, Soils, and Biometeorology** **1-3[®]**
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. This course is not currently being offered. For information about when it may be offered, contact the department.

PSB 6800 **Graduate Student Teaching Practicum** **1-3**
Offers graduate students an opportunity for guided teaching and methods for student evaluation in a variety of Plants, Soils, and Biometeorology courses. (F,Sp)

PSB 6890 **Plants, Soils, and Biometeorology Graduate Seminar** **1[®]**
Review and critique of presentations. Communication practice in extemporaneous, extension, research, poster, and lecture presentations. PSB graduate students must enroll during both fall and spring semesters. (F,Sp)

PSB 6900 **Special Problems in Plants, Soils, and/or Biometeorology** **1-8[®]**
(F,Sp,Su)

PSB 6970 **Research and Thesis** **1-18[®]**
(F,Sp,Su)

PSB 6990 **Continuing Graduate Advisement** **1-12[®]**
(F,Sp,Su)

PSB 7800 **Graduate Student Teaching Practicum** **1-3**
Offers graduate students an opportunity for guided teaching and methods for student evaluation in a variety of Plants, Soils, and Biometeorology courses. (F,Sp)

PSB 7890 **Plants, Soils, and Biometeorology Graduate Seminar** **1[®]**
Review and critique of presentations. Communication practice in extemporaneous, extension, research, poster, and lecture presentations. PSB graduate students must enroll during both fall and spring semesters. (F,Sp)

PSB 7900 **Special Problems in Plants, Soils, and/or Biometeorology** **1-8[®]**
(F,Sp,Su)

PSB 7970 **Research and Thesis** **1-18[®]**
(F,Sp,Su)

PSB 7990 **Continuing Graduate Advisement** **1-12[®]**
(F,Sp,Su)

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Psychology (PSY)

See Department of Psychology, pages 479-488.

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

Course Descriptions

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)

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)

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)

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)

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)

PSY 1410 Analysis of Behavior: Basic Principles Lab 1
Laboratory experience accompanying PSY 1400. Prerequisite: PSY 1010. (F,Sp,Su)

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)

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)

PSY 2250 Introductory Cooperative Work Experience 1-6[®]
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)

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)

PSY 2950 Orientation to Psychology as a Career and Profession 3
As an orientation to psychology, students clarify goals, identify steps necessary to achieve goals, prepare a vita, and gain skills in a variety of important tools for the major (including APA writing, ethics, and library usage). Prerequisites: PSY 1010 and consent of Psychology Advising Office. (F,Sp,Su)

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)

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)

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)

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)

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)

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)

PSY 3500 DSS Scientific Thinking and Methods in Psychology 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. (F,Sp)

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)

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)

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)

PSY 4000 Mental Aspects of Sports Performance* 3**
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)

PSY 4210 DSS Personality Theory 3[®]
Explanatory study of various personality theories, their origin, and approaches to the understanding of human behavior. Prerequisites: PSY 1010 and 2800. (Sp)

PSY 4230 DSS Psychology of Gender* 3**
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)

PSY 4240 DSS Multicultural Psychology 3
Explores cultural influences on basic psychological processes, including perception, cognition, language, emotion, intelligence, attitudes, values, and intergroup relations. Prerequisite: PSY 1010. (F)

Course Descriptions

<p>PSY 4250 Advanced Cooperative Work Experience 1-12[®] 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)</p> <p>PSY 4420 DSS Cognitive Psychology 3 In-depth study of basic concepts, methods, and theories involved in perception, memory, and thinking. Lab required. Prerequisite: PSY 1010. (Sp)</p> <p>PSY 4430 Cognitive Psychology Laboratory 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. (Sp)</p> <p>PSY 4510 CI Effective Social Skills Interventions 3 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)</p> <p>PSY 4790 Psychological Principles and Individuals who are Deaf and Hard of Hearing (dual listing 6790) 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 COMD 4790/6790. (Sp)</p> <p>PSY 4910 Undergraduate Research Creative Opportunity 1-3[®] 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)</p> <p>PSY 4920 Practicum 1-3[®] Field work in applied psychological setting at BS level. (F,Sp,Su)</p> <p>PSY 5020 Multicultural Issues in Psychology (dual listing 6020) 3 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>PSY 5050 Psychological Aspects of Sports Performance (dual listing 6050) 3 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)</p> <p>PSY 5100 History and Systems of Psychology (dual listing 6100) 3 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)</p> <p>PSY 5200 CI Introduction to Interviewing and Counseling 3 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)</p> <p>PSY 5330 Psychometrics (dual listing 6330) 3 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)</p> <p>PSY 5500 Interdisciplinary Workshop 1-3[®] (F,Sp,Su)</p> <p>PSY 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/</p>	<p>SPED 5720 fulfill part of practicum requirement for Behavior Analysis track. Prerequisite: Permission of instructor. Also taught as SPED 5720. (F)</p> <p>PSY 5900 Independent Study 1-3[®] Individual discussion and intensive study of a particular problem or area. Prerequisite: Instructor's consent. (F,Sp,Su)</p> <p>PSY 5910 Independent Research 1-3[®] Experiments and demonstration projects are conducted and reported. Prerequisite: Instructor's consent. (F,Sp,Su)</p> <p>PSY 5930 Instructional Apprenticeship in Psychology 1-3[®] 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)</p> <p>PSY 5950 CI Undergraduate Apprenticeship I 3 Orientation to profession of psychology. Students clarify career goals, identify steps necessary to achieve goals, prepare a vita, plan and begin executing their apprenticeship experience with faculty member(s) or approved agency, and present progress reports to diverse audiences. Prerequisites: Psychology major, junior standing, and consent of on-campus USU Psychology Advising Office. (F,Sp)</p> <p>PSY 5960 CI Undergraduate Apprenticeship II 3 Under supervision of departmentally approved agency and/or faculty member(s), students complete their pre-approved apprenticeship, which involves conducting research and/or providing community service. Students prepare a report of this experience and present it to diverse audiences. Prerequisites: PSY 5950, Psychology major, senior standing, and consent of on-campus USU Psychology Advising Office. (F,Sp)</p> <p>PSY 6010 Introduction to Program Evaluation: Evaluation Models and Practical Guidelines 3 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.</p> <p>PSY 6020 Multicultural Issues in Psychology (dual listing 5020) 3 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>PSY 6050 Psychological Aspects of Sports Performance (dual listing 5050) 3 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> <p>PSY 6100 History and Systems of Psychology (dual listing 5100) 3 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)</p> <p>PSY 6150 Empirically Supported Treatments for Psychological Disorders of Children and Adolescents 3 Introduction to single-subject treatment designs and basic principles of applied behavior analysis. Behaviorally-oriented treatment approaches for psychological disorders of childhood. Should be taken concurrently with a clinical practicum or assistantship. (Sp)</p> <p>PSY 6220 Group Counseling 3 Introduction to theory of group counseling with illustrative experiences to show how theory may be applied. Prerequisite: PSY 6350. (F)</p> <p>PSY 6240 Introduction to School Counseling and Guidance 3 Introduction to role and function of school counselors. Overview of history of school guidance and counseling, and role of counselors in comprehensive guidance program. (F)</p>
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Course Descriptions

<p>PSY 6250 Internship in School Counseling and Guidance 1-10[®] Internship in approved school system involving comprehensive guidance activities, under supervision of certified school counselor. (F,Sp,Su)</p> <p>PSY 6260 Career Development: Theory and Practice 3 Consideration of career patterns and factors influencing career development and career effectiveness. (Sp)</p> <p>PSY 6270 Child Psychopathology 3 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>PSY 6290 Diversity Issues in Treatment and Assessment 3 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. (Sp)</p> <p>PSY 6310 Intellectual Assessment 3 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>PSY 6320 Objective Assessment of Personality and Affect 3 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>PSY 6330 Psychometrics 3 (dual listing 5330) 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)</p> <p>PSY 6340 Psychological and Educational Consultation 3 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. (F)</p> <p>PSY 6350 Introduction to Theory and Practicum in Counseling 3 Introduction to basic theories and techniques of counseling, with applied practice in role-playing, interviewing, and actual counseling sessions with practice subjects. Prerequisite: Matriculation in School Counseling, School Psychology, or Combined Psychology program. (F)</p> <p>PSY 6360 Practicum in Counseling and Psychotherapy 3[®] Supervised practicum in counseling and psychotherapy conducted within Psychology Community Clinic. Closely supervised practice in assessment, counseling, psychotherapy, and consultation with individuals, couples, and families. Prerequisite: PSY 6350. (Sp,Su)</p> <p>PSY 6370 Practicum in School Counseling 3[®] Supervised practicum in public school setting, under direction of certified school counselor. Taken by students in School Counseling master's program. (F,Sp,Su)</p> <p>PSY 6380 Practicum in School Psychology 3[®] 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>PSY 6410 Psychoeducational Assessment 3 Training and supervised experience in assessment of school-age and preschool-age children. Administration and interpretation of cognitive, developmental,</p>	<p>and academic achievement measures, along with other psychoeducational assessment instruments and methods. (Sp)</p> <p>PSY 6450 Introduction to School Psychology 1 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>PSY 6460 Professional Issues in School Counseling and School Psychology 3 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)</p> <p>PSY 6470 Health Psychology 3 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>PSY 6500 Interdisciplinary Workshop 1-2[®] 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>PSY 6510 Social Psychology*** 3 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>PSY 6530 Developmental Psychology 3 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)</p> <p>PSY 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. Prerequisite: PSY 2800. Also taught as EDUC 6570. (F,Sp,Su)</p> <p>PSY 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 EDUC 6600. (F,Sp,Su)</p> <p>PSY 6650 Theories of Learning: The Behavioral Perspective*** 3 In-depth examination of the major behavioral theories of learning, including classical and operant conditioning. (F)</p> <p>PSY 6660 Cognition and Instruction*** 3 Survey of theory and principles in cognitive psychology, with special emphasis on applying these principles in instructional settings. (Sp)</p> <p>PSY 6750 Empirically Supported Treatments for Adult Psychological Disorders 3 Emphasizes development of knowledge regarding criteria for determining if a treatment is empirically supported. Explains methods for identifying specific empirically supported treatments. Develops skills for applying these treatments to psychological disorders and for understanding how to evaluate the efficacy of treatments. (Sp)</p>
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Course Descriptions

<p>PSY 6790 Psychological Principles and Individuals 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 COMD 6790/4790. (Sp)</p> <p>PSY 6800 Addictive Behaviors* 3 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)</p> <p>PSY 6810 Seminar 1-3® 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)</p> <p>PSY 6820 Clinical Applications of Biofeedback*** 3 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)¹</p> <p>PSY 6850 Introduction to the Combined Doctoral Program 1 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)</p> <p>PSY 6880 Transcultural Assessment Lab 1 Psychoeducational assessment laboratory experience to be taken by students in the School Psychology and Combined Psychology programs in conjunction with PSY 6290. (Sp)</p> <p>PSY 6890 Assessment of Child and Adolescent Psychopathology and Personality 3 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 master's program. (Su)</p> <p>PSY 6900 Independent Study 1-3® Individual discussion and intensive study of a particular problem or area. Prerequisite: Instructor's consent. (F,Sp,Su)</p> <p>PSY 6910 Independent Research 1-3® Experiments and demonstration projects are conducted and reported. Prerequisite: Instructor's consent. (F,Sp,Su)</p> <p>PSY 6930 University Teaching Apprenticeship 1-3® Prepares graduate students for college teaching. Students learn to prepare study guides, examinations, and lectures, and learn to use audio-visual aids. Students also examine various current methods of instruction and course evaluation schemes. (F,Sp,Su)</p> <p>PSY 6950 Internship in School Psychology 3® 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)</p> <p>PSY 6970 Thesis 1-6® (F,Sp,Su)</p> <p>PSY 6990 Continuing Graduate Advisement 1-12® (F,Sp,Su)</p> <p>PSY 7020 Advanced Evaluation Methodology and Techniques* 3 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: PSY 6010. (Sp)</p>	<p>PSY 7030 Instrument Development*** 3 In-depth study of factors and techniques critical for designing and developing evaluation and research instruments. (F)</p> <p>PSY 7040 Practicum in Evaluation Planning and Contracting 3 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)</p> <p>PSY 7050 Internship in Program Evaluation 1-9® 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)</p> <p>PSY 7060 Internship in Research 1-9® Research experience gained through conducting planned, supervised research project. Prerequisites: Approval by supervisory committee and EDUC/PSY 6570. (F,Sp,Su)</p> <p>PSY 7070 Advanced Measurement Theories and Practice 3 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)</p> <p>PSY 7090 Research and Evaluation Methodology Program Seminar 1® Provides opportunity for all doctoral students in the Research and Evaluation Methodology Program to meet on a regular basis to read journal articles, explore student and faculty research projects, and discuss current issues in the field. (F,Sp)</p> <p>PSY 7100 Biological Basis of Behavior*** 3 Explores normal and abnormal behavior from a basic neuroanatomical/neurophysiological perspective. Discusses pharmacological/nonpharmacological applications. (Sp)</p> <p>PSY 7110 Advanced Theories in Cognitive Psychology 3 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)</p> <p>PSY 7230 Theory and Research in Personality*** 3 Overview of theoretical approaches, research, and clinical applications regarding personality differences. (F)</p> <p>PSY 7250 Professional Ethics and Standards*** 1-3 Designed to train clinicians and researchers in the field of psychology to operate within the professional ethics and standards of the field. (F)</p> <p>PSY 7270 Psychopathology*** 3 Summarizes research on risk, epidemiologic factors, and etiological perspectives regarding emotional and behavioral disorders of adolescents and adults. Models of classification of disorders are outlined, emphasizing the DSM system. Focuses on anxiety, mood, somatoform, dissociative, personality, and psychosexual disorders, as well as schizophrenia, drug/alcohol dependence, violence, and psychological factors affecting physical illness. (F)</p> <p>PSY 7320 Advanced Personality Assessment 2 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)</p> <p>PSY 7350 Practicum in School Psychology 3® 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)</p> <p>PSY 7360 Practicum in Counseling Psychology 3® 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)</p>
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Course Descriptions

PSY 7370	Practicum in Clinical Psychology	3[®]
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)		
PSY 7380	Practicum in Psychology	1-6[®]
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)		
PSY 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 EDUC 7610. (F,Sp,Su)		
PSY 7670	Literature Reviews in Education and Psychology	2
Advanced concepts in designing, writing, and critiquing literature reviews. Prerequisites: PSY/EDUC 6600 and consent of instructor. Also taught as EDUC 7670. (Sp,Su)		
PSY 7700	Grant Writing**	3
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)		
PSY 7780	Multivariate Methods in Psychology and Education	3
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)		
PSY 7810	Seminar	1-3[®]
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)		
PSY 7820	Neuropsychology: Principles and Assessment***	2 or 4
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. ¹		
PSY 7900	Independent Study	1-3[®]
Individual discussion and intensive study of a particular problem or area. Prerequisite: Instructor's consent. (F,Sp,Su)		
PSY 7910	Independent Research	1-3[®]
Experiments and demonstration projects are conducted and reported. Prerequisite: Instructor's consent. (F,Sp,Su)		
PSY 7950	Internship in Professional Psychology	1[®]
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[®]
(F,Sp,Su)		
PSY 7990	Continuing Graduate Advisement	1-12[®]
(F,Sp,Su)		

¹This course is offered infrequently. For more information, contact Psychology Department.
[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[®]This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*Taught 2006-2007.

**Taught 2007-2008.

***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 177-190.

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. Prerequisite: CHEM 1220. (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 4000	Public Health Field Experience	3-6[®]
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)		
PUBH 4030	Communicable Disease Control	3[®]
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)		
PUBH 4040	Fundamentals of Epidemiology	3[®]
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)		
PUBH 4300	Industrial Hygiene Seminar	1[®]
Participant seminar on current developments in industrial hygiene. (F)		
PUBH 4310	Industrial Hygiene Recognition of Hazards	4
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)		
PUBH 4320	Industrial Hygiene Chemical Hazard Evaluation	3
Survey of principles and methods used to evaluate industrial chemical health hazards. Practical application in a field sampling project. Prerequisite: PUBH 3310. (Sp)		
PUBH 4330	Industrial Hygiene Physical Hazards	3
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)		
PUBH 4380	Industrial Hygiene Internship	3-6[®]
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)		
PUBH 4410	Industrial Safety	3
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,		

Course Descriptions

protective equipment, safety promotion and training, and standards and programs. (Sp)

PUBH 4850 Special Topics in Public Health 1-3[®]
Prerequisite: Junior standing in public health. (F,Sp,Su)

PUBH 5000 Public Health Seminar 1[®]
Participant seminar on current problems in public health. (Sp)

PUBH 5330 QI Industrial Hygiene Chemical Hazard Control 3
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)

PUBH 5340 Industrial Hygiene and Safety Programs 2
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)

PUBH 5500 CI Public Health Management 2
Presentation of basic organizational and financial management tools, which 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)

PUBH 5670 Hazardous Chemicals Handling and Safety 2
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)

PUBH 5730 Analysis and Fate of (dual listing 6730) Environmental Contaminants 3
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 spring semester. Prerequisites: CHEM 1210, 2300. Also taught as CEE 5730/6730. (Sp)

PUBH 5790 Accident and Emergency Management 3
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)

PUBH 6730 Analysis and Fate of Environmental (dual listing 5730) Contaminants 3
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 spring semester. Prerequisites: CHEM 1210, 2300. Also taught as CEE 6730/5730. (Sp)

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©]This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Rehabilitation Counseling (REH)

See Department of Special Education and Rehabilitation, pages 512-522.

REH 1010 BSS Disability in the American Experience 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 SPED 1010.

REH 6100 Introduction to Rehabilitation Counseling 3
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)

REH 6110 Medical Aspects of Disability 3
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)

REH 6120 Psychosocial Aspects of Disability 3
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)

REH 6130 Rehabilitation Counseling Skill Development 2
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)

REH 6140 Practicum in Rehabilitation 2[®]
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)

REH 6150 Case Studies in Rehabilitation 3
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)

REH 6160 Job Analysis, Development, and Placement for Persons with Disabilities 3
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)

REH 6170 Internship in Rehabilitation 4-12[®]
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,Su)

REH 6180 Rehabilitation of Persons with Severe Mental Illness, Substance Abuse, and Severe Learning Disabilities 3
Overview of rehabilitation of persons with severe mental illness, including psychopharmacology, housing, case management, job placement, diagnosis (DSM IV), and social learning programs. Includes information on rehabilitation of persons experiencing substance abuse, dual diagnoses, and learning disorders. (Sp)

REH 6190 Vocational Assessment for Persons with Disabilities 3
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)

REH 6200 Theories of Counseling Applied to Persons with Disabilities 3
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)

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REH 6210	Vocational Evaluation Principles and Systems	2
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)		
REH 6220	Culturally Valid Rehabilitation Practices	2
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)		
REH 6230	Introduction to Rehabilitation Research	3
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)		
REH 6560	Special Topics in Rehabilitation	1-4[®]
Opportunity to provide specialized training in topics unique to rehabilitation. Topics cover many disability, employment, and independent-living issues. (F,Sp,Su)		
REH 6900	Independent Study	1-3[®]
Prerequisite: Permission of instructor. (F,Sp,Su)		
REH 6910	Independent Research	1-3[®]
Prerequisite: Permission of instructor. (F,Sp,Su)		
REH 6970	Thesis	1-6[®]
This course is not currently being offered. For information about when it may be offered, contact the department.		
REH 6990	Continuing Graduate Advisement	1-3[®]
(F,Sp,Su)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Russian (RUSS)

See *Department of Languages, Philosophy, and Speech Communication*, pages 364-379.

RUSS 1010	Russian 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 Russian or equivalent. (F)		
RUSS 1020	Russian First Year II	4
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)		
RUSS 2010	Russian 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 culture. Prerequisite: RUSS 1020 or two or more years of high school Russian. (F)		
RUSS 2020	Russian 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 culture. Prerequisite: RUSS 2010 or three or more years of high school Russian. (Sp)		
RUSS 2880	Individual Readings	1-4[®]
Individual study of selected readings in Russian. Prerequisite: Instructor's permission. (F,Sp)		

RUSS 3040	Advanced Russian Grammar and Composition	3
RUSS 3050	Advanced Russian Grammar and Composition	3
Detailed presentation of Russian grammar. Class discussions and work on oral and written assignments. Prerequisite: RUSS 2020 or equivalent. (F) (Sp)		
RUSS 3300 DHA	Contemporary Russian Language and Culture	3
Discussion of contemporary Russia, including its geography, business, government, literature, art, etc. Prerequisite: RUSS 2020 or equivalent. (F,Sp) ¹		
RUSS 3510 CI	Business Russian*	3
Study of current Russian business and commercial terminology and practices. Development of communication skills for international Russian business purposes. Prerequisite: RUSS 2020 or equivalent. (F) ²		
RUSS 3540	Russian Translation for Science, Business, and Culture	3
Familiarization with approaches to translation, special grammatical structures, specialized vocabulary, and reference materials and aids. Practical exercises. Prerequisite: RUSS 2020 or equivalent. (Sp) ³		
RUSS 4880	Individual Readings	1-4[®]
Readings in technical, scientific, or literary Russian. Prerequisite: Instructor's permission. (F,Sp)		
RUSS 4920	Russian 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. Prerequisite: Permission of instructor. (F,Sp)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

¹Taught Spring 2007 and Fall 2008.

²Taught Fall 2007.

³Taught Spring 2008.

Secondary Education (SCED)

See *Department of Secondary Education*, pages 493-497.

SCED 1000	Volunteer Experience	1
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)		
SCED 3100	Motivation and Classroom Management	3
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)		
SCED 3210	DSS/CI Educational and Multicultural Foundations	3
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)		
SCED 3300	Clinical Experience I	1
First clinical practicum (40 hours minimum) in middle and secondary schools, arranged by special methods instructors in department. Required at level 1. Prerequisite: Program admission. (F,Sp)		

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<p>SCED 3400 Teaching Science I 3 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. (F,Sp)</p> <p>SCED 3500 Teaching Social Studies 3 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)</p> <p>SCED 3600 Teaching English 3 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)</p> <p>SCED 4200 CI Reading, Writing, and Technology 3 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)</p> <p>SCED 4210 Cognition and Evaluation of Student Learning 3 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)</p> <p>SCED 4300 Clinical Experience II 1 Second clinical practicum (40 hours minimum) in middle and secondary schools, arranged by special methods instructors in department. Required at level 2. Prerequisite: Program admission and completion of Level 1. (F,Sp)</p> <p>SCED 4400 Teaching Science II 3 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,Sp)</p> <p>SCED 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. Also taught as ELED 4600/6600. (F,Su)</p> <p>SCED 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. Also taught as ELED 4610/6610. (Sp,Su)</p> <p>SCED 4620 Service Learning Applications for the Middle Grades 3 (dual listing 6620) Examines literature related to service learning for the middle grades. Application of service learning in curriculum. Also taught as ELED 4620/6620. (Su)</p> <p>SCED 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 ELED 4710. (Sp,Su)</p> <p>SCED 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. Prerequisite: Admission into a teacher education program. Also taught as ELED 4730/6730. (F,Su)</p>	<p>SCED 4740 Second Language Acquisition in the Classroom 3 (dual listing 6740) 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. Prerequisite: Admission into a teacher education program. Also taught as ELED 4740/6740. (Sp,Su)</p> <p>SCED 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. Additional requirements for graduate students. Prerequisite: Admission into a teacher education program. Also taught as ELED 4760/6760. (F,Sp)</p> <p>SCED 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. Additional requirements for graduate students. Prerequisite: Admission into a teacher education program. Also taught as ELED 4770/6770. (F,Sp)</p> <p>SCED 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. Additional requirements for graduate students. Prerequisite: Admission into a teacher education program. Also taught as ELED 4780/6780. (F,Sp)</p> <p>SCED 4900H Senior Thesis 1-6 Student-initiated research project under faculty supervision. Requires prior approval of department head, honors committee, and instructor. Prerequisite: Approval of department head. (F,Sp)</p> <p>SCED 5000 Practicum in Improvement of Instruction 1-6* (dual listing 6000) Open topics course focusing upon effective teaching methods, teaching performance, curriculum decision-making, and characteristics of learners. Also taught as ELED 5000/6000. (F,Sp,Su)</p> <p>SCED 5400 Laboratory Practicum 3 Laboratory practicum for inservice teachers, focused on design, practice, and performance of secondary science demonstrations and investigative lab activities. (F,Sp)</p> <p>SCED 5500 Student Teaching Seminar 2 Ten-week capstone seminar focused upon student teaching issues, professional development, and principles of effective instruction, emphasizing reflective teaching. Prerequisites: Level 1 and Level 2 completion, and student teaching placement. (F,Sp)</p> <p>SCED 5630 Student Teaching in Secondary Schools 10 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. (F,Sp)</p> <p>SCED 5700 Modified Student Teaching 2-4 Culminating practicum experience for students seeking dual licensure, earning half of their student teaching credit in a secondary school setting. Prerequisite: Program admission and completion of Level 1 and Level 2. (F,Sp)</p> <p>SCED 5800 Secondary School Internship 2-6 Advanced practical teaching experience under combined public school and University supervision. Offered only by arrangement with Director of Field Experiences. Prerequisites: Level 1 and Level 2 completion, and special recommendation. (F,Sp)</p>
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<p>SCED 5900 Independent Study 1-3® Prerequisite: Instructor approval. (F,Sp)</p> <p>SCED 6000 Practicum in Improvement of Instruction 1-6® (dual listing 5000) Open topics course focusing upon effective teaching methods, teaching performance, curriculum decision-making, and characteristics of learners. Also taught as ELED 6000/5000. (F,Sp,Su)</p> <p>SCED 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. Also taught as ELED 6040. (F,Su)</p> <p>SCED 6100 Motivation and Management in Inclusive Settings 3 Leads in-service teachers to develop classroom management strategies for gaining and maintaining students' cooperation. Also taught as ELED 6100. (Sp,Su)</p> <p>SCED 6150 Foundations of Curriculum 3 Examination of theories, principles, and foundations of curriculum, emphasizing program planning and current curriculum trends. Also taught as ELED 6150. (F,Su)</p> <p>SCED 6190 Theories of Teaching and Learning 3 Demonstration, analysis, and evaluation of various models of teaching, emphasizing research-based principles of learning. Also taught as ELED 6190. (Sp,Su)</p> <p>SCED 6250 Mathematics Curriculum and Instruction 2 Examination of current curriculum standards, trends, and effective methods of instruction for mathematics in middle and secondary schools. (Su)</p> <p>SCED 6300 English Curriculum and Instruction 2 Examination of current curriculum standards, trends, and effective methods of instruction for English/language arts in middle and secondary schools. (Su)</p> <p>SCED 6310 Content Area Reading and Writing 3 Practical approaches for teaching reading/writing and learning skills to elementary, middle, and high school students, in all content areas. Also taught as ELED 6310. (Su)</p> <p>SCED 6320 Literacy and Cognition 3 (dual listing 7320) 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. Also taught as ELED 6320/7320. (Sp)</p> <p>SCED 6330 Utah Writing Project 1-6 Workshop, seminar, and institute experiences in the Utah Writing Project, focusing on writing process, principles, and research-based strategies for improving writing instruction in grades K-12. Also taught as ELED 6330. (Su)</p> <p>SCED 6340 Issues and Trends in Literacy 2® Exploration of current issues and instructional trends in the teaching of reading and writing. Emphasis on reading widely and critically in the professional literature. Prerequisites: ELED 3100, 4040; or teaching experience in elementary or middle school. Also taught as ELED 6340.</p> <p>SCED 6350 Reading Assessment and Intervention 3 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. Also taught as ELED 6350. (Sp)</p> <p>SCED 6360 Research in Reading 3 Covers classical, historical, and contemporary research studies in reading, with an emphasis upon understanding and translating findings into classroom practices. Prerequisites: ELED 3100, 4040; or teaching experience in elementary or middle school. Also taught as ELED 6360. (Su)</p>	<p>SCED 6370 Supervised Internship in Reading and Writing 1-3 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. Also taught as ELED 6370. (F,Sp,Su)</p> <p>SCED 6380 Understanding and Supporting Adolescent Literacy Development 3 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)</p> <p>SCED 6390 Teaching with Tradebooks in the Elementary and Middle Level Classroom 3 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. Prerequisites: SCED/ELED 6310 or 6360. Also taught as ELED 6390. (Su)</p> <p>SCED 6400 Multiple Talent Approach to Teaching 2 Explores one model for embedding the teaching of creative and critical thinking in regular curricula. Includes practical application requirements. Also taught as ELED 6400. (Su)</p> <p>SCED 6420 Education of Gifted and Talented Learners 2 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 ELED/SCED 6430. Also taught as ELED 6420. (F)</p> <p>SCED 6430 Practicum: Individual Case Study 1 Practicum experience in association with ELED/SCED 6420. Requires intensive supervised study of gifts and talents of individual child of student's choice. Must be taken concurrently with ELED/SCED 6420. Also taught as ELED 6430. (F)</p> <p>SCED 6440 Creativity in Education 2 Exploration of theories, research, and strategies concerning creativity, and their application to personal creativity and to improvement of classroom practice. Also taught as ELED 6440. (Su)</p> <p>SCED 6460 Identification and Evaluation in Gifted Education 2 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 ELED/SCED 6470. Also taught as ELED 6460. (Sp)</p> <p>SCED 6470 Practicum: Team Consultation 1 Practicum experience in association with ELED/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. Must be taken concurrently with ELED/SCED 6460. Also taught as ELED 6470. (Sp)</p> <p>SCED 6480 Methods and Materials in Gifted Education 2 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 ELED/SCED 6490. Also taught as ELED 6480. (F)</p> <p>SCED 6490 Practicum: Classroom Applications 1 Practicum experience in association with ELED/SCED 6480. Requires application of at least three curriculum, cognitive, or affective models in the student's current teaching assignment. Must be taken concurrently with ELED/SCED 6480. Also taught as ELED 6490. (F)</p> <p>SCED 6500 Science Curriculum and Instruction 2 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>SCED 6550 Social Studies Curriculum and Instruction 3 Examination of current curriculum standards, trends, and effective methods of instruction for social studies in middle and secondary schools. (Su)</p>
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Course Descriptions

<p>SCED 6570 Advanced Comprehension 3 Designed to enhance teachers' understanding of research and practice related to teaching vocabulary and reading comprehension and fostering motivation for reading. Prerequisite: ELED/SCED 6310 or 6360. Also taught as ELED 6570. (Alt years)</p>	<p>reading, and content-area assessment, as well as assessments used in public schools. Additional requirements for graduate students. Prerequisite: Admission into a teacher education program. Also taught as ELED 6780/4780. (F,Sp)</p>
<p>SCED 6580 Character and Values Education 2 Overview of research, theory, and practical approaches to values education, emphasizing processes of moral development and socialization. Also taught as ELED 6580. (Su)</p>	<p>SCED 6840 Workshop: Intermountain Conference on Education of the Gifted and Talented 1-2® 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. Also taught as ELED 6840. (Su)</p>
<p>SCED 6590 Supervising School Reading Program 2 Examines strategies for improving school reading programs. Emphasizes simulations, guided practice, and small group discussions. Prerequisites: ELED/SCED 6350 and 6360. Also taught as ELED 6590. (Sp)</p>	<p>SCED 6900 Independent Study 1-3® Individually directed readings and conference. Departmental permission required before registration. Prerequisite: Instructor's approval. (F,Sp,Su)</p>
<p>SCED 6600 Philosophy and Organization of the Middle Level School 3 (dual listing 4600) 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. Also taught as ELED 6600/4600. (F,Su)</p>	<p>SCED 6910 Independent Research 1-3® Individually directed research projects. Departmental permission required before registration. Prerequisite: Instructor's approval. (F,Sp,Su)</p>
<p>SCED 6610 Curriculum, Methods, and Assessment for the Middle Grades 3 (dual listing 4610) 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: ELED/SCED 6600. Also taught as ELED 6610/4610. (Sp,Su)</p>	<p>SCED 6940 Supervision and Administration Internship 3 Individually directed internship experiences in secondary school settings for development of supervisory and administrative skills. Prerequisite: Instructor's approval. (F,Sp,Su)</p>
<p>SCED 6620 Service Learning Applications for the Middle Grades 3 (dual listing 4620) Examines literature related to service learning for the middle grades. Application of service learning in curriculum. Also taught as ELED 6620/4620. (Su)</p>	<p>SCED 6960 Creative Project 3 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)</p>
<p>SCED 6730 Educational Linguistics 3 (dual listing 4730) 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. Prerequisite: Admission into a teacher education program. Also taught as ELED 6730/4730. (F,Su)</p>	<p>SCED 6970 Master's Thesis 3-6 Individually directed work in thesis writing, with guidance from committee chair. Designed for use on MA and MS degrees only. Prerequisite: Instructor's approval. (F,Sp,Su)</p>
<p>SCED 6740 Second Language Acquisition in the Classroom 3 (dual listing 4740) 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. Prerequisite: Admission into a teacher education program. Also taught as ELED 6740/4740. (Sp,Su)</p>	<p>SCED 6980 Portfolio Project 3 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)</p>
<p>SCED 6760 ESOL Instructional Strategies 3 (dual listing 4760) 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. Additional requirements for graduate students. Prerequisite: Admission into a teacher education program. Also taught as ELED 6760/4760. (F,Sp)</p>	<p>SCED 6990 Continuing Graduate Advisement 1-9® (F,Sp,Su)</p>
<p>SCED 6770 ESOL Instructional Strategies in the Content Areas 3 (dual listing 4770) Focuses on methods which help English language learners in content-area classrooms to increase academic learning and integration into the larger school community. Additional requirements for graduate students. Prerequisite: Admission into a teacher education program. Also taught as ELED 6770/4770. (F,Sp)</p>	<p>SCED 7000 Student Teacher Supervision 1-3 Experiences in providing guidance for secondary student teachers in public schools. Analysis of roles and responsibilities of cooperating teachers and university supervisors. Prerequisite: Instructor's approval. (F,Sp)</p>
<p>SCED 6780 Assessment for Language Learners 3 (dual listing 4780) Explores principles and techniques for developing, analyzing, and interpreting assessment measures for English language learners, including oral, writing,</p>	<p>SCED 7050 Internship in Program Evaluation 1-6 Experiences in practical aspects of program evaluation through planned and supervised evaluation project participation. Must be approved by student's graduate committee. Prerequisite: Instructor's approval. (F,Sp,Su)</p>
	<p>SCED 7060 Internship in Research 1-6 Experiences in conducting research through planned and supervised research project participation. Must be approved by student's graduate committee. Prerequisite: Instructor's approval. (F,Sp,Su)</p>
	<p>SCED 7320 Literacy and Cognition 3 (dual listing 6320) 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. Also taught as ELED 7320/6320. (Sp)</p>
	<p>SCED 7330 Internship in Supervision 1-3 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)</p>
	<p>SCED 7350 Internship in Curriculum Development 1-3 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)</p>

Course Descriptions

SCED 7500	Interdisciplinary Workshop	1-3[®]
Prerequisite: Instructor's approval. (Su)		
SCED 7810	Research Seminar	1-3[®]
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)		
SCED 7900	Independent Study	1-3[®]
Individually directed reading and conference. Departmental permission required before registration. Prerequisite: Instructor's approval. (F,Sp,Su)		
SCED 7910	Independent Research	1-3[®]
Individually directed research projects. Departmental permission required before registration. Prerequisite: Instructor's approval. (F,Sp,Su)		
SCED 7970	Dissertation	1-12[®]
Individual work on research problems in the PhD or EdD program. Prerequisite: Instructor's approval. (F,Sp,Su)		
SCED 7990	Continuing Graduate Advisement	1-12[®]
Prerequisite: Approval of instructor. (F,Sp,Su)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Science (SCI)

See *College of Science*, pages 129-130.

SCI 4300	Science in Society	2
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)		

Sociology (SOC)

See *Department of Sociology, Social Work and Anthropology*, pages 500-511.

SOC 1010	BSS Introductory Sociology	3[®]
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)		
SOC 1020	Social Problems	3
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)		
SOC 2370 (formerly SOC 2500)	Sociology of Gender	3
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)		
SOC 3010	Race, Class, and Gender	3
Examines theories and research concerning how race, class, and gender intersect in the lives of societal members. (F,Sp)		
SOC 3110	CI Methods of Social Research	3
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)		
SOC 3120	QI Social Statistics I	3
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. Prerequisite: Completion of 6 credits in departmental courses and STAT 1040 or equivalent. (F,Sp)		

SOC 3200	DSS Population and Society	3
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)		
SOC 3320	Sociology of Work and Organization	3
Stresses contribution of sociology to the understanding of industry as a social system. (Sp)		
SOC 3330	Medical Sociology	3
In-depth analysis of major contributions of sociology to field of medicine. (F)		
SOC 3410	Juvenile Delinquency	3[®]
Focuses on nature, extent, and causes of delinquent behavior. Examines workings of juvenile justice system and programs for delinquency prevention. (F,Sp)		
SOC 3420	Criminology	3
Examines theoretical explanations for crime in the U.S. Describes characteristics of major forms of criminal behavior. (F,Sp)		
SOC 3430	Social Deviance	3
Examination of sociological perspectives on deviance as they apply to lifestyles, commitment, and social control in American society. (F)		
SOC 3500	Social Psychology	3
Explores interaction between the social system and the individual. Examines human behavior in terms of positions people occupy in the social structure. (F,Sp)		
SOC 3600	Sociology of Urban Places	3
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)		
SOC 3610	DSS Rural Sociology	3
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)		
SOC 3750	Sociology of Aging	3
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)		
SOC 4010	Contemporary Sociological Theory	3
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)		
SOC 4330	Sociology of Religion	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. (F)		
SOC 4350	Political Sociology*	3
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)		
SOC 4420	CI Criminal Law and Justice	3
Sociological analysis of relationship between law and social control and social change, especially regarding law enforcement, courts, and corrections. (Sp)		
SOC 4620	DSS Sociology of the Environment and Natural Resources	3
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)		

Course Descriptions

<p>SOC 4710 Asian Societies 3 Explores history; social, economic, and political institutions; and peoples and cultures of Asian Societies. (Sp)</p> <p>SOC 4720 Applied Community Development 3 Involves a service-learning placement with an organization engaging in community development. Overview of community development models and theories, as well as the service-learning activity. Includes reflective evaluation of theories based upon the service-learning experience. (Sp)</p> <p>SOC 4730 Women in International Development 3 Examines status of women in developing countries, and the role they play in the development process. (Sp)</p> <p>SOC 4800 Seminar in Sociology 1-3® 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. (F,Sp)</p> <p>SOC 4900 Independent Readings in Sociology 1-5® 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>SOC 5100 Interpreting Social Research 3 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>SOC 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 ANTH 5130/6130. (Su)</p> <p>SOC 5640 Conflict Management in 3 (dual listing 6640) Natural Resources Introduction to conflict management techniques for those involved in natural resource management. Also taught as ENV 5640/6640. (Sp)</p> <p>SOC 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 GEOG 5650/6650. (F)</p> <p>SOC 6010 Development of Sociological Theory 3 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>SOC 6020 Modern Social Theory 3 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>SOC 6100 Advanced Methods of Social Research 3 Examines philosophical bases, techniques, and political and ethical aspects of social research. (F)</p> <p>SOC 6130 Ethnographic Field School 3-6 (dual listing 5130) 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>SOC 6150 Social Statistics II 3 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>SOC 6200 Social Demography* 3 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> <p>SOC 6230 Techniques of Demographic Analysis* 3 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>SOC 6250 Sociology Internship/Co-op 1-6 Professional level of educational work experience in an internship/cooperative education position for graduate students. (F,Sp,Su)</p> <p>SOC 6310 Sociology of Work and Occupations* 3 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>SOC 6420 Gender and Social Inequality* 3 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>SOC 6450 Special Topics in Social Problems 3® 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>SOC 6460 Sociology of Health* 3 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>SOC 6620 Environment, Technology, and Social Change* 3 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>SOC 6630 Natural Resources and Social Development* 3 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>SOC 6640 Conflict Management 3 (dual listing 5640) in Natural Resources Introduction to conflict management techniques for those involved in natural resource management. Also taught as ENV 6640/5640. (Sp)</p> <p>SOC 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 GEOG 6650/5650. (F)</p>
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Course Descriptions

SOC 6700	Advanced Rural Sociology*	3
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)		
SOC 6730	Gender and International Development*	3
Examines gender issues in economic and social development. Focuses on theory and methodologies for gender analysis. (Sp)		
SOC 6750	Social Change and Development*	3
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)		
SOC 6800	Seminar in Sociology	1-3[®]
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)		
SOC 6900	Independent Readings in Sociology	1-3[®]
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)		
SOC 6970	Thesis Research	1-12[®]
(F,Sp,Su)		
SOC 6990	Continuing Graduate Advisement	1-3[®]
(F,Sp,Su)		
SOC 7010	Issues in Sociological Theory*	3
Explores current philosophical discussions on theoretical approaches to understanding society. Examines feminist, post-structuralist, and post-modernist conceptualizations of power, knowledge, and identity. (Sp)		
SOC 7100	Advanced Survey Techniques*	3
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)		
SOC 7110	Advanced Sociological Analysis*	3
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)		
SOC 7150	Advanced Qualitative Methods in Sociology*	3
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)		
SOC 7210	Teaching Sociology	3
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)		
SOC 7250	Advanced Seminar in Social Demography*	3
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)		
SOC 7400	Perspectives on Inequality and Social Problems*	3
Examines major theoretical and empirical approaches to the sociological analysis of inequality and social problems. (F)		

SOC 7440	Crime and Society*	3
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)		
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[®]
(F,Sp,Su)		
SOC 7990	Continuing Graduate Advisement	1-9[®]
(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 is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Soil Science (SOIL)

See *Department of Plants, Soils, and Biometeorology, pages 439-472.*

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. Prerequisites: CHEM 1110, MATH 1050, or equivalents. (F,Sp)		
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)		

Course Descriptions

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 3600 Water Properties and Humankind 3
Examines properties, distribution, movement, uses, treatment, and care of our planet's most vital resource. Through examples from everyday life and case studies, explores the many implications of the physical properties of water on the natural and constructed world. (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 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. (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 even)

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)

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. (F)

SOIL 5350 Wildland Soils 3 (dual listing 6350)
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 FRWS 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 3 (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 AWER 5600/6600. (Sp)

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 3 (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 (dual listing 5050) 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 6130 Soil Genesis, Morphology, (dual listing 5130) 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 even)

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)

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. (Sp)

SOIL 6200 Biogeochemistry of Terrestrial Ecosystems 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 FRWS 6200. (F)

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 FRWS 6350/5350. (Sp)

SOIL 6400 Spatial and Temporal Estimation Methods for Environmental Sciences 2**
Introduction to methods for obtaining spatial information and interpolation schemes. Incorporation of uncertainty into dynamic models (temporal predictions). Methods and models for combining spatial and temporal information, with applications to monitoring and forecasting natural processes. (Sp)

SOIL 6550 Soils and Plant Nutrient Bioavailability (dual listing 5550) 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)

Course Descriptions

SOIL 6560 (dual listing 5560)	Analytical Techniques for the 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 6050/5050 or 6550/5550 (may be taken concurrently), or instructor's permission. (Sp)		
SOIL 6600 (dual listing 5600)	Surface Hydrologic Field Methods**	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 environments. Prerequisite: SOIL 3000 or instructor's permission. Also taught as AWER 6600/5600. (Sp)		
SOIL 6650 (dual listing 5650)	Environmental Soil Physics	3
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 6720	Chemistry of Arid Land Soils**	3
Chemical equilibria and kinetics of arid land soils. Special emphasis on solubility relationships of soil minerals and on carbonate chemistry. (Sp)		
SOIL 7200	Soil Interfacial Processes and Reactive Transport*	3
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)		
SOIL 7210	Advanced Topics in Pedology	2[®]
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)		

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

*Taught 2006-2007.

**Taught 2007-2008.

Spanish (SPAN)

See Department of Languages, Philosophy, and Speech Communication, pages 364-379.

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)		
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)		
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[®]
Taught overseas only. Communicative competencies in the four language skills: speaking, listening, reading, and writing, with exposure to cultures and customs. (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)		
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[®]
Taught overseas only. 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. (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. 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)		
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)		
SPAN 3510	Business Spanish	3
Development of communication skills in Spanish for international Hispanic business purposes. (F)		
SPAN 3520	Business Spanish Practicum	1-4[®]
Allows students of Spanish to gain practical work experience in a Hispanic Business context. 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)		
SPAN 3570 DHA	Latin American Culture and Civilization	3
Historical, social, political, economic, and cultural conditions and institutions of Latin American countries. (Sp)		
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: ENGL 1010 and 2010; SPAN 3040; and either SPAN 3550 or 3570. (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: ENGL 1010 and 2010; SPAN 3040; and either SPAN 3550 or 3570. (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: ENGL 1010 and 2010; SPAN 3040; and either SPAN 3550 or 3570. (F,Sp)		

Course Descriptions

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: ENGL 1010 and 2010; SPAN 3040; and either SPAN 3550 or 3570. (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: ENGL 1010 and 2010; SPAN 3040; and either SPAN 3550 or 3570 (or equivalents). (Su)

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: ENGL 1010 and 2010; SPAN 3040; and either SPAN 3550 or 3570 (or equivalents). (Su)

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. Prerequisite: Permission of instructor. (F,Sp,Su)

SPAN 4990 Spanish Degree Assessment 1
 Final requirement for all Spanish majors and minors, to be completed their last semester before graduation. Includes review of coursework and comprehensive exit examination, individualized according to the courses taken for the degree. Prerequisite: Permission of instructor. (F,Sp,Su)

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)

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Speech Communication (SPCH)

See Department of Languages, Philosophy, and Speech Communication, pages 364-379.

SPCH 1020 CI Public Speaking 3
(formerly SPCH 1050 CI)
 Speaking in formal public communication situations. Development of skills in speech preparation, audience adaptation, and delivery. (F,Sp)

SPCH 2110 CI Interpersonal Communication 3
(formerly SPCH 2600 CI)
 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)

SPCH 2270 Argumentation and Debate 3
(formerly SPCH 4280)
 Techniques of analysis, investigation, evidence, reasoning, brief making, refutation, and construction and delivery of the argumentative speech and academic debate. (F)

SPCH 2280 Listening 2
 Development of comprehension, critical, and relationship listening skills. Experience in developing listening training for kindergarten to adult education. (Sp)

SPCH 3000 Speech Communication Teaching Practicum 1®
 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)

SPCH 3050 DSS Technical and Professional Communication 3**
 Skill development in oral technical reporting, interviewing, and interpersonal communication to meet the unique communication requirements of business, industry, and the professions. (Su)

SPCH 3250 CI Organizational Communication 3
 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)

SPCH 3300 Clinical Experience I 1
 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)

SPCH 3330 DSS Intercultural Communication 3
 Study of how communication shapes culture and how culture, in turn, affects communication. Development of active intercultural communication in professional and personal contexts. (F)

SPCH 3400 CI Persuasion 3
 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)

SPCH 3600 Communication and Conflict 3
 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)

SPCH 4300 Clinical Experience II 1
 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)

SPCH 4800 CI Nonverbal Communication 3**
 Examination of theories, methods, and competencies relevant to studying, enacting, and perceiving gestures, facial expressions, body movements, touches, and other nonverbal cues. Investigation of environmental, cultural, and social influences on nonverbal communication in a variety of contexts.

SPCH 5000 Studies in Speech Communication 1-5®
 Study of special topics in interpersonal, small group, organizational, or intercultural communication theory and research. Prerequisite: Permission of instructor. (F,Sp)

Course Descriptions

SPCH 5090	Small Group Theory**	3
Study of theories of group processes such as decision-making, leadership, power, conflict, deviance, and the development of group structures, functions, norms, and roles.		
SPCH 5100 CI	Theories of Speech Communication	3
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)		
SPCH 5250	Environmental Rhetoric	3
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)		
SPCH 5280	Communication Education Theory**	3
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)		
SPCH 5370	Methods in Teaching Speech Communication	3
Development of materials and strategies for teaching secondary school speech communication. Prerequisite: Admission to teacher education. (F)		

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.
**Taught 2007-2008.

Special Education (SPED)

See Department of Special Education and Rehabilitation, pages 512-522.

SPED 0100	Strategies for Reading	1-3®
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. (F,Sp)		
SPED 1000	Principles of Effective Peer Teaching	2®
High school peer tutors are given university credit for tutoring low readers for one hour each day. Tutors are taught a systematic tutoring and mentoring process. In addition, specific criteria are included to evaluate tutors' instructional performance. (F,Sp)		
SPED 1010 BSS	Disability in the American Experience	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. (3 cr)		
SPED 2010	Effective Behavior Management Practices for Paraeducators	1-3®
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®
Introductory seminar and practicum from which students learn basic instructional techniques from videodisc simulations, then apply them in public schools. (F,Sp,Su)		
SPED 2790	Special Topics	1-4®
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)		
SPED 4790	Special Topics	1-4®
SPED 4910	Undergraduate Research and Creative Opportunities	1-4®
Individually directed study at the undergraduate level. Permission of instructor required. (F,Sp,Su)		
SPED 4970H	Honors Thesis	1-6®
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)		
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)		
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)		
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)		
SPED 5070	Policies and Procedures in Special Education	1-3®
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)		
SPED 5200 CI	Student Teaching in Special Education	3-15
Prerequisite: Admission to special education major or permission of instructor. (F,Sp,Su)		
SPED 5210 CI	Student Teaching in Special Education: Dual Majors	3-15
Undergraduate student teaching for dual majors. (F,Sp,Su)		
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. (F,Sp,Su)		
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		

Course Descriptions

management strategies in their classrooms. Emphasizes things to know and do on their first day(s) and first week of school. (Su)

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)

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)

SPED 5330 Eligibility Assessment for Students with Mild/Moderate Disabilities 1

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. (F)

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)

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)

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 instructional and management skills. Prerequisite: Admission to the Alternative Teacher Preparation Licensure Program. (Sp)

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)

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)

SPED 5420 Practicum: Teaching Mathematics to Students with Mild/Moderate Disabilities 4

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)

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. Prerequisite: Admission to the Alternative Teacher Preparation Licensure Program. (F)

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)

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)

SPED 5540 Assessment of Persons with Severe Disabilities 1

Seminar providing 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. As a result of this training and these assignments, students should develop increased skills in administration, interpretation, and communication of assessment activities typical of students having severe disabilities. (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)

SPED 5560 Practicum in Improving School System Programs 1-4*

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)

SPED 5600 Practicum: Introduction to Instruction of Students with Severe Disabilities 3

A field-based class providing experience in observing and teaching functional academic curricula to students with severe disabilities. Prerequisite: Permission of instructor. (F)

SPED 5610 Practicum: Advanced Systematic Instruction of Students with Severe Disabilities 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)

Course Descriptions

<p>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.</p> <p>SPED 5730 Intervention Strategies for Young Children with Disabilities 3 (dual listing 6260) Provides information on curricula, instructional strategies, service environments, and staffing roles for teachers of young children (0-5) with disabilities. (F)</p> <p>SPED 5790 Special Topics 1-4® (F,Sp,Su)</p> <p>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)</p> <p>SPED 5820 Preschool Practicum with Young Children with Disabilities in Community Environments 1-4® 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)</p> <p>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)</p> <p>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)</p> <p>SPED 5900 Independent Study 1-3® Permission of instructor required. (F,Sp,Su)</p> <p>SPED 5910 Independent Research 1-3® Permission of instructor required. (F,Sp,Su)</p> <p>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.</p> <p>SPED 6020 Design and Evaluation of Instruction 3 Presents curriculum in which diagnosis and instruction are welded as a unit into the regular teaching procedures. (Sp)</p> <p>SPED 6030 Clinical Practicum: Student Teaching 2-12 Supervised practicum in a clinical teaching setting. Prerequisite: Permission of instructor.</p> <p>SPED 6040 Functional and Augmentative Communication Approaches and Technology 3 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>SPED 6050 Issues with the Delivery of Services for Students with Dual Sensory Impairments 2 In-depth presentation of best practices for educational services for students with dual sensory impairments. (F)</p> <p>SPED 6060 Legal Issues in Special Education 3 Provides knowledge of a wide range of legal issues concerning the provision of special education services to students with disabilities. (Sp)</p>	<p>SPED 6070 Infusing Mobility and Communication for Students with Dual Sensory Impairments 2 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>SPED 6080 Collaboration and Management of Services for Students with Dual Sensory Impairments 2 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>SPED 6090 Curriculum and Environmental Variations and Management 2 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>SPED 6110 Social and Psychological Implications of Visual Impairments 2 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>SPED 6120 Ocular Disorders and Examination Techniques of Low Vision 4 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)</p> <p>SPED 6130 Literary Braille Codes and Technologies 4 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)</p> <p>SPED 6140 Nemeth Braille Codes and Braille Technologies 3 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)</p> <p>SPED 6150 Teaching Children with Dual Sensory Impairments (Deaf/Blind) 3 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>SPED 6160 Introduction to Orientation and Mobility 2 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>SPED 6170 Instructional Management for Students with Visual Impairments (0-21) 4 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</p>
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Course Descriptions

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)

SPED 6180 Field Studies in Visual Impairments 1
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)

SPED 6220 Characteristics of Children with Emotional and Behavioral Disorders 3
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)

SPED 6230 Education of Students with Emotional and Behavioral Disorders 2
Methods of teaching students with emotional and behavioral disorders, including educational strategies and behavioral treatments.

SPED 6260 Intervention Strategies for Young Children with Disabilities 3
(dual listing 5730) Provides information on curricula, instructional strategies, service environments, and staffing roles for teachers of young children (0-5) with disabilities. (F)

SPED 6280 Instructional Leadership for At-Risk Students 3
Examines theories and practices of instructional leadership for at-risk students. Instructs students in services and programs available for at-risk students. (Sp)

SPED 6290 Teaching Social Skills, Self-Management, and Values 3
Discussion of current research and practices related to teaching social skills, self-management, and values. Explores teaching procedures and curriculum programs. (Sp)

SPED 6300 Collaboration Skills for Classroom Teachers 3
Emphasizes knowledge, attitudes, and skills which special educators must possess to effectively collaborate with parents and professionals. (F)

SPED 6320 Seminars in Learning Characteristics of Students with Dual Sensory Impairments 2
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)

SPED 6410 Field Studies I: Analysis of Service for Students with Dual Sensory Impairments 2
First of three field experiences for students in the DSI program. Emphasizes team-based review and analysis of services. (F)

SPED 6420 Field Studies II: Analysis of Service for Students with Dual Sensory Impairments 2
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.

SPED 6430 Field Studies III: Analysis of Service for Students with Dual Sensory Impairments 2
Advanced practicum in integrated programs for students with dual sensory impairments. Emphasizes an overall management of instructional environment and services.

SPED 6500 Interdisciplinary Workshop 1-3®
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)

SPED 6550 Practicum in the Evaluation of Instruction 1-4®
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)

SPED 6560 Improvement of Instruction 1-4®
Focuses on effective teaching methodologies, teaching performance, and curriculum decision making. (F,Sp,Su)

SPED 6700 Single-Subject Research (dual listing 7700) Methods and Designs 3
Examines single-subject research methods for applied research, including measurement, design, and analysis issues. Also taught as EDUC 6700/7700. (F,Su)

SPED 6720 Advanced Behavior Analysis in Education (dual listing 7720) 3
Discussion of advanced topics and issues in behavior analysis, including rule-governed behavior, stimulus control, setting events, functional analysis, and verbal behavior. Topics integrated into educational practice. Prerequisite: SPED 5050 or equivalent. (F)

SPED 6790 Special Topics 1-4®

SPED 6810 Seminar in Special Education 1-3®
(F,Sp,Su)

SPED 6900 Independent Study 1-2®
Prerequisite: Permission of instructor. (F,Sp,Su)

SPED 6910 Independent Research 1-2®
Prerequisite: Permission of instructor. (F,Sp,Su)

SPED 6930 Internship in Special Education 2-10
Professional and supervised intern experience for master's program. Prerequisite: Permission of instructor. (F,Sp,Su)

SPED 6960 Creative Project 1-6®
Culminating experience of MEd program. Prerequisite: Proposal approval by supervisory committee. (F,Sp,Su)

SPED 6970 Thesis 1-9®
Culminating experience of MS program. Prerequisite: Proposal approval by supervisory committee. (F,Sp,Su)

SPED 6990 Continuing Graduate Advisement 1-8®
(F,Sp,Su)

SPED 7050 Internship in Program Evaluation 1-5®
Guided experience in evaluation of educational programs in schools, treatment centers, homes, and communities. Prerequisite: Permission of instructor. (F,Sp,Su)

SPED 7060 Research Internship 1-5®
Guided experience in conducting educational research. Prerequisite: Permission of instructor. (F,Sp,Su)

SPED 7070 Grant Writing 1-3®
Guided experience in preparation of grant proposals. Permission of instructor required. (F,Sp,Su)

SPED 7330 Supervision Internship 1-5®
Guided experience in supervising undergraduate and master's students during practica, student teaching, and other field experiences. (F,Sp,Su)

SPED 7340 College Teaching Internship 1-3®
Guided experience in teaching university courses. (F,Sp,Su)

SPED 7500 Interdisciplinary Workshop 1-3®
Workshop on current interdisciplinary issues and topics in special education and related fields. (F,Sp,Su)

Course Descriptions

SPED 7700 (dual listing 6700)	Single-Subject Research Methods and Designs	3
Examines single-subject research methods for applied research, including measurement, design, and analysis issues. Also taught as EDUC 7700/6700. (F,Su)		
SPED 7710	Advanced Single-Subject Research Methods and Design	3
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)		
SPED 7720 (dual listing 6720)	Advanced Behavior Analysis in Education	3
Discussion of advanced topics and issues in behavior analysis, including rule-governed behavior, stimulus control, setting events, functional analysis, and verbal behavior. Topics integrated into educational practice. Prerequisite: SPED 5050 or equivalent. (F)		
SPED 7800	Seminar: Issues in Special Education and Rehabilitation	1-3®
Critical analysis of variety of special education and rehabilitation issues and trends. Empirical and theoretical information presented in a seminar format. (F,Sp,Su)		
SPED 7810	Research Seminar in Special Education and Rehabilitation	1-3®
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®
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®
Prerequisite: Permission of instructor. (F,Sp,Su)		
SPED 7910	Independent Research	1-3®
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®
Professional, supervised internship experience for doctoral students. Prerequisite: Permission of instructor. (F,Sp,Su)		
SPED 7940	Journal Reading Group	1-2®
Seminar discussion of recent empirical and theoretical journal articles in special education and related fields. (F,Sp,Su)		
SPED 7970	Dissertation	1-15®
Variable credit for dissertation project in connection with doctoral program in special education. (F,Sp,Su)		
SPED 7990 (F,Sp,Su)	Continuing Graduate Advisement	1-9®

®Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Statistics (STAT)

See Department of Mathematics and Statistics, pages 388-399.

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: Math ACT score of 19 or greater, C- or better in MATH 1010, or 70 percent or greater on MATH 1050 placement test. (F,Sp,Su)		
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. (F,Sp)		
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. (F,Sp,Su)		
STAT 2950	Directed Reading and Conference	1-3®
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)		
STAT 4250	Advanced Internship/Co-op	1-6®
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. (F,Sp)		
STAT 4950	Directed Reading and Conference	1-3®
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)		
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)		
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 (dual listing 6410)	Applied Spatial Statistics	3
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		

Course Descriptions

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
Explores the bioconductor project. Discusses the following topics in gene expression analysis: microarray experiments, data normalization, sources of variability, testing for differential expression, multiple testing issues, and cluster analysis. Also explores the following sequence analysis topics: scoring alignments, hidden Markov models, and phylogenetic trees. Considers databases and ontologies. 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)

STAT 5810 Topics in Statistics 1-3®
STAT 5820 Topics in Statistics 1-3®
Prerequisite: Consent of instructor. (F) (Sp)

STAT 5890 CI Problem Solving in Statistics 3
Capstone course for Statistics majors, applying course material covered in the undergraduate major. Prerequisite: Permission of instructor. (Sp)

STAT 5940 Directed Reading and Conference 1-3®
Prerequisite: Prior arrangement with specific instructor. (F,Sp,Su)

STAT 5950H Senior Honors Project 1-4
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)

STAT 5970 Seminar 1-3®
Review of current literature and developments in the field of statistics. (F,Sp)

STAT 6100 Advanced Regression Analysis* 3
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)

STAT 6180 Time Series 3
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.

STAT 6190 Wavelet Methods for Time Series 3**
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)

STAT 6200 Analysis of Unbalanced Data and Complex Experimental Designs* 3
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)

STAT 6250 Graduate Internship/Co-op* 1-8®**
Educational work experience at the graduate level. Prerequisite: Permission of instructor.

STAT 6410 Applied Spatial Statistics 3
(dual listing 5410)
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 6530 Modern Nonparametric Statistics 3**
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)

STAT 6550 Statistical Computing* 3**
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 STAT 5110, MATH 5720, and knowledge of a programming language. (Sp)

STAT 6560 Graphical Methods* 3**
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)

STAT 6600 Multivariate Analysis 3
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 and concurrent enrollment in STAT 5110. This course is not currently being offered. For information about when it may be offered, contact the department.

STAT 6650 Statistical Learning: Multivariate Statistical Analysis for Bioinformatics, Data Mining, and Machine Learning 3**
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 *strongly recommended*. (F)

STAT 6710 Mathematical Statistics I 3
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)

STAT 6720 Mathematical Statistics II 3
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)

STAT 6810 Topics in Statistics (Topic)* 3®**
STAT 6820 Topics in Statistics (Topic)* 3®**
Prerequisite: Permission of instructor. (F) (Sp)

STAT 6890 Practical Statistical Consulting* 1-3®**
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)

STAT 6910 Seminar in Statistics* 1-3®**
Review of current literature and developments in statistics. Prerequisite: Permission of instructor. (F,Sp)

STAT 6950 Directed Reading and Conference* 1-4®**
Prerequisite: Prior arrangement with specific instructor. (F,Sp,Su)

STAT 6970 Thesis and Research 1-6®
Outlining and conducting research in statistics. Thesis preparation. (F,Sp,Su)

STAT 6990 Continuing Graduate Advisement 1-9®
(F,Sp,Su)

Course Descriptions

STAT 7110	Linear Models (Topic)***	3[®]
STAT 7120	Linear Models (Topic)***	3[®]
(F) (Sp)		
STAT 7180	Time Series Analysis (Topic)***	3[®]
STAT 7190	Time Series Analysis (Topic)***	3[®]
(F) (Sp)		
STAT 7210	Experimental Design (Topic)***	3[®]
STAT 7220	Experimental Design (Topic)***	3[®]
(F) (Sp)		
STAT 7310	Business and Industrial Statistics (Topic)***	3[®]
STAT 7320	Business and Industrial Statistics (Topic)***	3[®]
(F) (Sp)		
STAT 7510	Nonparametric Statistics (Topic)***	3[®]
STAT 7520	Nonparametric Statistics (Topic)***	3[®]
(F) (Sp)		
STAT 7550	Computational and Graphical Statistics (Topic)***	3[®]
STAT 7560	Computational and Graphical Statistics (Topic)***	3[®]
(F) (Sp)		
STAT 7610	Multivariate Statistics (Topic)***	3[®]
STAT 7620	Multivariate Statistics (Topic)***	3[®]
(F) (Sp)		
STAT 7710	Mathematical Statistics (Topic)***	3[®]
STAT 7720	Mathematical Statistics (Topic)***	3[®]
(F) (Sp)		
STAT 7730	Bayesian Statistics and Decision Theory (Topic)***	3[®]
STAT 7740	Bayesian Statistics and Decision Theory (Topic)***	3[®]
(F) (Sp)		
STAT 7810	Topics in Statistics (Topic)	1-3[®]
STAT 7820	Topics in Statistics (Topic)	1-3[®]
(F) (Sp)		
STAT 7970	Dissertation Research	1-15[®]
(F,Sp,Su)		
STAT 7990	Continuing Graduate Advisement	1-9[®]
(F,Sp,Su)		

[®] Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

© This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

*Taught 2006-2007.

**Taught 2007-2008.

***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 500-511.

SW 1010	Introduction to Social Welfare	3
(formerly SW 1050)		
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)		

SW 2100	Human Behavior in the Social Environment	3
(formerly SW 2500)		
Interrelatedness of social, cultural, and environmental factors that combine with biological and psychological components to mold human behavior. Relevance of these factors to generalistic social work practice. Prerequisite: SW 1010. (Sp)		
SW 2400	Social Work with Diverse Populations	3
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)		
SW 3050	Practice I	3
Introduction of generalist social work framework as integrative tool, with special attention shown to strengths and empowerment perspective. Individuals as targets for change. Prerequisite: Admission to social work bachelor's program, SW 1010, 2100, 2400. (F)		
SW 3350	Child Welfare	3
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.		
SW 3360	Adolescents: Theories, Problems, and Issues	3
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.		
SW 3450	School Social Work*	3
Overview of social work practice in an educational setting.		
SW 3550	Social Gerontology*	3
Overview of field of aging and its connection to the practice of social work.		
SW 3650	Mental Health	3
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.		
SW 3750	Medical Social Services	3
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.		
SW 3850	Spirituality and Social Work*	3
Provides a framework of knowledge, values, skills, and experiences for spiritually sensitive social work practice.		
SW 3950	Occupational and Environmental Health*	3
Overview of the issues of occupational and environmental health from a public policy and psycho social perspective. Presents issues concerning industrial and environmental hazards relating to occupational injury and illness. Explores policies addressing these issues, as well as legislation and social problems.		
SW 4100	Social Work Research	3
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)		
SW 4150	Practice II	3
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)		
SW 4160	Practice III	3
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)		

Course Descriptions

SW 4870 Beginning Field Practicum 6®
 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)

SW 4900 Topical Issue Seminar 3-6®
 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. The following topics are offered: school social work, crisis intervention strategies, special topics in aging, and occupational and environmental health. Prerequisites: SW 1010, 2100, 2400, and permission of instructor.

SW 4950 Directed Readings 1-5®
 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)

SW 5350 CI Social Welfare Policy 3
 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)

SW 5870 Advanced Field Practicum 6®
 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)

*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.

Theatre Arts (THEA)

See Department of Theatre Arts, pages 523-533.

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 (formerly THEA 1010 BCA)
 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)

THEA 1023 BCA Introduction to Film 3 (formerly THEA 1020 BCA)
 Study of elements of film narrative in fictional and nonfictional movies to provide a deeper understanding of content and film form. (F)

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 (formerly THEA 1400)
 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 (formerly THEA 1450)
 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 (formerly THEA 1530)
 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 3
 Introductory, experiential course in movement styles, including Laban Movement Analysis, Alexander Technique, Feldenkrais, Grotowski, and others. 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 (formerly THEA 1500)
 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 (formerly THEA 1210)
 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 3
 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 3
 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)

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/Properties 3
 Instruction in scene painting techniques. Construction and alteration of stage properties. 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)

Course Descriptions

<p>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)</p> <p>THEA 2555 Production Practicum (formerly THEA 2750) 1® Specialized crew work in ongoing Theatre Arts Department productions. Assignments made upon meeting with technical director. (F,Sp,Su)</p> <p>THEA 2556 Production Run Crew (formerly THEA 2750) 1 Specialized crew work for Theatre Arts Department productions. Assignments made upon meeting with technical director. (F,Sp,Su)</p> <p>THEA 2560 Theatre and Studio Sound 3 Sound recording, reinforcement, and control operation skills for theatrical production. (F,Sp)</p> <p>THEA 2666 Performance Practicum I (formerly THEA 2740) 1® Performance work in ongoing Theatre Arts Department productions, upon casting by the director. (F,Sp)</p> <p>THEA 2667 Performance Practicum II (formerly THEA 2740) 1® Performance work in ongoing Theatre Arts Department productions, upon casting by the director. (F,Sp)</p> <p>THEA 3050 DHA Period Styles/Historic Interiors 3 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. (Sp,Su)</p> <p>THEA 3230 DHA Survey of Western Theatre 3 History of performance traditions, theatre architecture, management systems, personnel, and written drama in the West from ancient Egypt to mid-20th Century. (F)</p> <p>THEA 3300 Clinical Experience in Teaching I 1 Clinical apprenticeship consisting of teaching theatre in local schools. Includes observation, tutorial work, small group discussions, whole class instruction, and lesson/unit planning. (F,Sp)</p> <p>THEA 3400 Mask Building and Performance 3 History and practical experience in mask building and performance, including neutral mask, commedia, alternative identities, human, animal, phantasmagoric, and other mask techniques. Emphasizes expressing emotion and developing character through gesture and posture. Prerequisite: THEA 1430. (F,Sp)</p> <p>THEA 3410 Dance for Theatre: Tap 3 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)</p> <p>THEA 3420 Dance for Theatre: Jazz 3 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)</p> <p>THEA 3430 Period Dance Styles 3 Dances learned from different periods then "re-choreographed" for stage practice. Prerequisite: THEA 1430. (F,Sp)</p> <p>THEA 3440 Dance for Theatre: Ballet 3 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)</p> <p>THEA 3450 Dialects 3 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)</p>	<p>THEA 3510 Scene Design 3 Preparation for designing sets used in theatre. Development of skills in drafting, rendering, model-making, research, and portfolio development. Prerequisite: THEA 1513. (F,Sp)</p> <p>THEA 3520 Stage Costume Design 3 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)</p> <p>THEA 3570 DHA Historic Clothing 3 Historic survey of development of clothing from ancient Egyptians to the present day. (F,Su)</p> <p>THEA 4030 DHA Storytelling (dual listing 6030) 3 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)</p> <p>THEA 4250 Playwriting 3 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. (F)</p> <p>THEA 4300 Clinical Experience in Teaching II 1 Clinical apprenticeship of teaching theatre in local schools, including observation, tutorial work, small group discussions, whole class instruction, and lesson/unit planning. Prerequisite: THEA 3300. (F)</p> <p>THEA 4330 Drama and Theatre for Youth: Grades K-6 (dual listing 6330) 3 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)</p> <p>THEA 4400 Company Workshop 3® Company workshop of theatrical productions emphasizing process and instruction. Supervised rehearsals, technical preparation, and public performances. Prerequisite: Permission of instructor. (F,Sp)</p> <p>THEA 4450 Advanced Voice for Theatre 3 Advanced vocal training includes units in microphone technique, radio drama, classical Greek theatre, and vocal improvisation. Prerequisites: THEA 1113 and 2480. (Sp)</p> <p>THEA 4480 Theatre Leadership and Management (dual listing 6480) 3 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)</p> <p>THEA 4510 Advanced Scene Design (dual listing 6510) 3 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)</p> <p>THEA 4520 Advanced Costume Design (dual listing 6520) 3 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)</p>
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Course Descriptions

<p>THEA 4540 Advanced Lighting Design 3 (dual listing 6540) 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)</p> <p>THEA 4740 Advanced Performance Practicum I 1-2® Advanced performance work in ongoing Theatre Arts Department productions, upon casting by the director. Director will assign credits. (F,Sp)</p> <p>THEA 4750 Advanced Production Practicum 1-3® 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)</p> <p>THEA 4840 Advanced Performance Practicum II 1-2® Advanced performance work in ongoing Theatre Arts Department productions, upon casting by the director. Director will assign credits. (F,Sp)</p> <p>THEA 4850 Advanced Production Projects 1-3® Specialized practical experience for Theatre Arts Department productions. Assignments made in conjunction with the technical director. (F,Sp,Su)</p> <p>THEA 5240 DHA/CI Contemporary Theatre 3® (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>THEA 5250 Playwriting Company Workshop 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)</p> <p>THEA 5270 DHA Performance Theory and Criticism 3® (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>THEA 5290 Special Topics in Theatre 3® (dual listing 6290) 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)</p> <p>THEA 5310 Theatre Mentorship and Service 1-3® 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>THEA 5340 Theatre Production Methods 3 for Educators Specialized practical instruction in technical methods and theatre production for education majors. Required for students in the Theatre Education Emphasis. (Sp)</p> <p>THEA 5360 Drama in the Secondary Education 3 (dual listing 6360) 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)</p> <p>THEA 5370 Methods in Teaching Theatre and Speech 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>THEA 5390 Student Teaching Seminar 2 Focuses on problems arising during student teaching. Includes plans, procedures, adaptive classroom strategies, and evaluation. (F,Sp)</p> <p>THEA 5400 Advanced Acting: Turn of 3® the Twentieth Century Scene study from turn of the century playwrights, including Ibsen, Chekhov, Shaw, and Wilde. Prerequisites: THEA 1033; and THEA 2420 or 2490. (F,Sp)</p> <p>THEA 5410 Advanced Directing 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>THEA 5420 Advanced Acting: Absurdist 3 Theatre absurdist: nontraditional acting approaches to nontraditional texts. Includes scene study from the plays of Pinter, Mamet, Brecht, and Ionesco. Prerequisites: THEA 1033; and THEA 2420 and 2490. (F,Sp)</p> <p>THEA 5430 Advanced Acting: Acting for the Camera 3 Acting for the camera. Prerequisite: THEA 1033. (F,Sp)</p> <p>THEA 5440 Advanced Acting: Musical 3 Theatre Auditions Introduction to techniques of musical theatre auditions. Prerequisites: THEA 1033; and THEA 2420 or 2490. (F,Sp)</p> <p>THEA 5450 Advanced Acting: Restoration and Greek 3 Scene study from the Restoration and Greek playwrights, including Congreve, Euripides, Sophocles, and Vanbrugh. Prerequisites: THEA 1033; and THEA 2420 or 2490. (F,Sp)</p> <p>THEA 5470 Advanced Acting: Modern Methods 3 Twentieth Century acting techniques, methodologies, and theories. Prerequisites: THEA 1033; and THEA 2420 or 2490. (F,Sp)</p> <p>THEA 5510 Computer-Aided Design for Theatre 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>THEA 5590 Design Studies for Theatre 2 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>THEA 5740 Repertory Theatre Performance 2-8® (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>THEA 5750 Repertory Theatre Production 2-8® (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>THEA 5900 Special Projects I 1-4® Directed individual research studies or creative projects in theatre. (F,Sp,Su)</p> <p>THEA 5910 Senior Project 2 Culminating project and/or recital in student's specified program. (F,Sp)</p> <p>THEA 5920 Special Projects II 1-4® Directed individual research, advanced design, or creative projects in theatre. (F,Sp,Su)</p> <p>THEA 5930 Special Projects III 1-4® Directed individual advanced design or creative projects in theatre. (F,Sp)</p>
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Course Descriptions

<p>THEA 5950 Rendering and Painting for the Theatre 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>THEA 6010 Introduction to Graduate Study in Theatre 3 Bibliography, research methods, and writing. (F)</p> <p>THEA 6030 Storytelling 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)</p> <p>THEA 6180 Theatre Production Portfolio 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> <p>THEA 6240 Contemporary Theatre 3[®] (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)</p> <p>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)</p> <p>THEA 6270 Performance Theory and Criticism 3[®] (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)</p> <p>THEA 6290 Special Topics in Theatre History and Literature 3[®] (dual listing 5290) 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>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)</p> <p>THEA 6360 Drama in the Secondary Education Classroom: Grades 7-12 3 (dual listing 5360) 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>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)</p>	<p>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)</p> <p>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)</p> <p>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)</p> <p>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)</p> <p>THEA 6740 Repertory Theatre Performance 2-8[®] (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)</p> <p>THEA 6750 Repertory Theatre Production 2-8[®] (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)</p> <p>THEA 6790 Seminar in Drama 1-4[®] Flexible service topics course covering a range of topics according to individual student need and/or visiting instructors, independent study, etc. (F,Sp)</p> <p>THEA 6800 Graduate Studies in Theatre 1-6[®] Research and preparation for graduate practicum projects in theatre. (F,Sp)</p> <p>THEA 6900 Research Studies 1-4[®] Directed individual research studies or creative projects in theatre. (F,Sp,Su)</p> <p>THEA 6920 Graduate Projects in Theatre 2-3[®] Studio practicum in support of projects in stage directing, design, and technical practice. (F,Sp)</p> <p>THEA 6970 Thesis 1-4[®] (F,Sp)</p> <p>THEA 6990 Continuing Graduate Advisement 1-2[®] (F,Sp)</p>
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[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

Course Descriptions

University Studies (USU)

See *General Education Requirements*, pages 49-51.

Also see *University Studies Depth Education Requirements*, pages 52-57.

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. Taught during the first seven weeks of fall or spring semester. **Note:** USU 1000 *cannot* be counted toward the breadth requirements. (F,Sp)

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. (F,Sp)

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)

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)

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)

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)

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)

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.

USU 3330 DHA Arts Symposium 1-2[®]

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.

[®]Repeatable for credit. Check with major department for limitations on number of credits that can be counted for graduation.

[©]This course is also offered by online correspondence and/or CD through Continuing Education Time Enhanced Learning.

Watershed Sciences (WATS)

See *Department of Watershed Sciences*, pages 535-540.

The WATS course prefix will not be used until Spring Semester 2007. For Fall Semester 2006, these courses will continue to use the Aquatic, Watershed, and Earth Resources (AWER) prefix. For AWER course descriptions, see pages 566-568.

Women and Gender Studies (WGS)

See *Women and Gender Studies*, page 548.

WGS 1010 Introduction to Women and Gender Studies 3

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)

WGS 2010 Women and Leadership 3

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)

WGS 4550 DHA/CI Women and Gender in America 3

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)

WGS 4900 Directed Study: Women and Gender Studies 1-3[®]

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)

[®]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 541-547.

The WILD course prefix will not be used until Spring Semester 2007. For Fall Semester 2006, these courses will continue to use the Forest, Range, and Wildlife Sciences (FRWS) prefix. For FRWS course descriptions, see pages 630-632.

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